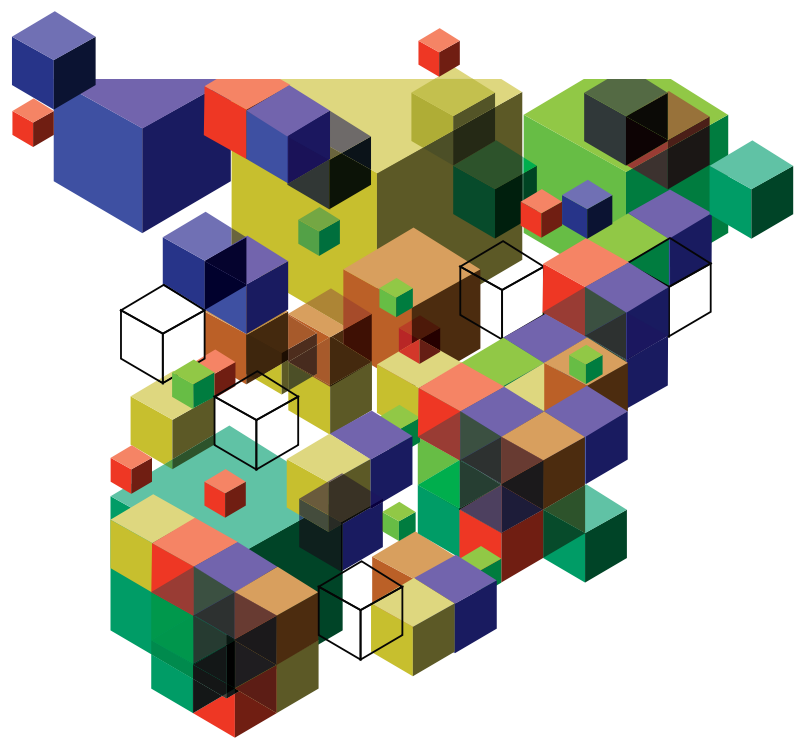




THE BASQUE COUNTRY: INDUSTRIAL REVOLUTION



Over the past 30 years, Spain's Basque Country has become a model of successful industrial transformation. Indeed, according to the European Commission, the autonomous region is currently the wealthiest in the country. Despite this, in trying economic times there is a need to further boost the area's global competitiveness, and the question remains as to how this relatively small region can achieve this revolution. Technology Transfer Manager **Miryam Asunción** from the CIC nanoGUNE research centre gives her take on the situation

DESPITE THE OVERALL success of the Basque industrial sector, and the importance of its role in the economy, the region's industry activity has declined since the 2008 financial crisis. It currently amounts to less than 21.3 per cent of the gross domestic product (GDP) compared to 24.5 per cent in 2008, and its gross value added (GVA) has decreased annually by 1.5 per cent. The Basque Country therefore finds itself at a critical moment of reflection and change; there is a need to transform its industry through innovation and stem the de-industrialisation processes of recent years.

SMART SPECIALISATION

To address this challenge, the Basque Government plans to build a strong, competitive economy based on R&D in the health and biosciences, advanced manufacturing and energy sectors. The plans are outlined in a smart specialisation strategy (RIS3) currently being implemented, which forms an integrated, region-specific agenda for economic transformation. It will achieve this by using a unique, knowledge-based system that seeks to focus resources and investments in areas where there can be clear synergies with the existing and potential business capacities of the region. The Basque Country has thus begun a transition from a model of incremental industrial advancements toward one that consolidates knowledge from industrial, scientific, political and social stakeholders.

Key to achieving this conversion is the application of a cluster strategy to develop a concentration of interconnected businesses, suppliers and associated institutions in the three fields outlined by RIS3. The Basque Country has long been at the forefront of the design and implementation of cluster methodology, which was first introduced by competitive strategy expert Michael Porter in the 1990s, when the region embarked on a plan to transform its economy in response to deep economic crisis and high levels of unemployment. The success of this policy as part of a broader economic strategy can be seen in the GDP growth experienced

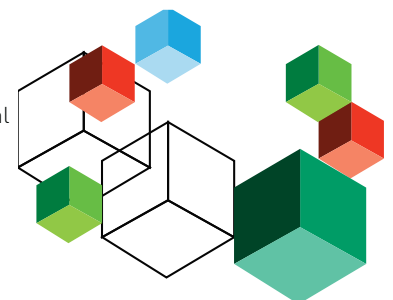
over the last 30 years, which places the Basque Country in the top 5 per cent of European regions today in GDP per capita.

BUILDING COMPETITIVENESS

In 1997, the Basque Technology Network (RVT) was established to facilitate and coordinate the transfer of scientific and technological knowledge to production industries. The Basque Government's Department of Industry has provided over 50 per cent of R&D support to members of the Network, now known as the Basque Science, Technology and Innovation Network (RVCTI). The RVCTI has three subsystems: science and university, technological development and innovation, and support to innovation.

The nanoBasque Agency was launched to shape territorial competitiveness through nanoscience, micro- and nanotechnologies. Its strategy is an open and integrative proposal that covers three main action areas: business development, knowledge generation and enhancement of sector dynamism. However, the economic expansion of nano- and microtechnologies in the Basque Country is not yet a reality, as the gap between scientific and technological capabilities and their economic exploitation by companies seems more marked than in other advanced regions.

It appears that the nanoscientific field is very detached from the traditional world and that companies have a distinct lack of ability to absorb and exploit the scientific-technological capabilities that are created. Compared to more traditional technological areas, entering into the nano world requires businesses to have greater access to infrastructure and collective amenities (public





facilities/equipment), as well as greater policy support. The nanoBasque Agency aims to respond to these needs with a plan for identifying and providing connections to micro-nano infrastructures and equipment, as well as a new model for forging relationships. Finally, the Agency also studies how to find answers to niche market demands of nanotechnology in combination with the core Basque sectors and clusters.

NANO KNOWLEDGE

To increase knowledge generation, the Basque's strategy facilitated the creation of Cooperative Research Centres (CICs) dedicated to health and biosciences, advanced manufacturing and energy. CIC nanoGUNE, of which I am Technology Transfer Manager, is one such centre, coordinating nanoscience and technology research to promote competitive growth. The Centre's research programme is carried out by nine research groups centring on different areas of nanoscience. The CICs play an important role in the Government's strategy to direct innovation based on scientific knowledge, working closely with companies within the manufacturing industry to bridge the gap between science and industry, and tailoring collaborations to meet the requirements of the companies involved.

When the worlds of science and industry collide there is a need for intermediaries and translators to ensure a common understanding and successful path from research to commercialisation. Scientists need to work with business individuals who are 'on the same wavelength', and who can guide them through the commercial process. Conversely, businesses must have the ability to determine how the research that public institutions have to offer can be of commercial benefit. The commercialisation of scientific breakthroughs is something that has become more formalised in recent years. There are many routes for this technology transfer, including licensing, royalties, incubation and in-house development. Beneath all this activity, there are complex issues

regarding the potential value locked up in these intellectual assets, and how they can best be developed to generate value without straying too far from the original ideals.

The conclusion is that there is no single path to commercialisation. Every technology transfer process has its own requirements and each path must be adapted accordingly.

A WORD OF ADVICE

Scientists intending to proactively share their knowledge with industry must find the proper communication or means to facilitate their goals. In my experience, the difficulty is that scientists are required to change their communication style when interacting with industry in the first instance. Simultaneously, it is necessary for industry to progress into a more scientific arena when conversing with researchers.

It is a misconception that scientific principles are important when starting to build connections with industry; in fact, the researcher should be 'less precise' during their first approach, instead focusing on the potential applications of the research, addressing market demand with their competitive technology. Conversely, industry players should build a more technical understanding of scientific concepts that will enable them to differentiate a final product from other contenders. The desired outcome is for scientists to become experts in the market of their research result or product, and for businesses to gain a more scientific understanding of the value of research.

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