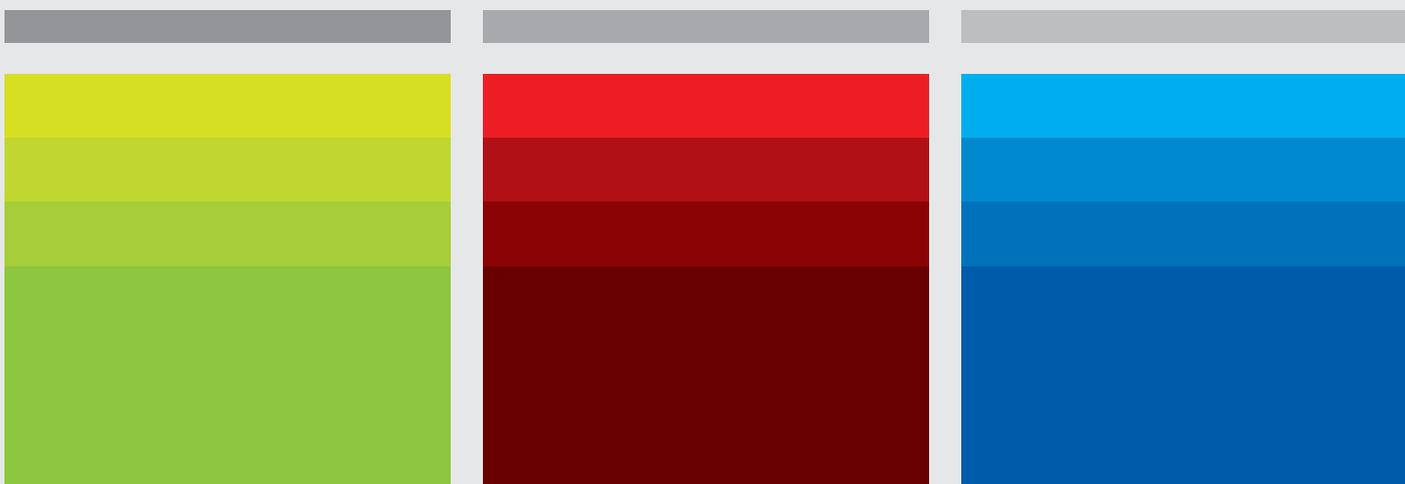


Smart Specialisation Strategy of Galicia

RIS3

OVERVIEW



The Strategy

page 03

CHALLENGE 1

The innovative management of natural and cultural resources

- 1 Valuation of marine resources. **page 06**
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The future industrial model of Galicia

- 1 Diversification of driving industrial sectors. **page 12**
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CHALLENGE 3

A new healthy lifestyle model based on active ageing

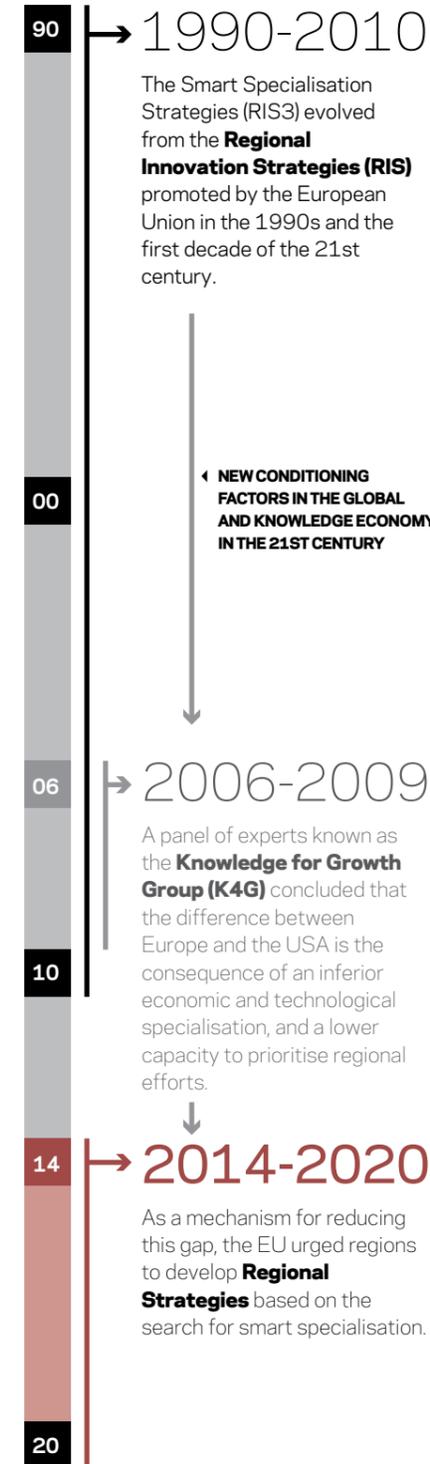
- 1 Active ageing. **page 16**
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The Strategy

Why it was done



What was done



Smart specialisation is a strategy for achieving **competitiveness, economic growth and sustainable and quality employment by means of innovation.**

↓
 Galicia has a wide range of unique features that imply differential challenges in a global context, hence opportunities to generate new products and competitive services on the international market.

- ← **PRIORITISATION OF AREAS FOR DEVELOPMENT**
- ← **INTER-SECTOR COOPERATION**



- Achieve **comparative advantages** by considering strengths in a global context.
- Build up **competitive advantages** by promoting priority choices.
- Make the most of relations between the most powerful sectors in order to **diversify and develop new technological domains.**

↓
 The strengths of **RIS3 in Galicia** are identified as comparative and competitive advantages and the capacity for diversification. In this context innovation is the means for boosting **endogenous sectors** (related to natural and heritage resources) and **driving sectors** (those which predominate in the GDP of Galicia).

What for

1 TO CONTINUE RECEIVING EUROPEAN STRUCTURAL FUNDS

The EU decided to base its cohesion policies for the period 2014-2020 on RIS3. All regions have to establish their strategies as a pre-requisite for enjoying access to the European Regional Development Fund (ERDF) and the European Agricultural Fund for Rural Development (EAFRD).

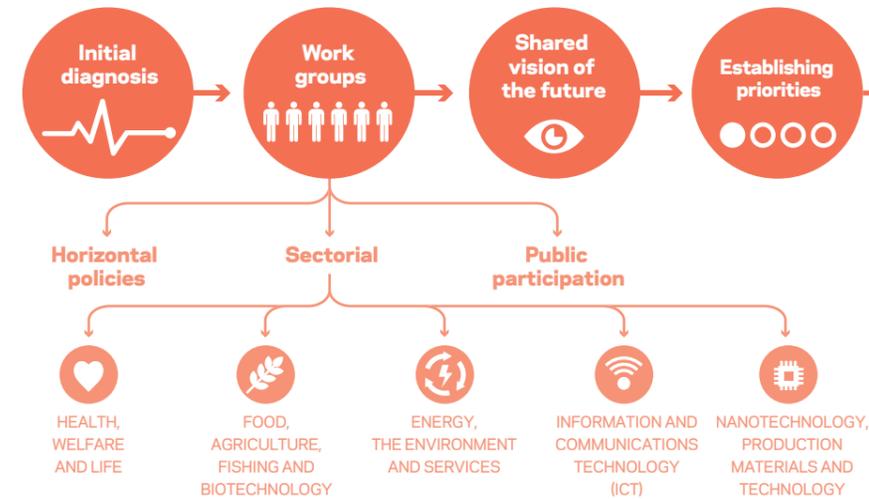
2 TO BUILD NEW GALICIAN POLICIES FOR SOLID INNOVATION

Far from being an administrative requisite, RIS3 is an opportunity for Galicia to improve its public and private innovation policies, since the competitiveness and growth of the Galician economy as a whole depend to a great extent on these strategies.

How it was done

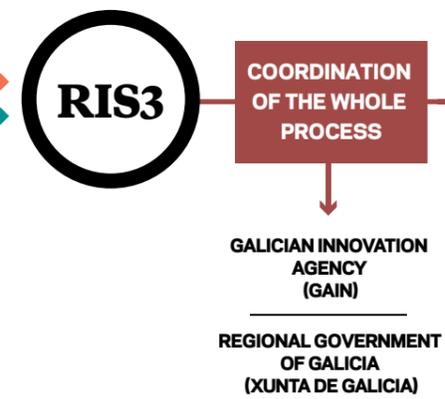
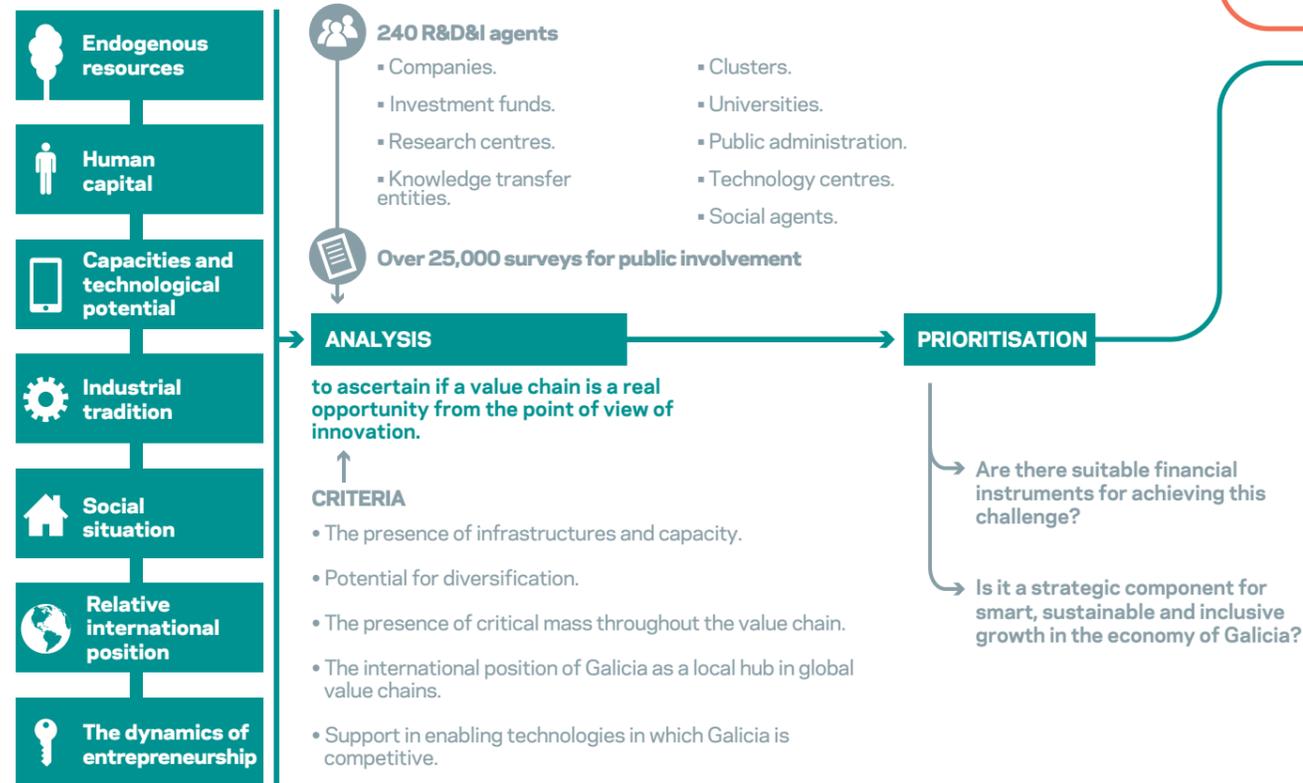
How it was done

METHODOLOGY



THE VALUE CHAIN

The challenges were evaluated against the whole value chain.



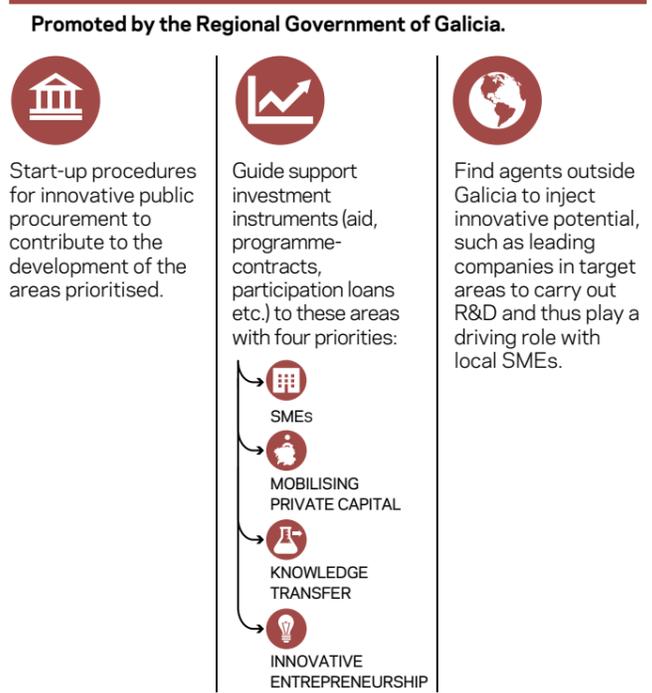
CHALLENGES



PRIORITIES



SUPPORT INSTRUMENTS AND POLICIES



Programmes related to challenges and priorities page 19



CHALLENGE 1

The innovative management of natural and cultural resources

Galicia is a land of natural wealth and unlimited heritage. Its coasts, forests and fields contain an enormous biodiversity and its culture is rich and unique, which means that the use of all these

natural resources is the undeniable mainstay of the Galician economy and society. This reality and the other exciting challenges still to be taken on, mean

that **the sea, the countryside and the forests, together with energy and tourism**, are the main players in the first great challenge in the Smart Specialisation Strategy of Galicia.

The first great challenge in the Smart Specialisation Strategy of Galicia is the **modernisation of traditional business activities in the primary sectors through innovation**. The use of maritime, agricultural, forest and tourism resources will be more profitable and efficient by improving competitiveness in current uses and searching for alternatives with a high added value.

PRIORITY Valuation of maritime resources.

The starting point

The fishing sector is considered as one of the main driving forces in the Galician economy, because of both its social dimension and its economic importance. Over 52% of Spaniards who make a living from fishing work in Galicia, i.e., 10% of the sector in the European Union.



THE INNOVATIVE MANAGEMENT OF NATURAL AND CULTURAL RESOURCES

Opportunity

Maintaining and increasing the strength of the fishing sector in Galicia for the future means looking for productive solutions for the waste it produces, which is not only an environmental necessity, but also an opportunity to develop new competitive products on the international market. For example, 40-50% of the raw materials from the processing industry become waste products and these could be turned into high added-value innovative products.

Target

To enhance the value of by-products and wastes from sea-based activities such as discards and wastes from the processing industry. The ways to do this are:

- Find more efficient ways of harvesting, concentrating and transporting fishing by-products and waste.
- Make the most of waste from the sea to generate biofuels.
- Develop new cosmetics, food additives and pharmaceuticals from proteins, pigments, oils, vitamins, minerals and enzymes from maritime resources.
- Optimise the capacities of companies, in particular of SMEs, to achieve knowledge aimed at developing these innovations, both individually and collaboratively.
- Promote the setting up of new companies and business models based on these lines of activities, capable of creating economic growth for Galicia.
- Improve the production and sale of goods and services linked to the current use of by-products and waste from the sea.

THE INNOVATIVE MANAGEMENT OF NATURAL AND CULTURAL RESOURCES

PRIORITY **Modernisation of aquaculture.**

The starting point

Aquaculture in Galicia is the undeniable leader in Spain, at 80% of total production. Moreover, two out of every ten fish farmed in the European Union come from fish farms in Galicia. Half the turbot grown in the whole world is farmed here.

Opportunity

Galicia has the potential to become an international benchmark in the fish farming industry not only in production but also in innovation.

Target

Modernisation of aquaculture to generate new products and services based on technology; mainly through the use of biotechnology know-how and ICT. This implies:

- Promoting diversification by exploring the farming of new species in aquaculture by means of advanced technology and seeking innovative formulae to present and sell products.
- Applying biotechnology to become more efficient in the production and use of water, in order to better manage waste and optimise feeding and the fight against fish pathologies.
- Finding ICT solutions to reinforce brand image and added value by providing information about the quality and safety of aquaculture products.



THE INNOVATIVE MANAGEMENT OF NATURAL AND CULTURAL RESOURCES

PRIORITY **Modernisation of the agricultural and livestock, fishing and forest sectors.**

The starting point

The strength of the primary sector in Galicia has a clear reference point in employment data: one out of every two sea workers is based at a Galician port, while the Galician countryside accounts for 7% of employment in the region, which is double the national average. As for forests, half of the wood produced in Spain comes from Galicia.

Opportunity

The future of the fishing and the agricultural and livestock sectors depends on increasing technological intensity so that it becomes more competitive, which will mean that the small size of most of the companies will not be a hindrance for retaining talent and absorbing new knowledge. In the forest sector, there is great potential to increase productivity; with the resources that exist in Galicia, it could be double what it is at present.

Target

Modernisation of the agriculture and livestock, fishing and forest sectors to make them more efficient and profitable, and to generate innovative products and services. The action related to this target consists of:

- Optimising the sustainable use of energy, water and all resources related to primary sector activities (phytosanitary, fertilizers, etc.).
- Improving control of environmental risks and of water and air pollution arising from greenhouse gases.
- Moving forwards in the integrated struggle against plagues and disease.
- Designing formulas to increase the surface area of farming, improving their economic management, creating new products and opening up new channels for sales.



THE INNOVATIVE MANAGEMENT OF NATURAL AND CULTURAL RESOURCES

PRIORITY

Improvements in obtaining energy from natural resources.

The starting point

Galicia is a privileged location for the production of clean energy and for making the most of all the potential available in forest and sea resources. Apart from being the first region in Spain in capacity to produce forest biomass, the shoreline and ocean winds position Galicia as the leading region for producing marine energy. The average wave power (40 KW/h) is the optimum scenario for obtaining wave energy, while the wind levels, together with the possibilities for the industrial development of Galicia as a manufacturer of wind towers, paint a promising picture for the future of offshore wind energy.

Opportunity

The first major opportunity for Galicia in the field of energy lies in taking advantage of biomass from the forest sector, a source of wealth for the countryside which in addition to creating employment will contribute to clearing the forests. As other sources of energy, we could add energy from waves and currents, wind at sea and the use of seaweed as biofuel. These new market niches not only contribute to improving the self-sufficiency of Galicia in terms of energy, but are also a significant opportunity for the diversification of industries such as the ship-building sector.

Target

Diversification of the energy sector in Galicia through exploitation of natural resources to produce energy, in particular biomass production, wave energy, offshore wind towers and maritime biofuels. The areas for improvement are numerous:

- Innovating in equipment and technology to harvest, treat, use and take advantage of forest biomass.
- Researching highly efficient formulas to produce and process fuels, including the design of new boilers.
- Finding more efficient methods for the distribution logistics of these fuels.
- Designing systems to enable the extraction of large amounts of energy from waves and currents, and also from ocean wind, thanks to offshore wind farms.
- Making the most of knowledge and skills synergies with other sectors in Galicia such as the ship-building and electricity sectors, to export to other countries where energy is a business opportunity.



THE INNOVATIVE MANAGEMENT OF NATURAL AND CULTURAL RESOURCES

PRIORITY

Modernisation of the tourism sector and the cultural industries by means of ICT.

The starting point

Over 135,000 people work in the tourism sector in Galicia. This accounts for 11.5% of all employment in the region, while the national average is 7%. Furthermore, tourism accounts for over 10% of the Gross Domestic Product (GDP) of Galicia.

Opportunity

Food, wine, nature, spas, marinas and culture, with the Pilgrims' Way to Santiago at the head, are hugely valuable resources for consolidating a different and high-quality tourism supply. Information and communications technology (ICT) are a tool for generating new products and services thanks to digital content and new applications based on offer of cultural heritage and tourism.

Target

In order to achieve a competitive position in Europe, the target is to modernise the tourism sector and the cultural industries by means of ICT, a top-class enabling technology given its capacity to increase productivity in any sector by over 40%. The lines for action would be:

- Creating new economic activities that result in innovative tourism and cultural products with an international dimension.
- Developing mobile applications so that the most demanding travellers can access specialised content on the heritage, culture and gastronomy of Galicia.
- Opening up new channels committed to direct sales in order to increase competitiveness.





CHALLENGE 2

The future industrial model of Galicia

Galicia has a deeply-rooted and consolidated industry in sectors such as **automobiles, ship-building, textiles, stone, iron and steel, food, timber processing and logistics.**

Almost 20% of the Gross Domestic Product of Galicia comes from industrial activity, four percent above the national average. Its importance in the economy and

society of Galicia, and above all, its potential to become more competitive and diversified mean that the manufacturing industry is one of the main players in the Smart Specialisation Strategy of Galicia.

The Smart Specialisation Strategy of Galicia has chosen **increasing competitiveness in the most significant industries in the regional economy** as one of its three major challenges. The ways to achieve this are by increasing technological intensity, diversification, specialisation and innovation in processes and products. In this regard, **enabling technologies (especially ICT) and hybridisation (the search for synergies and knowledge shared among related sectors) will play an essential role.**

PRIORITY

Diversification of driving industrial sectors.

The starting point

Employment and turnover in the sectors with the greatest driving capacity in the industrial scenario in Galicia are very significant, both for the economy of Galicia and in the national context, and in some cases, even worldwide:

- The automobile industry employs over 19,000 people, and with an annual turnover of €6,100 Million, accounts for 12% of the Galician GDP and 15% of nationwide production.
- Ship building in Galicia accounts for 7% of the European Union total and 1% of the worldwide total. Over 2,000 companies make up this sector, and include 45% of Spanish shipyards. Over 10,000 employees account for 10% of industrial employment in Galicia.
- The textile sector in Galicia employs 13,500 people directly in over 1,600 companies. The annual turnover is €7,500 Million, 14% of the GDP in the region.
- The natural stone sector accounts for 5% of industrial employment in Galicia, with over 6,000 employees. 70% of stone slabs produced in Spain comes from Galicia - the country is the world's largest producer of this variety. As far as granite is concerned, the region is the second largest producer in Europe and the fifth largest in the world.
- Apart from the clearly industrial sectors, the public authorities play a significant driving role because of their expenditure and employment - over 200,000 employees, or 23% of the total employment in the region.

THE FUTURE INDUSTRIAL MODEL OF GALICIA

Opportunity

In order to keep on growing, these and other strategic industrial sectors, including auxiliary ones, should make the best possible use of the opportunities provided by technology. In this regard, the transformation of traditional industry into more advanced models depends to a large extent on its capacity to reinvent itself, and take advantage of alternative market niches in accordance with the new global context.

Target

Diversification of activity in the industrial sectors that play a lead role in the economy of Galicia and implementation of measures that promote a change in company direction - especially SMEs with a medium to low technological capacity - in order to favour business models based on innovation and technology. In turn, the involvement of the existing business fabric in the knowledge economy will help create a sustainable framework to flourish and consolidate entrepreneurial discovery. The ways to do this are:

- Incorporate enabling technologies (ICT, nanotechnology, micronanoelectronics, advanced materials, photonics, industrial biotechnology and advanced manufacturing) into business processes to detect new business opportunities, optimise customer orientation and make better use of sales channels.
- Apply the use of smart materials to the manufacturing of vehicles and fabrics to get the edge over the competition and access new markets.
- Make the most of the experience of the auxiliary sectors in ship building and automobiles, mainly iron and steel, to access high-technology industries such as aeronautics and aerospace.
- Promote collaboration between companies, knowledge centres and the public authorities to innovate the design of advanced services from the public sector to citizens.
- Innovate with transport of the future, with smart, eco-efficient, sustainable and recyclable vehicles.

THE FUTURE INDUSTRIAL MODEL OF GALICIA

PRIORITY Improving industrial competitiveness.

The starting point

The industrial sectors in Galicia have a significant home-based niche for developing technologies capable of improving their competitiveness. Over 2,000 companies in Galicia work in ICT, which can increase productivity in any sector by over 40%. Moreover, production technologies developed in Galicia are now beginning to contribute to what will be the factory of the future.

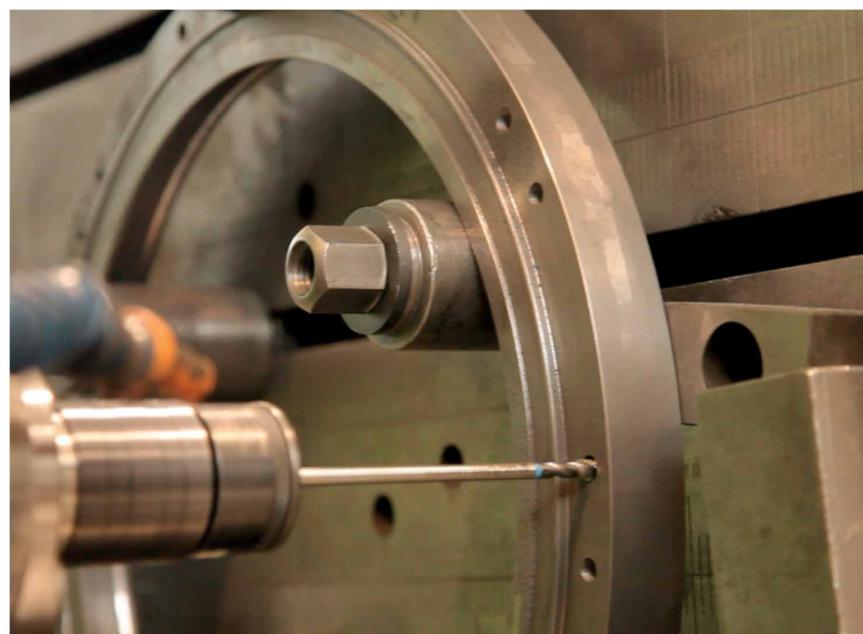
Opportunity

The transversal sectors, i.e. those that are capable of having a decisive effect on increasing competitiveness of any industry, have to take a qualitative leap forwards to take on the challenge of changing ways products are designed and made.

Target

Boost competitiveness of the industrial sector in Galicia by means of innovation in production processes. The result will be a firm step forwards towards the more efficient and environmentally friendly factory of the future. The actions for reaching this target would be:

- Designing and applying new process technologies - the main role would be played by ICT - to move forwards towards the virtual factory.
- Applying eco-innovation to develop production models with clean technologies to maximise respect for the environment, which will give rise to sustainable industrial activity.
- Delve deeper into sectorial innovation to discover new functions and services associated with products which can meet the present and future needs of strategic industries.



THE FUTURE INDUSTRIAL MODEL OF GALICIA

PRIORITY Promoting the knowledge economy.

The starting point

The Galicia 2020 Strategic Plan identifies several strategic sectors for the future, characterised by opportunities for growth and for increasing transversal productivity in the business fabric. These are the technology sectors related to the knowledge economy, among which, apart from ICT, are nanotechnology, micro and nanoelectronics, industrial biotechnology, advanced materials, production technology, mathematics, statistics and environmental engineering.

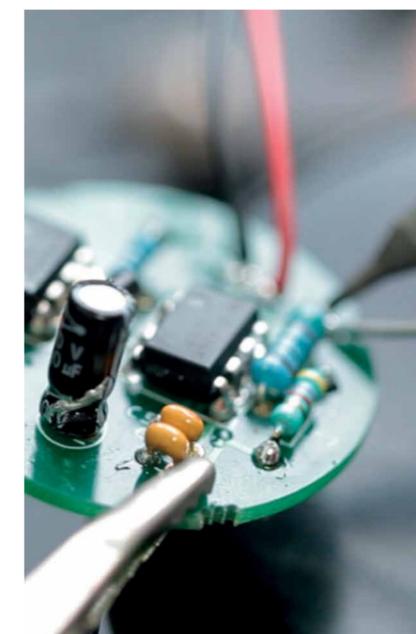
Opportunity

Strategic sectors for the future are capable of exercising a driving and modernising force on traditional sectors and fully immersing them in the knowledge economy.

Target

Promote and strengthen a technology sector based on knowledge economy in order to reinforce its driving capacity for other strategic sectors in Galicia. The measures contemplated to reach this target are:

- Supporting the generation of excellence knowledge in the field of transversal technologies.
- Improving the transfer of technology from the public research sector to the productive fabric, favouring the mobility of human resources from education centres to companies and the processes of enhancing knowledge by means of entrepreneurial initiatives.





CHALLENGE 3

A new healthy lifestyle model based on active ageing

The demographic characteristics of Galicia, with high levels of dispersion and ageing, make this European region an exceptional living laboratory for developing and applying technologies for quality lifestyles. It is not by chance, therefore, that health is the area of knowledge with

the greatest scientific specialisation in Galicia and which constitutes the subject matter of one out of every ten innovative initiatives in the region – a route that is already well-trodden and which should be explored even further. The lead position in the development of technology to improve

health and quality of life, especially among senior citizens, together with the ongoing challenges in healthcare, mean that all of Europe will be able to find in Galicia, high added-value solutions in this sector. This is why it is one of the three major challenges in this RIS3.

One of the major challenges in the Smart Specialisation Strategy is to position Galicia as a leading innovation region in the south of Europe for **improving quality of life and healthier and safer eating, by paying special attention to elderly people.**

PRIORITY **Active ageing.**

The starting point

One out of every four people in Galicia is over 65 and 32% of them suffer from some degree of disability, which makes them dependent. In this context, Galicia has been developing a significant capacity for generating knowledge and specialisation both in research and in service provision by the public authorities:

- The Galician Health Service (Sergas) started up a Health Innovation Platform, which by means of the Innova-Saúde and Hospital 2050 projects is developing 23 lines of innovation aimed at adapting healthcare service to the needs of the future. On the international scenario, the Sergas is part of the Active and Healthy Ageing Consortium, promoted by the European Commission. Galicia takes part as a benchmark region in the implementation and scaling of projects in the field of inclusive care. Furthermore, the area of health and life sciences forms part of the Galician Research, Innovation and Growth Plan for 2001-2015 as an area of strategic uniqueness.

- The commitment of universities in Galicia to research in health led to the acknowledgement of the Campus Vida, promoted by the University of Santiago de Compostela with the support of the regional government, as a campus of international excellence.

NEW MODEL OF HEALTHY LIFE BASED ON ACTIVE AGEING

Opportunity

We should take advantage of the demographic perspectives of Galicia as an opportunity so that the significant existing research and innovation capacities, promoted by the driving role of the public authorities, will continue to advance towards a benchmark position in Europe. In order to achieve this, the generation of knowledge should be accompanied by a more intense role of the private sector, so that this knowledge reaches society and the international market.

Target

Convert Galicia into a leading region in the south of Europe in the application of new technologies to the field of active ageing and personal autonomy, especially in benefit of the elderly affected by some kind of disability. The actions related to this target are:

- Reinforcing the generation of new knowledge in the specific areas of this priority in which Galicia boasts a competitive capacity at the international level.
- Supporting the setting up of technologically-based companies capable of enhancing this knowledge in order to market the scientific progress achieved in Galicia, with a view to improving quality of life and active ageing.
- Designing new therapeutic products based on the added value of spa resources in Galicia.
- Innovating in the field of sports to improve the autonomy of those suffering from physical disabilities.

NEW HEALTHY LIFESTYLE MODEL BASED ON ACTIVE AGEING

PRIORITY Safe and healthy eating.

The starting point

Over 130,000 people work in the food sector in Galicia, one of the most powerful in Spain thanks to its excellent raw materials and a consolidated industry. The sector accounts for over 6% of the total turnover in Galicia and plays a significant driving role in extraction sectors (fishing, agriculture, aquaculture, livestock farming and wine making), which are also strategic for the Galician economy.

Opportunity

In order to ensure its long-term competitiveness, the food sector in Galicia should be firmly committed to the development of new products and innovative services. This will reinforce Galicia's position as an internationally acknowledged supplier of safe, functional, healthy and quality food.

Target

Diversification of the food sector to make Galicia an international reference in nutrition innovation and food safety, as key elements to a healthy life. The ways to achieve this are by:

- Developing functional foods to improve quality of life for people with special needs, such as the elderly and those suffering from pathologies such as diabetes, high blood pressure and obesity.
- Applying ICT to food production processes to guarantee traceability, safety and quality for consumers.
- Supporting the implementation of public-private development projects to promote changes in the traditional sector with potential for innovation, through the use of the solid academic and research base.



Programmes related to the challenges and priorities

Priority beneficiaries: SMEs, with access to **75%** of the programmes.

Design of instruments shared with officers from the Galician Innovation System.

74% of the Galician public innovation strategy programmes are new.



SME INNOVATE

SUPPORT FOR INNOVATIVE SMEs

A support framework to promote incorporation of knowledge by Galician SMEs, to improve expertise and competitiveness.

- 01 Sectorial Innovation Programme.
- 02 Support for Open Innovation Programme.
- 03 Technology Service Bonus Programme.
- 04 International Financing Bonus Programme.
- 05 Innovation Agents Accreditation Programme.
- 06 Promotion of Knowledge Capacity Enhancement Programme for Enterprises.



INNOVATE IN GALICIA

MOBILISING AND ATTRACTING PRIVATE CAPITAL

A set of public investment instruments to work as a lever to mobilise and attract private capital for innovative projects in Galicia.

- 07 Development Centre Attraction Fund Programme.
- 08 Early Demand Fund Programme.
- 09 Demonstration Projects Programme.
- 10 Strategic Public-Private Projects Programme.
- 11 Horizon 2020 Cooperation Programme for the Development of Collaborative R&D&I Projects.
- 12 Financial Engineering Instruments Programme for the Mobilisation of Private Capital.



GALICIA TRANSFER

SUPPORT FOR THE TRANSFER OF KNOWLEDGE TO THE MARKET

A set of actions designed to promote the transfer of knowledge and research results from science and technology centres in Galicia to the market.

- 13 Contracts-Transfer Programmes for Science and Technology Centres.
- 14 Knowledge and Technology Assets Investment Programme for Science and Technology Centres.
- 15 Concept Testing Programme.
- 16 Innovative Public Procurement Programme.
- 17 Industrial Property Promotion Programme.



INNOVATIVE ENTREPRENEURSHIP

PROMOTE INNOVATIVE ENTREPRENEURSHIP

Support actions to increase and reinforce offer of opportunities for research and innovation talent to improve scientific competitiveness and/or take up a position in the market.

- 18 Innovation Acceleration Programme.
- 19 Talent Retention, Incorporation and Mobility Programme.

- + 20 Transversal Action Programme (launch, follow-up, assessment and dissemination of RIS3 Galicia).

galicia



See the complete RIS3
Galicia monograph

ris3galicia.es



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DE GALICIA