

SMART SPECIALIZATION FOR THE AUTOMOTIVE INDUSTRY: ADVANCED MANUFACTURING, SUSTAINABLE MOBILITY AND FOREIGN IMPLEMENTATION

Posted on 11/06/2013 by Naider



Here is a practical exercise to illustrate an example of selecting fields of smart specialization in the Basque Country. The approach is relevant because this is one of the industrial policy guidelines chosen by the Basque Government for the coming years ([see](#)). The exercise begins by choosing a key sector, to then look at the market and propose guidelines for action.

Focus attention on relevant segments of business activity. The automotive industry is a key sector

A very important part of the Basque industrial companies in subsectors such as steel, metalworking, plastic, rubber, glass, textiles, wood, chemical products, electrical material and equipment, machinery and electronics, and vehicle manufacturing, to which a good number join institutions and service companies in the field of R&D, engineering, consultancy, design, legal-legal, marketing, commercialization, financing, maintenance, and much more. they are closely connected to the global automotive industry. In one way or another, all of them are integrated into its highly complex and globalized production chain and are highly dependent on its economic cycle, as well as on its systems of organization and technological and market evolution.

There is no doubt that these companies are part of the "DNA" and that the Basque economy and society cannot be understood without this business conglomerate, which acts as a driving force and has served as a foundation to consolidate a solid class over the years. media that is the main substrate of the society in which we live. From a quantitative point of view, we do not have official statistics on this complex automotive world in the Basque Country, although the information offered by the Basque automotive cluster ([ACICAE](#)) and a cursory analysis of the Input Output Table ([Eustat 2010](#)), it can be inferred that there are more than 300 companies that directly account for between 15% and 25% of industrial employment and no less than 18% of total sales of Basque companies outside the Basque Country (sales in the State and sales abroad)

In this context, however we look at the intelligent specialization process, the automobile has to play a starring role because with its future, the country surely has its own at stake.

A structural and market perspective that must be taken into account.

As we will see, the market situation and horizon that is envisioned for the next 15 years is exciting, but also very disturbing due to the great structural challenges that the sector is facing. Exciting because the automobile is at the center of the great environmental energy debate that derives from the increase in greenhouse gas emissions for which it is one of the main culprits. Disturbing, because as a whole the European automotive cluster is facing major structural challenges, which, in my opinion, can be summarized in four major sections.

- First of all, ***a significant excess of productive capacity*** that has to do with the current economic crisis, but also with the market trends themselves that have led to a clear mismatch between supply and demand that extends to the entire production chain.
- Secondly, and linked to the above, a clear tendency to ***freeze or lower the real prices of vehicles that are transmitted with great tension to assemblers and, especially, to manufacturers of components and parts*** which are required progressive and significant cost

reductions.

- Thirdly, a **increasing requirement in terms of performance and quality, which requires constant improvement in terms of R&D and innovation** that is paid for on the basis of to improvements in production efficiency.
- Finally, and perhaps most crucially, the more than evident **displacement of large investments in the sector towards emerging countries**, which entails tensions and the risk of relocation of the supplying companies.

The specialization policy has to take these elements into account, to propose lines and projects on the table and in this complex horizon there are three key vectors intrinsically related to innovation and, from my point of view, priorities.

Three smart specialization vectors that will drive the future. Advanced manufacturing, sustainable mobility, foreign implementation

The "advanced manufacturing" vector. The cost of labor was a fundamental competitive advantage for reindustrialization after the debacle of the so-called oil crisis in the 80s of the last century, but it can hardly be so today, when the market will demand, as we have seen, increasing cost reductions.

We are increasingly moving away from the salary standards of other emerging countries both in Europe and worldwide, which are already de facto our competitors, and there is no other choice but to build new competitive advantages based on more robust factors, around technology. and innovation. The Basque Country can hardly aspire to compete in repetitive and labour-intensive industrial processes, but it can specialize in others that are more intensive in capital and technology in more advanced segments of the value chain, as countries such as Germany are already doing. has maintained and continues to be committed to maintaining its industrial character or, more recently, the United Kingdom and the United States that, after strong relocation processes of their industry, turn their gaze once more to manufacturing to create solid and quality employment ([see the case of the United States](#) or that of [United Kingdom](#)).

Surely, detailed analyzes of business and technological prospects will be required, as well as analyzes in which the automotive industry itself, together with scientists and technologists, will have the last word, but without any doubt, technological fields such as manufacturing **technology, advanced materials, nano and micro-manufacturing, bio-industry, flexible electronics, additive manufacturing and robotics** are some in which the Basque Country should aspire to be at the forefront of applied research if you want to maintain a privileged position in this industry and certainly in others with similar characteristics.

The "sustainable mobility" vector. Environmental regulation with increasing demands on emissions and the growing social and political struggle to decouple freight and passenger transport from fossil fuels opens up new challenges for companies in the automotive value chain. Firstly, it is necessary to reduce the specific energy consumption of vehicles in a race already launched to reduce weight and incorporate more ecological vehicle ranges. All this without increasing costs and with increasing security requirements. Until 2030, it is more than plausible that advanced diesel vehicles and the different ranges of hybrids will gain market share and that it will be from 2030, when the deployment of electric vehicles begins to take place and that they begin to gain market share conventionally powered (see the European Road Map for Electrification of Road Transport [here](#) and a reflection by Naider [here](#)).

To think that these market trends will not imply changes in the value chain of the automotive industry is to turn a blind eye to reality. Pure electric vehicles will be a great revolution, because they will replace conventional ones. A revolution that will imply a redefinition of the automotive map in the world and, very particularly, in Europe: new assembly plants and global repositioning of the supply chain based on a new comprehensive architecture of vehicles with new materials, technologies and ways to do. In this new universe, many business opportunities will arise, but also,

of course, threats for many companies whose product has no place in the new vehicle concept. For all this there is no choice but to prepare...

The external implantation vector. It consists of taking advantage of the knowledge and business skills acquired and following the direction of the market accompanying the leading companies (Tier 1 and Tier 2) in their implementation in emerging markets. And yes, despite the fact that this line has nothing to do with technology, it will require a great innovation effort to unite the interests of small and medium-sized companies and gain sufficient critical mass to access the necessary financing and, especially, equip themselves with high value-added services that will be absolutely essential, but highly expensive.

Based on specialization, the Basque Country has to be capable of generating a great debate that, together with companies, guides the whole Basque eco-system of science, technology and innovation and serves to develop driving projects and creators of new opportunities . There lies the future, full of challenges. We only have to awaken the passion necessary to take advantage of them.

You can see the photo that accompanies the article in more detail [here](#)

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