NanoBasque Strategy: Basque Country´s strategic bid for nanoscience, micro and nanotechnologies

Cristina Oyón/Amaia Martínez

nanoBasque Agency - SPRI, Paseo Mikeletegi 53, 20009 Donostia-San Sebastian, SPAIN
nanobasque@spri.es

Over the past fifteen years, nanoscience, micro and nanotechnologies have become a major global trend, in which public and private entities have, estimately, invested more than 20 billion euros.

These are certainly disciplines that enable radical innovation, providing new applications for many sectors of high growth potential. But their successful implementation requires a new model of relationships in which companies, research centers and universities collaborate more closely to provide a qualitative and quantitative step ahead to compete globally with new products and higher value-added processes.

The Basque Country has shown a strong commitment towards this innovative model of relationships and places nanoscience, micro and nanotechnology as a catalyst for this great change, being aware that it is time to respond decisively to a huge opportunity.

The nanoBasque Strategy aims to create a new business, technology and scientific model in the Basque Country enabled by nanoscience, micro and nanotechnologies. A model that is results-oriented, diversified, open and connected, robust, cohesive, competitive and sustainable.

The incorporation of nanoscience, micro and nanotechnologies as a strategic area for industrial diversification within the Basque Country's science, technology and innovation policies is performed with two main goals: to exploit the huge application potential of these technologies in almost every industrial sector in the Basque Country, especially the automotive industry, aeronautics, energy, electronics, telecommunications, machine-tool, steel, metallurgy and household appliances, and to promote the creation of new technology based companies that make take full advantage of applications based on such technologies.

The first roll-out phase of this strategy supposed laying its foundations with a significant public investment in knowledge generation, basically by the creation of the cooperative research centres CIC microGUNE and CIC nanoGUNE. The increasingly important participation of companies together with science/technology agents in R+D projects in these fields, and the launch of a support system for the development of new business projects, with the creation of a nanoincubator, are a clear response from the business development and dinamization actions performed in the deployment of the strategy.

There are currently sixtyfive companies working in the field of micro- and/or nanotechnology in the Basque Country, although the number of companies participating in R&D projects in these areas is well over a hundred. Seventeen of these companies are already marketing micro and/or nanotechnology-based products or processes and this figure is expected to double in the next two years.

The cross-over nature of these technologies is reflected in the identification of companies from more than 12 different industrial sectors, the majority of which have high growth perspectives. Thus, the activity in intermediate sectors such as steel, metallurgy and metallic products, or final sectors such as the automotive industry, health and pharmaceuticals, should be highlighted.

Less than the 8% of these companies are self-sufficient when it comes to develope their micro and nano activity, this meaning that close collaboration with science/technology supply agents is essential.

NanoBasque strategy is structured around three main axis of activity: knowledge generation, business development and dinamization of the sector, activities that will be developed in four strategic areas understood as key concepts of strategy deployment:

- Materials: they are a key factor in the competitiveness of the Basque business base and it is in this area where the incorporation of nanoscience and nanotechnologies may allow an increase of the technological intensity and diversification into higher value products.

- Convergence micro-nano-bio: The convergence in these areas offers in the field of health and quality of life a perfect opportunity to put into value the skills developed in the Basque Country in recent years and the generation of market applications through the knowledge generated

- Enabling tools and techniques: the continued training of our scientific-technological system in tools and techniques that allow the characterization, synthesis, analysis, design, modeling and manufacturing is key to allow the introduction of micro and nano in our companies.

- Safety: the emergence of any new technique requires an assessment of the risks and benefits involved in its operation and that is why the analysis of the impact of nanotechnology during its life cycle from production and processing, use and end of its useful life it is necessary for a proper use and requires a specific follow-up regulatory action and communication to society.