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Extremadura Regional Foresight Exercise

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Purpose

The Extremadura region has carried out the first regional foresight exercise to help devise a global strategy for the socio-economic development of the region so as to enhance economic growth. The main agents involved in regional development set out to plan a desirable future for the region and clearly define investment priorities. The Extremaduran foresight exercise aimed at projecting the position of key sectors and technologies in the context of future international trends.

Preparing Extremadura for Technological Innovation and Economic Development

The region of Extremadura, in the southwest of Spain and bordering with Portugal, has historically been characterised by a poor agricultural livestock economy, high levels of emigration and a high unemployment rate. Extremadura has been defined by a low population density. The structure of businesses in the region is marked by the fact that less than 1% employ more than 50 workers. The regional economy today is characterised by the greater importance of the service sector as opposed to the traditional weight that agriculture has had in the region. The region currently qualifies as a Convergence Region under the EU funding rules. However, economic indicators and the standard of living are growing year by year at a rate above the Spanish average, although this convergence phase has not reduced the differences to other regions.

As the industrial revolution bypassed the region, the main agents involved in regional development decided to invest great efforts in order to develop a Global Strategy of Regional Socio-economic Development based on the information and telecommunication technologies and innovation. One of the latest decisions was to carry out the first foresight exercise in order to help regional players map out a desirable future and to pinpoint investment priorities for the region. The Regional Operational Programme was the starting point of the regional foresight exercise.

The objectives of this foresight exercise included the preparation of strategic plans involving the relevant stakeholders of the region, identification of future trends and key technologies as the basis for these plans, while taking into account the challenges the region faces and the opportunities and benefits that might arise from tackling these challenges.

Extremadura Regional Foresight: the Set-up

Expert Panels as Key Instrument

Extremadura decided to use the Regional Foresight Strategic Policy Intelligence tool due to its potential for providing valuable inputs to strategy and policy planning for the region and

for mobilising collective strategic action. Moreover, regional foresight is a means for those sharing a common territory to better shape and control its future development.

The regional foresight exercise had a dual focus. On the one hand, the exercise concentrated on science and technology, placing emphasis on technological development, market opportunities and social needs, and, on the other hand, the exercise aimed at developing key sectors, stressing economic growth.

Based on the recommendations of the OPTI Foundation, the RegStrat project partners, the Compendium and the Guidelines elaborated within the RegStrat project, and having as a reference the Technology Foresight in Ireland, we selected the expert panel as a method building on expert knowledge to develop long-term visions. This method is commonly used in national and regional foresight studies and is very valuable for compiling information and knowledge, stimulating creative views and new insights, and more widely diffusing the results as well as awareness of and familiarity with the process.

The Extremadura foresight exercise brought together more than 90 regional key players from public administration, science, technology and the private sector in order to design better policies and improve the RTDI investment decision-making process in the region based on perceived long-term challenges and opportunities.

The panel-based exercise covered four sectors in which Extremadura should build expertise, which were selected by regional experts. The sectors are

- the food-farming industry,
- information and communication technologies,
- energy,
- materials.

Moreover, biotechnology was analysed as part of both the food-farming industry and energy sector, and the environment was studied as a crosscutting issue involved in all sectors.

Two expert panel meetings took place for each sector. The first meeting of each panel aimed at assessing the current situation in the region concerning the respective sector and defining the envisioned future, while considering the strategic challenges to be faced. In the second panel meetings, the critical factors for reaching these visions of the future were identified, together with the necessary actions and actors that need to be involved in view of each factor. The second meetings resulted in a series of roadmaps that have helped to plan the strategic responses necessary to address the challenges and to realise the most favourable scenarios for the region.

The time horizon for the exercise was set at 2020. The exercise itself was completed in twelve months.

Visions of Regional Future in Four Industrial Sectors

The regional foresight exercise focused on the above-mentioned four key sectors. The panel experts selected them according to two criteria: attractiveness of the sector and its current position in the region.

Subsequently, the eight expert meetings (two for each sector) were conducted. In the following, the visions for the future of the region for each of the four key sectors are outlined, together with the challenges to be faced and the actions and actors to be involved in the process.

Food Farming Industry Sector

Firstly, the experts identified as visions for the future of this sector:

1. Add value through technological innovation in products and processes.
2. Restructure agricultural land in support of developing alternative uses and sectors.
3. Market supply concentration to reach a critical mass.
4. National quality guarantees for global markets and an Extremaduran trademark for the domestic market.

In order to achieve the visions, Extremadura has to successfully face the following challenges: increase low investment rates in research and technology, intensify networking and

cooperation, meet financial needs, overcome farmer inertia due to involvement in other non-agricultural activities (e.g. in tourism), and cope with an economic structure marked by small and dispersed companies.

Furthermore, the attendants discussed the actions necessary for achieving the desired future of the region. The actions were directed at encouraging business cooperation, promoting RTD projects and providing customised information and personalized training. In addition, experts agreed on the fact that Extremadura should conduct market studies to identify possible market niches and orientate marketing toward promoting the regional characteristics and skills.

Finally, the actors that should be put in charge of carrying out the actions were listed. Among them are the public administration, RTD regional centres, private companies, the University of Extremadura, agricultural cooperatives, business associations, regional investment institutions and local action groups.

ICT Sector

The information and communication technology (ICT) sector is one of the most dynamic regional sectors.

The desirable visions identified during the exercise for the future of the ICT sector are the following:

1. Develop a local ICT sector with a global scope based on applications and services oriented toward other sectors.
2. Develop innovative digital contents with market leading potential.

3. Establish Extremadura as a global reference node in ICT.

According to the experts, successfully achieving each of the three visions would require Extremadura to address the following challenges: small size and dispersed companies, need to increase cooperation, absence of marketing business models, and lack of identity and outside recognition.

Apart from the need for promoting the capacities of Extremadura to face the new challenges of the sector, the experts further agreed on the necessity of facilitating the creation of new financing instruments to support these technologies and of creating an innovative environment for ICT businesses within the existing institutional framework of society by fostering a social climate that values leading technologies and supports their dissemination. The experts also emphasized the crucial role of cooperation in the evolution of the sector and the importance of training in marketing strategies to effectively promote the products and services offered.

Finally, among the actors to be involved in developing the appropriate measures, the experts identified the following: the regional government, intermediary foundations, the University of Extremadura, ICT research and technology centres, regional clusters, ICT companies, ICT associations, private training centres, end users and chambers of commerce.

Materials Sector

To improve Extremadura's future position in the materials sector, the experts identified the following measures:

1. Establish regional companies on the construction market by means of new and improved products.
2. Enhance productivity by implementing technology.
3. Establish a distinguished position on the market for recycled and environmental friendly products by means of an own brand.
4. Create a sector for biomaterials development.
5. Create a sector for plastic materials production.

Among the challenges to be confronted on the path toward realizing these visions, the experts mentioned the low investment rates, the difficult access to external markets, the need to improve the innovation and productivity culture and the need for a global scope. Moreover, there is no consolidated market for recycled materials and products and a functional business model is lacking. In order to create a sector for biomaterials development, the region has to consider the business risk involved together with the long time period necessary to convert products into marketable commodities. All experts agreed that this requires an entrepreneurial commitment with a medium to long-term focus.

Among the actions recommended for tackling these challenges are the identification of demand for new products, enhancement of value added locally by developing innovative products in the region, and the hiring of scientific and technical personnel, reinforcement of the support lines for regional financing of process innovation, creation of a technology watch unit and a market observatory, identification of reference projects and companies to foster business cooperation, design of a precise training plan and workshops and seminars on specific technologies, experiences, opportunities and best practices.

The regional actors to be involved in the development of the action plan are the research and technology centres and intermediaries, the University of Extremadura, business associations, regional clusters, investment companies and institutions, the Energy Agency of Extremadura and the Health Service of Extremadura.

Energy Sector

The future of Extremadura's energy sector lies in areas such as biomass, biofuel, solar systems for buildings and bioclimatic architecture.

The future visions for the development of the sector are:

1. Biomass as an option for rural development in the region.
2. High general level of knowledge on renewable energies.
3. Development of a local supply that sustainably integrates every link along the value chain.
4. Development of a stable and coherent energy policy.

The experts considered these visions to be limited by aspects such as the small size of farming. Moreover, they highlighted aspects such as general unawareness and farmer's resistance to change, the lack of initial investment linked to the need for financing, the need of bringing technology up to date, high logistic costs together with the need for coordination between all the agents involved in projects.

The experts agreed on the idea of giving incentives to local biomass demand and for energy crops in addition to promoting forest waste collection and creating a biomass storage centre. In addition, studies of the different types of biomass and an inventory of regionally available biomass and its distribution are to be conducted in support of these measures. Moreover, the experts considered activities directed at disseminating knowledge very important, such as informative technology workshops addressing agricultural cooperatives, technical experts and citizens, as well as the design of a training plan for university (graduate and postgraduate levels), vocational and other types of training. Finally, technology transfer and technology watch services as well as assessment of the energy efficiency in projects were additionally viewed as very important measures to be considered.

The actors to be involved in developing the energy sector toward the envisioned future are the University of Extremadura, research centres, the Extremaduran Energy Agency, the regional government, the representative bodies of the two provinces ("Diputación de Cáceres" and "Diputación de Badajoz"), investment companies and institutions, agricultural cooperatives, the Professional Association of Architects and Industrial Engineers, electrical fitter associations, construction companies, municipalities, business associations, technology suppliers, energy suppliers and consumers associations.

Foresight: Policy Tool for Enhancing Regional Competitiveness

Extremadura has just started implementing the roadmaps resulting from the foresight exercise in a series of actions aimed at achieving the desired visions for the future of the region. The actions are detailed in the following sections.

The Innoveex Plan

Promoted by the regional government, the Innoveex Plan is a business organization model for innovation in regional companies. The plan seeks to increase the competitiveness and productivity of the regional companies while developing products and services based on RTDI and supporting new business opportunities.

The plan is based on a cluster model that encourages collaboration between the regional entities from the same sector or work area. Each regional cluster will be supported by a research and technology centre, incubators and marketing and management organization experts. In addition, the plan intends for establishing new industrial scientific and technological infrastructure in the region.

Creation of New Clusters

The foresight exercise has emphasised Extremadura's need for business cooperation and networking between regional agents. There are currently six clusters in the region: Ornamental Rocks, Building Materials, Metal Mechanic, Wood and Furniture, Knowledge, and Packaging.

Recently, another cluster on Energy has been created with the aim of dynamising this key sector and fostering cooperation and exchange of professional and business experience among the members. Moreover, a Food-farming Industry cluster will be created this year.

Technology Watch Units and Observatories

The plan includes the creation of technology watch units and market observatories related to the key sectors as other actions to achieve the regional visions.

Fundecyt will implement a general technology watch unit based on the four key sectors. This unit will provide the necessary information to the regional companies to improve the definition of and approach to the RTD projects.

Moreover, other specific market observatories have also been established:

ICT sector – The Extremaduran observatory on ICT is an instrument of the regional government to follow up on and analyse the evolution of a knowledge society in the region, carrying out studies, surveys and other activities designed to provide knowledge of the present situation and the impact of incorporating information and communication technologies into the different sectors of society.

Food-farming sector – Here, a technological observatory on fruit has been established as a strategic management system. Two food-farming industry research and technology centres in the region are responsible for its operations. This service will allow Extremaduran companies to access information on research trends and identify market niches and sector opportunities.

Materials sector – In the Metal Mechanic cluster, a technology watch service has been installed with the objective of providing the necessary information for developing RTD projects and identifying technological needs and innovation opportunities.

Science and Technology Park

In order to foster collaboration between technology companies and researchers, a science and technology park will be established in Extremadura in 2009. This park will involve RTD companies and will be situated next to the university. The park will have two headquarters, one of them located in the city of Cáceres and the other in the city of Badajoz.

Achievements

Apart from creating awareness for the foresight process in the region and enhancing learning and knowledge of the foresight process's methodology, the exercise has been used as a policy tool for both its value in providing difficult to acquire strategic information for decision-making and in creating consensus on promising ways of exploiting potential opportunities. The results of the exercise have contributed to the coordination of the regional system of RTD and innovation.

Extremadura has started down the path toward the desired future by taking the first actions as devised by the foresight exercise. Extremadura will implement an innovation system that will increase Extremaduran companies' competitiveness, support their research and innovation needs, promote business incubators and support internal organization and marketing.

Sources and References

- Extremadura 2020. Key Sectors and Future Technologies for Extremadura. The report can be obtained from belen@fundecyt.es and luis.casas@fundecyt.es

- The RegStrat Guide and Compendium (see www.regstrat.net)