

CUADERNOS ORKESTRA

05/2021

ISSN 2340-7638

LONG-TERM REGIONAL STRATEGY FOR INCLUSIVE COMPETITIVENESS: THE BASQUE COUNTRY CASE, 2008-2020

Mari Jose Aranguren Querejeta
Patricia Canto Farachala
Edurne Magro Montero
Mikel Navarro Arancegui
James R. Wilson
Jesus Mari Valdaliso

2021

ABSTRACT

The Basque Country is one of few regions in the world that can lay claim to having proactively and consistently built a successful, industry-focused territorial strategy over the course of several decades. This paper builds on previous analysis of earlier periods in the strategy to analyse the period from 2008 to 2020. During this period the region has built sustained resilience, successfully navigating the financial crisis and generating continued improvements in economic and social outcomes. This paper explores the main features and challenges going forward of the Basque Country's strategy for inclusive competitiveness, and identifies lessons that other regions can learn from the Basque experience.

RESUMEN

El País Vasco es una de las pocas regiones del mundo que puede presumir de haber construido de forma proactiva y coherente, a lo largo de varias décadas, una estrategia territorial exitosa centrada en la industria. Este documento parte de los análisis que se han efectuado sobre períodos anteriores de la estrategia, para analizar el período que va del año 2008 al 2020. Durante este período, la región ha construido una resiliencia sostenida, sorteando con éxito la crisis financiera y generando mejoras continuas en los resultados económicos y sociales. Este artículo explora las principales características y desafíos de la estrategia del País Vasco para la competitividad inclusiva e identifica aprendizajes que pueden ser útiles para otras regiones.

LABURPENA

Euskal Autonomia Erkidegoak industrian oinarritutako lurralde estrategia arrakastatsua eraiki du, modu proaktibo eta koherentean, hamarkadaz hamarkada. Eta munduan eskualde gutxik egin du hori. Dokumentu honek strategiaren aurreko garaietako azterketak ditu abiapuntu, 2008tik 2020rako garaia aztertu ahal izateko. Garai horretan, eskualdeak erresilientzia iraunkor bat eraiki du, arrakastaz gainditu du finantza krisia eta etengabeko hobekuntzak lortu ditu emaitza ekonomikoetan eta gizartekoetan. Artikulu honek Euskal Autonomia Erkidegoak lehiakortasun inklusiboa lortzeko jarraitu duen strategiaren ezaugarri eta erronka nagusiak ditu aztergai eta, horietatik abiatuta, beste eskualde batzuetarako baliagarriak izan daitezkeen ikaskuntzak identifikatzen ditu.

INDEX

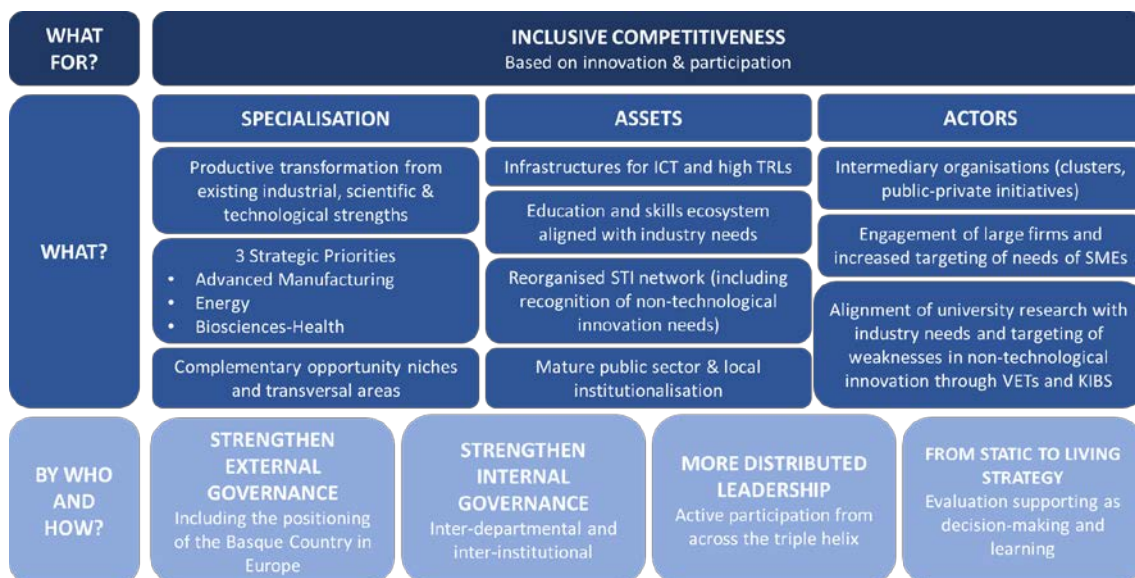
EXECUTIVE SUMMARY	1
1. INTRODUCTION	2
2. THE FOUNDATIONS: KEY FEATURES OF BASQUE TERRITORIAL STRATEGY 1980-2008.....	4
3. BUILDING SUSTAINED RESILIENCE: BASQUE STRATEGY 2008-2020.....	8
4. CHALLENGES GOING FORWARD FOR BASQUE REGIONAL STRATEGY.....	15
5. KEY LEARNINGS FROM THE BASQUE CASE	17
REFERENCES	18
ANNEX 1: GENERAL ECONOMIC INDICATORS, BASQUE COUNTRY (1980 – 2019)	21
ANNEX 2: CLUSTERS SUPPORTED BY BASQUE CLUSTER POLICY (1992-2018)	22

EXECUTIVE SUMMARY

The Basque Country is one of few regions in the world that can lay claim to having proactively and consistently built a successful, industry-focused territorial strategy over the course of several decades. It has experienced a remarkable process of growth and transformation since the mid-1980s and is today among the top regions in Europe in both GDP per capita and in having a low percentage of population at risk of poverty or social exclusion. As such it has been identified as a success case in several prestigious international studies.

The experience and capacities developed over three decades of focused industrial strategy from 1980 left the region in a strong position to respond to the intense economic downturn precipitated by the financial crisis of 2008. In the context of this crisis, the strategy in the period 2008-2020 has built sustained resilience and generated continued improvements in economic and social outcomes. Key differentiating features include: i) the targeting of strategic priorities and opportunity niches through an explicit Smart Specialisation Strategy that seeks to engage large and small companies, universities and other key actors; ii) the reorganisation of the Science, Technology and Innovation network and alignment of the skills ecosystem with industry needs; iii) the shift in focus towards non-technological innovation as complementary to technological innovation; and iv) the strengthening of governance mechanisms to promote more distributed forms of regional leadership and enhanced external connectivity.

Summary of Basque Regional Strategy 2008-2020



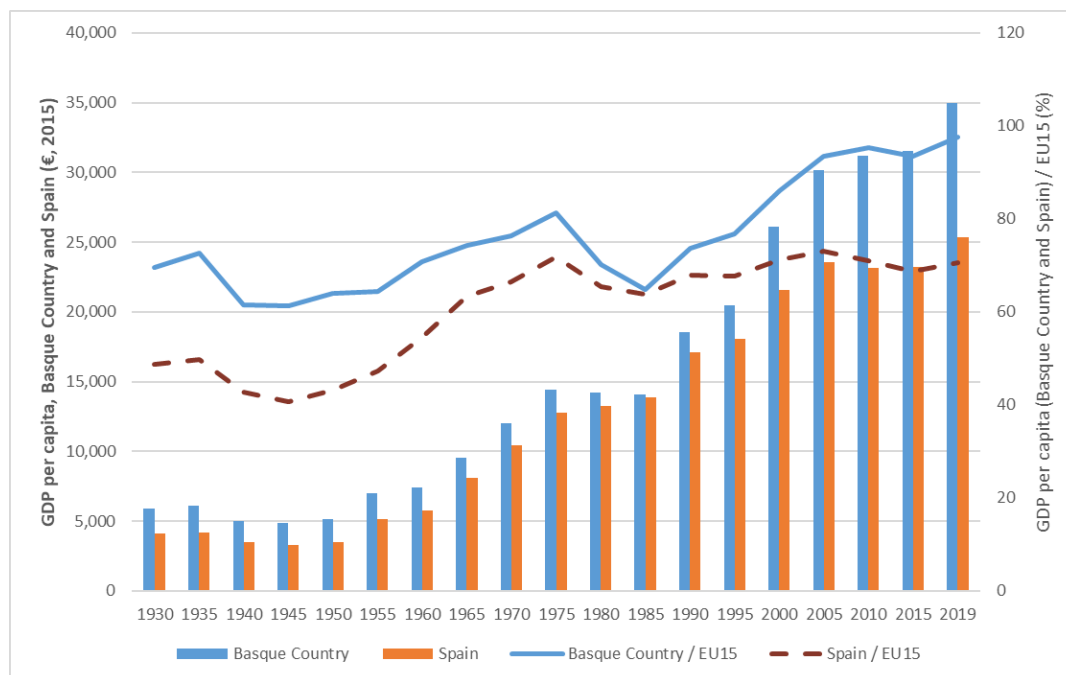
Amid the new economic and social crisis precipitated by the COVID-19 pandemic, challenges for the Basque Country looking forward are linked to ongoing social-demographic, energy-environmental and technological-digital transitions. Other regions seeking to learn from the Basque Country's experience in building resilient socioeconomic competitiveness through a consistent and long-term strategy might focus on key dimensions related to strategic orientation, proactiveness, focus, capabilities and openness that have been at the core of the Basque Country's success.

1. INTRODUCTION

The Basque Country, located in the north of Spain, is one of few regions in the world that can lay claim to having proactively and consistently built a successful, industry-focused territorial strategy over the course of several decades. At a time when the economic and social crisis prompted by the COVID-19 pandemic is unfolding and generating great uncertainty, it is instructive to look back at another crisis some forty years ago from which the seeds of the Basque Country's strategy were sewn. There are important lessons to be learned for the future, both for the Basque Country and for other territories that are seeking to build resilient economic development over the long term and to foster inclusive competitiveness that mutually re-enforces economic and social dimensions.

Following the creation of regional 'autonomous communities' in Spain at the end of the 1970s, the Basque Country needed to build a public administration from scratch, at a time when it was facing a heady combination of severe industrial decline, high unemployment and the impact of violent terrorism. As can be observed in Figure 1, there has been a remarkable process of growth and economic transformation since the mid-1980s. GDP per capita increased from 70.2% of the average of EU-15 countries in 1980 to 97.5% in 2019. This was accompanied by consistent increases in R&D investment (from 0.1% of GDP in 1980 to 1.9% in 2019) and in foreign exports (from 22.8% of GDP in 1980 to 36.4% of GDP in 2019).¹ Indeed, this transformation towards an internationally-competitive, innovation-oriented and economically-successful regional economy has led to several prestigious international studies identifying the Basque Country as an economic development success case.²

Figure 1: Evolution of per capita GDP in the Basque Country and Spain, 1930-2019



Source: Own elaboration based on Alcaide (2003), De la Fuente (2017), Eustat y Ameco.

¹ A summary of the evolution of a range of key indicators can be found in Annex 1.

² See, for example: OECD (2011), Porter *et al.* (2016a) and Morgan (2016).

The key features of the territorial strategy behind this economic transformation until around 2010 have been fairly widely analysed,³ and this study builds on previous analyses to focus on the most recent period. In particular, we aim to understand how the strategy has evolved over the last 12 years to avoid the most severe impacts of the 2008 financial crisis and to generate continued socioeconomic success. Indeed, the Basque Country is today among the top regions in Europe in both GDP per capita and in having a low percentage of population at risk of poverty or social exclusion (29th and 26th respectively out of 218 EU regions).⁴

We first introduce a framework that has previously been used to analyse the strategy, and we use it to summarise the key features of the strategy over the period 1980-2008. We then adapt the framework to undertake a detailed analysis of the key features and achievements of the Basque Country strategy from 2008-2020. This analysis uncovers a series of challenges that we suggest will shape the next phase of the strategy as the Basque Country grapples with a new, post-COVID context. Finally, understanding the Basque Country strategy in action also offers a series of lessons for other territories seeking to build resilient economic development strategies for the long term.

³ See, in particular: Aranguren *et al.* (2012), Porter *et al.* (2016^a) and Valdaliso (2013, 2015).

⁴ For more detail on the latest comparative performance in a wide range of indicators, see Orkestra (2020) and/or Orkestra's Regional Competitiveness Observatory (<https://www.orkestra.deusto.es/competitiveness-observatory/en>).

2. THE FOUNDATIONS: KEY FEATURES OF BASQUE TERRITORIAL STRATEGY 1980-2008

The strategy of a region, country, city or other territorial unit is considerably more complex than that of a firm, both in its design and in its application. It is difficult to satisfy the varied interests of the large number of stakeholders (companies, public administration, other organisations, individuals) and difficult to define a unique positioning or value proposition in the way that companies typically seek to do. Together these imply the need for a highly sophisticated approach to participation, engagement and governance. To break down this complexity into more manageable parts, a territorial strategy can be analysed according to four basic questions: 'what for?', 'what?', 'by who?' and 'how?'.⁵

What for?	The ultimate objectives of the strategy
What?	The institutional architecture, economic and scientific activities, human capital, infrastructures, and targeted actors and markets that underlie the strategy
By who?	The relevant organisations and individuals in the territory that lead the strategy
How?	The strategy governance and process, both within and beyond the territory

This framework can be used to summarise the most distinctive characteristics of the Basque Country's strategy from the start of the autonomous regional government in 1980 through to the advent of the 2008 financial crisis.⁶ This long period can itself be broken down into three distinctive sub-periods that correspond broadly to the three decades (1980s, 1990s, 2000s). The 1980s were defined by the creation of a the new regional administration alongside the need to promote substantial industrial restructuring of the economy in response to deep economic crisis. This process evolved in the 1990s into a strategy built around clusters and geared to improving efficiency, fostering non-R&D-based diversification, and promoting internationalisation. In turn, this evolved in the 2000s into a sustained focus on innovation and science-driven industrial diversification.

What for?

The search for a *balanced socioeconomic model* has been a constant theme from the outset of the strategy. This has often been framed explicitly in terms of 'competitiveness in solidarity', through which industrial modernization has been built on social foundations, including investments in education, healthcare and welfare policies. Success towards this underlying goal of balanced socioeconomic development can be seen by the end of the period in rates of inequality, poverty and social inclusion markedly lower than both the Spanish and EU averages.⁷

⁵ For more detail, see Aranguren *et al.* (2012) and/or Valdaliso and Wilson (2015).

⁶ For more detailed analysis, see Aranguren *et al.* (2012), Porter *et al.* (2016a), Valdaliso (2013, 2015), and also the extended Spanish language version of this paper (Aranguren *et al.*, 2021).

⁷ In terms of inequality, the ratio between the income of the top 20% and the bottom 20% was 4.8 in the Basque Country in 2008, compared to 5.0 in the EU and 5.6 in Spain (data from the Spanish Institute of National Statistics and Eurostat). At the same time, 17.6% of citizens in the Basque Country expressed their incapacity to meet unexpected expenses, compared with 29.9% in the rest of Spain and 34.3% in Europe. Finally, 13.9% of Basques were at risk of poverty or social exclusion, well below the 23.8% in Spain and 23.7% in the EU.

What?

When it comes to elements such as the institutional architecture, economic and scientific activities, human capital, infrastructures and targeted actors/markets that underlie the strategy itself, six dimensions can be highlighted:

- ***Exploiting a high degree of fiscal autonomy and direct policy competences*** in key areas such as education, health, transport and industrial policy. The progressive transfer of these competences from the Spanish government enabled the Basque Government and its three Provincial Councils (Araba, Bizkaia and Gipuzkoa) to develop their own economic development strategies and policies within a new institutional framework financed by tax-collecting powers.⁸
- ***Building on strong industrial specialisation as a platform for progressive internationalisation.*** The industrial tradition of the Basque Country dates back centuries,⁹ and the strategy targeted public investments to support, modernise and internationalise from existing capabilities in metal-based and manufacturing industries.¹⁰ Coinciding also with the advent of the single European market, a result has been that exports as a proportion of GDP increased dramatically from 22.8% in 1980 to 34.3% in 2008, alongside an increase in the proportion of high and medium-high technology exports from 37.4% to 46.5%,¹¹ and a diversification in final markets.¹² By 2008 a high proportion of Basque exports were concentrated in 5 broad industrial sectors: metal and metal products (27%), motor vehicles (18%), machinery and mechanical equipment (16%), coke and refined petroleum products (8%), and cork and plastics (6%).¹³ The proportion of employment in mid-high technology manufacturing was at this point also higher than in Spain and the EU, accompanied by growing presence of knowledge-intensive business services (KIBS) associated with industry and signs of early adoption of advanced manufacturing practices.¹⁴
- ***Making sustained investment in scientific and technological infrastructure.*** Consistent with the focus on industry, this dimension materialised in the progressive development of a network of science, technology and innovation agents oriented to the needs of industry; initially technology centres and parks, and then basic research centres and cooperative research centres, alongside the emergence of firms specialised in advanced services. By 2008 there were 43 technology and research centres and over 400 firms located in three technology parks (in Alava, Bizkaia and Gipuzkoa). Key results included a radical increase in R&D intensity from 0.1% of GDP in 1980 to 1.8% in 2008, accompanied by a substantial increase in the proportion of researchers in total employment (from 0.4% to 9.1%).
- ***Fostering a singular business ecosystem built around SMEs, including ‘hidden champions’, and an important cooperative movement.***¹⁵ The disadvantages of being small were addressed in part through a pioneering cluster policy, inspired by the ideas of Michael Porter, that sought to foster

⁸ For more detail, see Morgan *et al.* (2020).

⁹ For historical detail, see Valdaliso (2013, 2019).

¹⁰ For example, from the early 1980s energy policies sought to improve efficiency in energy-intensive industry to boost competitiveness as well as to diversify energy supply (Aranguren *et al.*, 2012).

¹¹ See Valdaliso (2010).

¹² See Minondo (2008).

¹³ See Orkestra (2009).

¹⁴ See Navarro and Sabalza (2006), Orkestra (2009), Valdaliso (2009).

¹⁵ Hidden champions are firms that are specialised in highly customised and sophisticated components that operate in global market niches. See: Orkestra (2015a) and Kamp *et al.* (2017).

cooperation in areas such as training, R&D and internationalisation and was supporting the activities of 14 cluster associations by 2008.¹⁶

- ***Emphasising skills and learning among the population*** at all levels of the education system, and in particular with respect to the development of a vocational training system strongly linked to industry. Indeed, the vocational training system was a pioneer in Spain in terms of its level of development and uptake among the population, and by 2009 around 50% of vocational training courses were linked to industry as opposed to around 30% in Spain.¹⁷ This supported technology absorption, enabling many sectors to reach their technological frontiers, although there was an acknowledged lack of connection with flows of international talent.¹⁸
- ***Consolidating a working culture of effort and business initiative.*** This culture built on a history of dynamic business leaders willing to play wider leadership roles in the region, a significant cooperative movement led by the Mondragon Group, and a well-integrated vocational training system, among other elements.¹⁹ In particular, the strategy leveraged this business tradition and expertise in key positions in the public administration.²⁰

By who and how?

With regards to the questions of 'by who' and 'how', it is difficult to separate the actors involved and the processes through which the strategy was implemented. These questions are therefore treated together, and four key characteristics of the strategy can be identified from analysis of the 1980 to 2008 period.

- ***Public sector leadership of the strategy.***²¹ This initially relied on a group of individual 'policy entrepreneurs' who took the decision – against the dominant economic development thinking of the time – to pursue an active industrial policy in response to the deep crisis of the 1980s. It also drew on strong connections between the public and private sectors, including the mobility of key people, to build a qualified bureaucracy with strong sensitivity to the needs of industry and the emergence over time of shared public-private leadership.
- ***Progressive creation of a policy community with shared vision.*** This included government and government agencies, top-level management within firms playing active roles in business associations, cluster associations and the Basque Science, Technology and Innovation Network (BSTIN), and the leaders of research, technology and knowledge centres. The common language and vision of this community was strengthened by specific initiatives provoking interaction, applied

¹⁶ For more detail on the cluster policy and its evolution, see Aranguren *et al.* (2009) and Orkestra (2017).

¹⁷ See Mujika and Intxausti (2018) and Olazaran and Brunet (2013).

¹⁸ See Annex 2 for details of the cluster organisations supported by the Basque cluster policy, and for more detail on the cluster policy, see Aranguren *et al.* (2012) and Orkestra (2011, 2017).

¹⁹ See Etxabe (2019) and Valdaliso (2013, 2019).

²⁰ See Aranguren *et al.* (2012)

²¹ For more detail see the analysis contained variously in Aranguren *et al.*, (2012), Porter *et al.*, (2016a), Azua (2006), Magro and Valdaliso (2019), Orkestra (2008), Valdaliso *et al.* (2014), Valdaliso (2015, 2019) and Morgan (2016).

analysis and training, including the creation of *Innobasque* (Basque Innovation Agency) and *Orkestra* (Basque Institute of Competitiveness).²²

- ***Distinctive model of public-public and public-private cooperation.*** This was established in the context of a complex institutional structure where policy competences are shared across the Basque Government, the Provincial Councils and the Municipalities. Cluster organisations, chambers of commerce, local economic development agencies and public-private organisations such as Orkestra, Euskalit, and Innobasque all helped ensure public-private cooperation within this institutional structure.
- ***Long term policy vision, relatively independent from the political cycle.*** The socioeconomic strategy was built across the three decades in this period around a stable commitment to industry, with other policy areas developing around that commitment, always oriented towards improving economic and social conditions.

In summary, the strategy of the Basque Country in the period 1980-2008 was characterised by the pursuit of competitiveness in solidarity through the transition of existing industrial sectors to compete increasingly in efficiency and innovation. It was led by a regional government with strong competences and capacities which developed singular policies based around technology, clusters and vocational training, that were rooted in strong public-private cooperation.

²² See Magro and Valdaliso (2019) and Valdaliso (2019), and Porter *et al.* (2016b) on the specific case of Orkestra. See also Aranguren *et al.* (2021) for an analysis of Orkestra's role in linking Basque competitiveness challenges with global academic knowledge.

3. BUILDING SUSTAINED RESILIENCE: BASQUE STRATEGY 2008-2020

The experience and capacities developed over the three decades of strategy from 1980 summarised above left the region in a strong position to respond to the intense economic downturn precipitated by the financial crisis of 2008. However, the performance of the Basque Country over this most recent period of the strategy to 2020 must be seen in the context of the deep, global economic slump that shaped this period.

In the context of the 2008 financial crisis, Basque Country per capita GDP initially fell from €32,497 in 2008 to €30,607 in 2014, but then recovered its growth trajectory to reach €34,942 in 2019. Indeed, the impact of the crisis was significantly less than the previous crises of the 1970s and 1980s and also less pronounced than in Spain. Moreover, in the period as a whole, it is clear that different governments have been able to successfully guide the Basque Country through phases of the economic cycle, arriving at the highest level of per capita GDP relative to the EU-15 average in the region's history (see Figure 1), and stabilising the long-term decline in the contribution of industry to the economy at around 24%. With regards social outcomes, while the proportion of the population at risk from poverty or social exclusion grew from 13.9% in 2008 to 15.3% in 2014, it had fallen to 12.1% in 2019, situating the Basque country in the top 20 regions in Europe.²³

This section explores in detail the evolution of the territorial strategy during this latest period from 2008 to 2020, highlighting the differences with respect to the previous period. To do so, we adapt the framework that has been used to analyse previous periods by introducing a series of more specific dimensions to the 'what' question and fusing together the 'by who' and 'how' questions.

What for?	The ultimate objectives of the strategy
What?	The institutional architecture, economic and scientific activities, human capital, infrastructures, and targeted actors and markets that underlie the strategy <ul style="list-style-type: none"> • Specialisation • Assets • Targeted actors
By Who? and How?	The relevant organisations and individuals in the territory that lead the strategy and the governance process through which the strategy is developed

What for?

Similarly to the beginning of the 1980s, this period began with a deep crisis, the response to which was to pursue a regeneration of competitiveness while seeking to ensure that people didn't get left behind. However, the context and orientation of this strategy of 'competitiveness in solidarity' has been different. On the one hand, while the crisis of the 1980s occurred at a time when the construction of the welfare state in Spain and the process of decentralisation and transfer of political competences implied a strong growth in the available resources for Basque Government, this crisis meant a reduction in the fiscal resources available together with the associated difficult political decisions. On the other hand, the orientation of the strategy was necessarily different in the context of a more mature economy with a now well-developed institutional architecture. Rather than the reconstruction of industry, the focus had evolved to *competitiveness in solidarity through innovation*, leveraging public-private collaboration spaces to facilitate a *systemic and participative strategy*.

²³ See Annex 1.

What specialisation?

In continuation with the previous period the strategy has sought to build *productive transformation from existing industrial, scientific and technological specialisations*. In this regard, the economic, scientific and technological activities prioritised during this period were reflected in two key strategy documents that covered each half of the decade: the 2015 and 2020 Science, Technology and Innovation Plans.

The **2015 Science, Technology and Innovation Plan**, published in 2011, identified ageing, energy, transport and mobility, the digital world and the industry of science as key markets, and targeted advanced manufacturing, bioscience and nanoscience as transversal capacities to respond to these markets. This continued an approach that had begun around 2000 to generate new pathways of economic activities from existing industrial strengths by investing in a complementary scientific base (in bioscience and nanoscience) where the Basque Country had not traditionally had distinctive capacities.

The **2020 Science, Technology and Innovation Plan**, published in 2014, was developed during the crisis of the first half of the decade and prioritised existing strengths in the framework of an explicit **Smart Specialisation Strategy**.²⁴ Specifically it identified three strategic priorities in: Advanced manufacturing, Energy, and Biosciences-health. These were complemented by the exploration of four opportunity niches in: Food, Creative and cultural industries, Urban habitat and Environmental ecosystems. Since the launch of the Plan in 2014 the Basque Country has increased its already high economic, scientific and technological specialisation in the three strategic priority areas, and especially in Advanced manufacturing and Energy; for example, the proportion of R&D spending concentrated in the three priorities has risen from 70.5% in 2014 to 72.1% in 2018.²⁵ More generally, the evolution of the three strategic priorities over the second half of the decade has been quite different, reflecting differences in the maturity of the industries and in their competitiveness challenges.

- **Advanced manufacturing** accounts for the largest proportion of Basque industry and includes the activities of several well-developed clusters, including automotive, machine tools and aeronautics, and scientific and technological infrastructures. Value added, R&D, employment and exports all increased more than the Basque average between 2014 and 2018, while key challenges were identified related to digitalisation, skills, and the development of new business models.
- **Energy** stands out for its international competitiveness, which is based on R&D intensity, highly-qualified workforce and the presence of strong energy, scientific, technological and training infrastructures, alongside the presence of several globally-leading energy firms. Moreover, the energy cluster contains a mix of mature and emerging value chains, offering important opportunities for diversification. Key challenges relate to energy transition, linked to climate change, the need for consolidating large firms, and the integration of local suppliers within value chains.
- **Biosciences-health** is a more emergent priority, targeted with a long-term vision that builds from a strong scientific-technological base that has been proactively built over recent years in recognition of the significance of biosciences for the future of other sectors. Being an emerging area, key challenges include the need for different components (scientific-technological, business, health system, different departments of the public administration) to interact and work as a system, the

²⁴ See Aranguren *et al.* (2016, 2017, 2019).

²⁵ See Gobierno Vasco - Innobasque (2020).

development of connections with other clusters and value chains (in the Basque Country and elsewhere), and the strengthening of certain management capacities.

During the implementation of the Smart Specialisation Strategy based around these three strategic priorities (and the four opportunity niches), several transversal areas have also come to the fore: *(i) internationalisation, (ii) skills, (iii) new business models* and *(iv) entrepreneurship*. While internationalisation was present during the three periods of the strategy summarised in the previous section, the other three areas are a new focus related to evolving technological and contextual trends.

What assets?

Compared to the previous period, four distinctive elements can be identified in terms of the assets underlying the strategy in this period:

- ***Investment in infrastructures related to ICT and to high technological-readiness levels (TRLs)***. Levels of infrastructure investment in general were affected by the 2008 financial crisis, falling until 2014/2015 before recovering in the second half of the period. However, the Basque Country has invested comparatively less than Spain in traditional physical infrastructures but comparatively more in those infrastructures related to digitalisation and Industry 4.0.²⁶ These include the creation of the Basque Cybersecurity Centre (BCSC) by the Basque Government and the Industrial Cyber Security Centre-Gipuzkoa (ZIUR) by the Provincial Council of Gipuzkoa. The Basque Digital Innovation Hub (BDIH) has also been established as a connected network of advanced manufacturing assets and services for training, research, testing and validation. With regards science and technology infrastructure, this period has also seen a change in focus. Some of the Cooperative Research Centres established in the previous period have been closed, and there has been a new focus on developing sector-specific advanced manufacturing centres at higher TRLs. Examples include the Automotive Intelligence Centre, the Marine Energy Testing Centre, the Aeronautics Advanced Manufacturing Centre, as well as the Energy Intelligence Centre currently under development.²⁷
- ***Improvement of specific skills and better alignment of the curricula of educational centres with the priorities of the Smart Specialisation Strategy***.²⁸ In particular there has been an increased consciousness among Basque universities of their role within the economic development strategy. This has been facilitated by initiatives such as 4GuneCluster, a coalition of 11 university centres in engineering, science and technology, which has sought to strengthen university-business cooperation around skills. The commitment to vocational training developed in the previous period has also been built on to advance in the provision of 'dual' training in participation with firms, to develop collaborative challenge-based learning, and to pioneer an approach to build links between local vocational training centres and small firms' innovation, testing and prototyping needs. Indeed, the Basque Country has positioned itself as one of the vocational training systems of reference in Europe (ET 2020 Working Group on Vocational Education and Training, 2019). These efforts within the educational system itself have been complemented by investment in talent attraction through dedicated organisations, in particular Bizkaia Talent and Ikerbasque (The Basque Foundation for

²⁶ See Moreno (2020).

²⁷ See, respectively: <https://www.aicenter.eu/>; <https://www.bimep.com/en/>; and <https://www.ehu.eus/en/web/cfaa/home>.

²⁸ For a detailed analysis of this skills dimension, see Orkestra (2019).

Science), which, for example, brought 268 researchers from 37 countries to the Basque Country in 2020.

- ***Rising consciousness of weaknesses in non-technological innovation alongside a reorganisation of the Basque Science, Technology and Innovation Network.*** While by 2012 the Basque Country had converged with the EU-15 in terms of R&D intensity, the following years saw this ratio decline (see Figure 2). By the end of the period Basque R&D spending stood at 1.9% of GDP compared with 2.2% in the EU-15. Meanwhile, Orkestra's 2013 and 2015 *Basque Country Competitiveness Reports* highlighted non-technological innovation among SMEs as one of the main weaknesses of the Basque Country, an observation that was supported by subsequent Regional Innovation Scoreboards produced by the European Commission. In the light of such trends and analysis, the second half of the period saw efforts to reorganise and better monitor the Basque Science, Technology and Innovation Network and to adapt public support programmes for R&D. This included the launch of various programmes focused on non-technological innovation, like the Kudeabide programme to support pilot projects in advanced management.
- ***Maturing of the public sector alongside local institutionalisation,*** in the context of the 'normalisation' of the political landscape following the end of terrorism.²⁹ A reduction in civil service positions was prompted by economic and financial stabilisation measures, and those that remained had developed proven experience with the design and implementation of programmes. These capacities were built on in this period to advance in key areas of monitoring and evaluation, following external recommendations.³⁰ Meanwhile, a 2013 strategy for re-dimensioning the public sector put a brake on the creation of new institutions, and a 2016 law on local entities concluded the configuration of the Basque Country's institutional architecture by clarifying the competences of local entities alongside their participation in existing governance mechanisms. With the exception of the creation of Basque Trade and Investment to promote internationalisation, this period was characterised by the use of public-private collaboration processes – for example, steering groups in the framework of the Smart Specialisation Strategy – without creating new administrative structures.

What targeted actors?

Building on the strong public leadership combined with public-private cooperation and the development of a policy community that were key features of the previous period, three concrete groups of targeted actors stand out in this latest period of the strategy:

- ***Intermediary organisations.*** The cluster organisations have continued their roles as the principle agents through which the Basque Government engages with industry, alongside the business associations in the areas of labour relations and vocational training. Following an extension of the cluster policy to 10 new organisations with the potential and desire to work with a cluster philosophy from 2009, stricter criteria for public funding of cluster organisations from 2016 have resulted in a series of institutional changes (mergers or alliances between cluster organisations). By the end of the period there were 17 clusters supported by the policy, with combined membership of over 1700 firms and other organisations.³¹ Inter-cluster collaboration was also developed through a series of projects

²⁹ ETA dissolved in 2018 following the announcement of a permanent ceasefire in 2011, and in parallel the Basque Government led a series of initiatives to promote reconciliation and coexistence.

³⁰ For example, the reports by OECD (2011) and Morgan (2013).

³¹ See Annex 2 for details of the cluster organisations supported by the Basque cluster policy, and for more detail on the changes to the cluster policy during this period see Orkestra (2017).

and working groups that emerged in the context of the Smart Specialisation Strategy and through dedicated meeting spaces such as the annual *Observatory on Industrial Environment* and the *Basque Cluster Day*. Local development agencies and (after 2017) the network of vocational training centres coordinated by Tknika also consolidated important capillary roles as mechanisms through which to engage with the needs of small firms in the context of the overall strategy. Finally, this decade saw continued support for a series of public-private organisations – most notably Ikerbasque, Innobasque and Orkestra – that had been created in the previous period, consolidating their reach, legitimacy and impact.

- **Companies.** The strategy in this period was characterised by attempts to enable Basque companies and corporations to have greater involvement in organisms such as the Basque Council on Science, Technology and Innovation and the steering groups of the Smart Specialisation Strategy. This was stimulated in part by a concern that a series of mergers and injections of foreign capital was diluting the anchoring of traditional business groups in the territory, an issue that also prompted certain restructuring of financial instruments under the control of the Basque Government and the creation of the new Basque Trade and Investment agency to oversee a proactive internationalisation strategy, which has supported further growth in export propensity (from 34.3% of GDP in 2008 to 36.4% in 2019). Alongside this was a growing recognition of the competitiveness challenges faced by small firms, an issue which became an important pillar for work within the steering groups of the Smart Specialisation Strategy.³²
- **Innovation actors within the Basque Science, Technology and Innovation Network.** On the one hand there has been a focus on boosting research among the private universities through the innovative application of a contract programme, and encouraging a closer relationship between research (particularly in the public university) and the needs of the business community. This took place alongside a major reorganisation of the Basque Science, Technology and Innovation Network, resulting in the closing of several cooperative research centres and the eventual formation of the Basque Research and Technology Alliance (under the presidency of the Basque Government) to generate critical mass. Recognition of weaknesses in non-technological innovation and the growing need for new business models among traditional industry also led to the leveraging of vocational training centres to offer innovation services to SMEs in their local environment, and to support from municipal governments in the three cities and from the Basque Government for the development of knowledge intensive business services (KIBS).

By who and how?

In terms of the integrated questions of ‘by who’ the strategy was led and ‘how’ it was implemented, four distinctive features can be identified in this period.

- **Strengthening of the external governance of the strategy and international positioning.** Relations with the central Spanish government have improved over this period, and the transfer of policy competences to the Basque Government has advanced.³³ There has also been a strengthening of the relationship with some neighbouring regions, most notably in the framework of the Euroregion

³² For more detail on the competitiveness challenges of SMEs and positioning within the smart specialisation strategy, see Orkestra (2015a) and Aranguren *et al.* (2016, 2019).

³³ These include those related to R&D (2009), active employment policies (2012) and social security (agreement in 2020).

created between the Basque Country and Aquitania in 2011 and incorporating Navarra in 2016. Finally, there have been important efforts to position the Basque Country in the European context by targeting increased participation in EU research programmes alongside a more active engagement in key European networks and platforms such as the Vanguard Initiative.

- ***Improving the internal governance (inter-departmental and inter-institutional) of the strategy.*** On the one hand, the science, technology and innovation plans developed over the period have been led for the first time by the Presidency Department of the regional government, with new institutional mechanisms to facilitate the coordination and governance between different government departments (and their related agencies). For example, an inter-departmental committee was created to supervise the development of the smart specialisation strategy. On the other hand, the period has been characterised by the development of strategies at other administrative levels, including the Provincial Councils, the main cities, and several other groups of local municipalities. While much of the coordination of these strategies has been informal, through bilateral relationships and events, this period has also sought to strengthen formal mechanisms for inter-institutional coordination. Thus the Provincial Councils participate in the Basque Council on Science, Technology and Innovation and an inter-institutional committee has been created in the framework of the Smart Specialisation Strategy.
- ***Fostering a more distributed leadership of the strategy*** with active participation from across the triple helix (business, university and government). A wide range of non-governmental actors were involved in the design of the 2015 Science, Technology and Innovation Plan, and this participation was progressively widened and deepened during the period through mechanisms associated with the Smart Specialisation Strategy (for example, the steering groups created for each priority area and opportunity niche). While these groups were initially focused around key government departments, technology centres, universities and intermediary agents such as cluster organisations, they have evolved to directly engage businesses too, although SME and civil society involvement remains a challenge. This has resulted in the evolution of more distributed leadership of the strategy itself. Indeed, while the government initially played a strong role within the steering groups, representatives from other parts of the triple helix have taken greater leadership in the most recent years.³⁴
- ***Evolving from a static strategy towards a living strategy, supported by a continuous evaluation as a mechanism for decision-making and learning.*** There has been significant progress over the period with respect to monitoring and evaluation, an issue that had previously been identified as a key weakness. Alongside processes developed by Innobasque to monitor and evaluate the overall Smart Specialisation Strategy, there have been processes developed to monitor the cluster organisations and actors that receive funding within the Basque Science, Technology and Innovation Network. There has also been increased recourse to external evaluation and peer review, for example through participation in the Interreg Clusters3 project and through studies conducted by Orkestra in collaboration with Kevin Morgan (from Cardiff University). These monitoring, evaluation and peer review mechanisms, when combined with the more distributed leadership and new governance spaces noted previously, have facilitated the transition towards a more dynamic, flexible and living strategy.

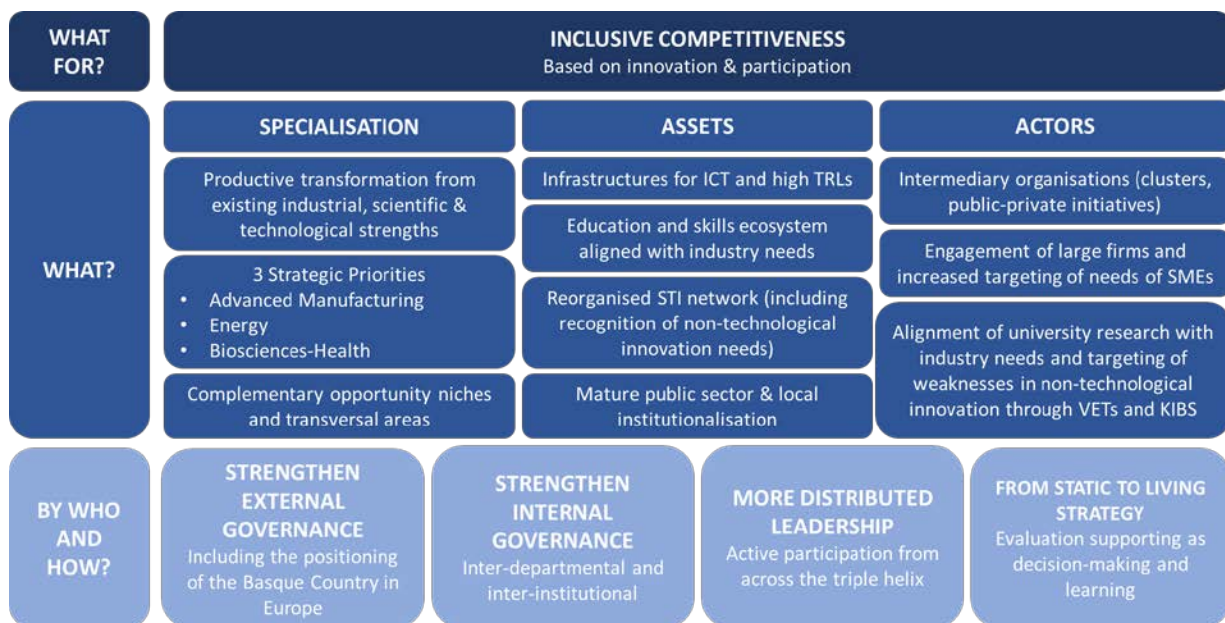
³⁴ For more detail on the evolution of leadership within the steering groups of the smart specialisation strategy, see Aranguren *et al.* (2019).

Summary

Bringing together the ‘what for’, ‘what’, ‘by who’ and ‘how’, the economic development strategy of the Basque Country over this most recent decade can be characterised as “seeking competitiveness in solidarity based on innovation, through a multi-level and triple-helix governance led by the Basque Government”.

Figure 2 provides an illustration of the main elements of this strategy in the period 2008-2020, which has built on the foundations of the previous period to foster sustained resilience, successfully navigating the financial crisis that characterised the first half of the last decade and generating continued improvements in economic and social outcomes. Key differentiating features of this period include: i) the targeting of strategic priorities and opportunity niches through an explicit Smart Specialisation Strategy that seeks to engage large and small companies, universities and other key actors; ii) the reorganisation of the Science, Technology and Innovation network and alignment of the skills ecosystem with industry needs; iii) the shift in focus towards non-technological innovation as complementary to technological innovation; and iv) the strengthening of governance mechanisms to promote more distributed forms of regional leadership and enhanced external connectivity.

Figure 2: Summary of Basque Regional Strategy 2008-2020



4. CHALLENGES GOING FORWARD FOR BASQUE REGIONAL STRATEGY

A key to continued success is recognising ongoing and emerging challenges, and there are a number of such challenges that are likely to shape the next phase of the strategy as it seeks to tackle the new crisis precipitated by the COVID-19 pandemic. Seven specific challenges are identified, but these all fall under the *overarching challenge of integrating today's big societal challenges into the strategy*.

At the end of 2019 the Basque Government had integrated concern with three underlying transitions into the background analysis being undertaken to design the next *Science, Technology and Innovation Plan to 2030*.

Transition	Specific challenges
Demographic	Ageing, migration, inequalities
Energy-environmental	Climate, decarbonization, circular economy, biodiversity
Technological-Digital	Digitalisation, automation, big data

These three transitions, and the specific challenges associated with them, provide the backdrop for the transformation challenges facing industry, which must adapt to them and generate new competitive advantages. Moreover, the COVID-19 pandemic has shone further light on these transitions and prompted discussions around the need to accelerate them and to better integrate foundational elements of the economy such as health, care, education and food as fundamental pillars of territorial competitiveness. Indeed, the European Commission's *Next Generation EU* strategy emphasises a green, digital and just recovery.

The main challenge for the Basque Country from 2020 onwards is to integrate such societal challenges into the regional strategy in a way that creates opportunities for sustainable economic development and thus wellbeing of the society. This will require an ambidextrous approach that combines the continued exploitation of existing economic strengths with learning and exploration targeted towards new opportunities related to these underlying transitions and challenges. Managing this tension leads us to six concrete challenges that fit under the umbrella of embracing green, digital and social challenges in the medium-long term.

- ***Orientate economic, scientific and technological activities towards sustainable transitions***
 Given the characteristics of the main transitions, the transformation of Basque industry reap the opportunities that they offer will require a strengthening of non-technological innovation within the overall innovation strategy.
- ***Strengthen the development of intermediary and local actors***
 The need to reconfigure certain value chains, to remain alert to future shocks and to bridge technological and non-technological dimensions of innovation suggests a particularly important role for intermediary agents that foster cooperation and generate strategic intelligence related to ongoing industrial transformation.
- ***Boost the ambidexterity of firms, especially SMEs***
 There is a particular need to strengthen the capacity for exploration of new paths, alongside the exploitation of existing ones, among SMEs and to leverage their capacities in non-technological innovation. It will be important to combine this with the attraction of high-value activities from outside in areas related to the main transitions.
- ***Integrate the demand-side into policies for investment in infrastructures***
 To capitalise on the large supply-side investment in infrastructures of the strategy to-date it will be important to integrate the demand-side into future policies in ways that guarantee the effective use of both physical and knowledge infrastructures (for example, the Basque Digital Innovation Hub or

centres for advanced manufacturing). It will also be important to facilitate inter-regional cooperation to achieve critical mass.

- ***Promote public sector innovation and social innovation***

Both public sector innovation and social innovation are key to the new social relationships and models of collaboration that will be necessary to embrace the big societal challenges.

- ***Enhance the collaborative governance of the strategy***

Important steps have been taken during recent years which will need to be built on to effectively integrate societal challenges into the strategy. This includes working on: (i) external governance to increase the capacity of influence of the Basque Country; (ii) internal governance to improve coordination across administrative levels, across different priorities of the smart specialisation strategy, and across the triple helix; and (iii) distributed leadership to consolidate the transition from 'government strategy' to 'territorial strategy'.

5. KEY LEARNINGS FROM THE BASQUE CASE

The Basque Country has been able to progressively build resilient socioeconomic competitiveness through a **consistent and long-term strategy** that allows it to face the new challenges from a relatively strong position. The strategy implemented in the period 2008-2020 has generated continued socioeconomic development and helped to avoid the worst impacts of the 2008 financial crisis.

As we are now in the throes of a new and unprecedented crisis, there are five main lessons from the Basque case for the future, both in the Basque Country and in other territories that are seeking to build resilient economic development over the long term.

1. **Orientation.** The notion of inclusive competitiveness – mutually re-enforcing economic and social elements – has been a constant throughout. The development of an integrated strategy has ensured that economic development aims have not been pursued at the expense of social aims, which has helped to maintain social cohesion alongside a societal commitment to the benefits of industrial development. The construction of this consensus has in turn facilitated stability in the competitiveness strategy even when there have been changes in government administrations.
2. **Proactiveness.** The Basque Country's strategy has not been passive, merely seeking to create the conditions for business to develop as much of the orthodox thinking on economic development policy held throughout the 1980s and 1990s. Rather, from its origins it has sought to prioritise specific activities and in doing so to take calculated risks by investing in capacities that would build from existing strengths.
3. **Focus.** The strategy has been consistently based on activities where there were already elements of strength, hence the focus on industry, and particularly on metal-related industrial activity. It has sought to further strengthen these activities and to diversify from them into other activities, in particular through investments to enhance efficiency and boost innovation. Examples include the sustained heavy investments in technological infrastructures, more specific, targeted investments related to aerospace and biosciences, and the identification and support for key projects such as the Guggenheim museum in Bilbao that have been used as a lynchpin for related activities.
4. **Policy Capabilities.** The construction of broad-based policy capabilities for strategic thinking and implementation has various dimensions. Firstly it is related in part to the presence of significant policy competences at regional and sub-regional levels, including fiscal policy autonomy. Secondly, it concerns the progressive development of institutional capacities, both within different layers of government and extending into a broader conception of 'policy community' that integrates other triple helix actors. Thirdly, all of this has been supported by a commitment to experiment with and improve governance mechanisms that communicate and mediate the different interests of different actors. In this regard, the focus on collaborative relationships between a wide range of public and private institutions to build capacity for strategic policy thinking and implementation has also played a role in facilitating stability, making continuity easier in the event of changes to government or other key actors.
5. **Openness.** Here two dimensions stand out. Firstly the strategy has sought to be open on the inside, actively involving a wide range of stakeholders and the population at large. This has been supported by a strong commitment to investing in the training of people at all levels that has seen a progressive upgrading of skills, knowledge and capabilities among the population. Secondly, the strategy has sought to be open on the outside, progressively building internationalisation into all areas of the strategy (business development, skills/talent, policy relationships ...) and recognising the need for a small region to develop relationships internationally.

REFERENCES

- Aranguren, M. J., Canto-Farachala, P. and Wilson, J. R. (2021, forthcoming). 'Transformative academic institutions: An experimental framework for understanding regional impacts of research', *Research Evaluation*.
- Aranguren M.J., De La Maza X., Parrilli M.D. and Wilson J. R. (2009) *Asociaciones clúster de la CAPV: desempeño y retos*, Bilbao: Deusto Publicaciones.
- Aranguren, M.J., Magro, E., Morgan, K., Navarro, M. and Wilson, J. R. (2019). *Playing the long game. Experimenting Smart Specialisation in the Basque Country 2016-2019*. Cuadernos Orkestra 58/2019.
- Aranguren, M.J., Magro, E., Navarro, M. and Valdaliso, J.M. (2012). *Estrategias para la construcción de ventajas competitivas regionales. El caso del País Vasco*. Madrid: Marcial Pons.
- Aranguren, M.J., Magro, E. and Wilson, J. R. (2017). Regional competitiveness policy in an era of smart specialisation strategies, in R. Huggins and P. Thompson (Eds.) *Handbook of Regions and Competitiveness*, Cheltenham: Edward Elgar.
- Aranguren, M.J., Morgan, K. and Wilson, J. R. (2016). *Implementing RIS3. The Case of the Basque Country*. Cuadernos Orkestra 2016/17.
- Azua, J. (2006). Política industrial y competitividad: el caso del País Vasco. *Boletín Informativo Techint*, 321: 49-67.
- ET 2020 Working Group on Vocational Education and Training (VET) (2019). *Mapping of Centres of Vocational Excellence*. Luxembourg: Publications Office of the European Union.
- Etxabe, I. (2019). Social capital in Eibar, 1886-1985: dimensions, institutions and outcomes. *Investigaciones de Historia Económica*, 15(3): 190-203.
- Gobierno Vasco - Innobasque (2020). Análisis de la evolución de los ámbitos de especialización RIS3 entre 2014-2018. RIS3 Euskadi. Abril de 2020. Accessed the 14/02/2021 at https://www.innobasque.eus/uploads/attachment_files/pcti2030-analisis-ris3-5efc705bb7262.pdf
- Kamp, B., Ruiz de Apodaca, I., Murciego, A., Zubizarrieta, M. and Sisti, E. (2017). *Mapeo y caracterización de líderes en nichos de mercado internacionales en la Comunidad Autónoma del País Vasco*, Cuadernos Orkestra.
- Magro, E. and Valdaliso, J. M. (2019). El papel de las políticas públicas en la resiliencia regional: un análisis exploratorio del caso del País Vasco. *Revista Gallega de Economía*, 28(2): 53-70.
- Minondo, A. (2008). 'Un análisis del proceso de integración comercial de la economía vasca', *Estudios Empresariales*, 127: 6-20.

- Moreno, J. (2020). Evolución de la inversión en infraestructuras en la Comunidad Autónoma del País Vasco (2007-2018). *Ekonomiaz*.
- Morgan, K. (2013). *Basque Country RIS3: An expert assessment on behalf of DG Regional and Urban Policy*. (No. Contract Number CCI 2012CE160AT058).
- Morgan, K. (2016). The regional state in the era of Smart Specialisation. *Ekonomiaz*, 83.
- Morgan, K., Navarro, M. y Valdaliso, J. M. (2020). Economic governance in the Basque Country: balancing continuity and novelty. *Ekonomiaz*.
- Mujika, I. and Intxausti, K. (2018). La transformación de la Formación Profesional en Euskadi. Los centros de Formación Profesional, motor del cambio, *Ekonomiaz*, 94, 2: 228-255
- Navarro, M. and Sabalza X. (2016). Reflexiones sobre la industria 4.0 desde el caso vasco, *Ekonomiaz*, 89: 142-173.
- OECD (2011). *OECD Reviews of Regional Innovation: Basque Country, Spain 2011*. Paris: OECD Publishing.
- Olazarán, M. and Brunet, I. (Eds.) (2013). *Entorno regional y formación profesional: los casos de Aragón, Asturias, Cataluña, Madrid, Navarra y País Vasco*. Tarragona: Publicaciones URV, Servicio editorial UPV/EHU.
- Orkestra (2008). *Informe de Competitividad del País Vasco. Hacia una propuesta única de valor*. Bilbao: Publicaciones de la Universidad de Deusto.
- Orkestra (2009). *II Informe de Competitividad del País Vasco: el estadio competitivo de la innovación*. Bilbao, Publicaciones de la Universidad de Deusto.
- Orkestra (2011). *Informe de Competitividad del País Vasco. Liderar en la nueva complejidad*. Bilbao: Publicaciones de la Universidad de Deusto.
- Orkestra (2015a). *Informe de Competitividad del País Vasco. Transformación productiva en la práctica*. Bilbao: Publicaciones de la Universidad de Deusto.
- Orkestra (2015b). Cuadernos del Informe de Competitividad del País Vasco 2015 Número 3 Sectores y clústeres. Bilbao: Publicaciones de la Universidad de Deusto.
- Orkestra (2017). *Informe de Competitividad del País Vasco. ¿Y mañana?* Bilbao: Publicaciones de la Universidad de Deusto.
- Orkestra (2019) *Basque Country Competitiveness Report 2019: Are Skills the Panacea?* Bilbao: Deusto Publications.

- Orkestra (2020). *Resilience: Before During and After the Pandemic. Basque Country Competitiveness Report 2020*. Bilbao: Deusto Publications.
- Porter, M., Ketels, C. and Valdaliso, J. M. (2016a). *The Basque Country: strategy for economic development*, Boston, Harvard Business School.
- Porter, M., Ketels, C. and Valdaliso, J. M. (2016b). *Orkestra-Basque Institute of Competitiveness*. Boston, Harvard Business School Case, 9-716-456.
- Valdaliso, J. M. (2010). Treinta años de cambios en las empresas vascas: un estudio exploratorio y descriptivo, *Ekonomiaz*, 25A, 194-221.
- Valdaliso, J. M. (2013). Las estrategias de desarrollo económico del País Vasco: una perspectiva histórica. *Ekonomiaz*, 83: 146-174.
- Valdaliso, J. M. (2015). The Basque Country: past experience and path dependency in strategy- and policy-making, en Valdaliso, J.M., y Wilson, J.R. (eds.), *Strategies for shaping territorial competitiveness*, pp. 113-130, London: Routledge.
- Valdaliso, J. M. (2019). La industrialización del País Vasco: el papel de las políticas industriales, en GARCÍA RUIZ, J.L. (Ed.), *Políticas industriales en España: pasado, presente y futuro*, pp. , Madrid: Pirámide.
- Valdaliso, J. M., Magro, E., Navarro, M., Aranguren, M. J. and Wilson, J. R. (2014). Path dependence in policies supporting smart specialisation strategies: Insights from the Basque case. *European Journal of Innovation Management* 17(4), 390-408.
- Valdaliso, J. M. and Wilson, J. R. (Eds.) (2015). *Strategies for shaping territorial competitiveness*. London: Routledge.

ANNEX 1: GENERAL ECONOMIC INDICATORS, BASQUE COUNTRY (1980 – 2019)

Indicator	Basque Country						Spain	EU15
	1980	1990	1999	2008	2014	2019*	2019	2019
GDP per capita (€, 2015)	14,229	18,536	24,749	32,479	30,607	34,942	26,440	36,387
GDP per capita, % Spain (€, 2015)	107.2	108.4	120.1	133.4	137.0	137.2	100.0	137.5
GDP per capita, % EU15 (€, 2015)	70.2	73.7	84.4	96.4	92.3	97.5	72.7	100.0
Population at risk of poverty or social exclusion (%)	-	-	-	13.9	15.3	12.1	26.1	21,6**
Productivity (€, 2015)	43,765	50,745	60,743	66,238	69,891	72,863	58,938	75,784
Occupation rate (% population above ≥ 15)	46.1	43.4	45.6	53.2	48.1	51.2	49.7	54.4
Female occupation rate (% population ≥ 16)	24.4	27.1	33.1	44.7	43.7	46.7	44.3	49.1
Unemployment rate (% population above ≥ 15)	12.4	16.2	15.5	3.8	16.1	9.8	14.1	6.9
Infrastructure capital stock per capita (€)	3,303	4,507	6,786	7,782	8,120	-	7397***	-
Households with internet access (%)	-	-	-	57.0	78.0	92.0	91.0	91.8
Business establishments with internet access (> 10 employees) (%)	-	-	-	94.4	97.5	99.2	98.0	98.2
Population > 16 with lower-secondary education (ISCED 0-2) (%)	84.0	69.0	57.6	48.6	43.8	39.5	43.0	28.5
Population > 16 with upper-secondary or post-secondary, non-tertiary education (ISCED 3-4) (%)	10.0	20.6	24.4	18.8	19.8	21.4	23.3	40.8
Population > 16 with tertiary education (ISCED 5-8) (%)	6.0	10.4	18.0	32.6	36.4	39.1	32.4	29.1
University graduates in science and technology (% population aged 20-29)	-	4.4	9.8	14.7	17.0	11.2	8.0	10.6
R&D expenditure, % GDP	0.1	1.1	1.3	1.8	1.9	1.9	1.2	2.2
Researchers (% employment)	0.4	3.1	5.6	9.1	12.6	12.7	7.1	9.4
Population (thousands)	2,137	2,110	2,081	2,155	2,173	2,190	47,100	410,350
Population > 65 (%)	9.1	12.4	16.9	18.6	21.1	22.7	22.9	24.3
Private consumption (% GDP)	57.1	59.1	56.6	57.1	61.6	61.5	57.6	54.9
Public consumption (% GDP)	12.0	14.8	14.6	16.1	17.0	16.2	18.7	20.5
Fixed capital formation (% GDP)	21.3	24.3	27.3	32.6	23.1	24.1	20.0	21.2
Exports of goods and services (% GDP)	22.8	18.7	29.0	34.3	37.7	36.4	23.6	31.0
Agriculture (% total value added)	3.3	2.2	1.7	0.7	0.8	0.9	2.9	1.5
Industry (% total value added)	44.2	35.0	31.9	28.3	24.1	24.1	15.8	18.1
Construction (% total value added)	4.5	6.7	6.7	9.7	6.1	5.9	6.5	5.6
Services (% total value added)	48.0	56.1	59.7	61.4	69.0	69.1	74.8	74.7

Note: (*) For R&D expenditure, researchers and university graduates in science and technology, data are from 2018; (**) EU28; (***) data from 2014.

Source: Eustat, INE, IVIE, Ministerio de Educación y Formación Profesional, Eurostat y Ameco

ANNEX 2: CLUSTERS SUPPORTED BY BASQUE CLUSTER POLICY (1992-2018)

Activity / Cluster	Cluster Organisation (CO)	Year first integrated into Cluster Policy	Number of associated full members (2018)
Advanced Manufacturing Technologies *	AFM (MACHINE TOOLS)	1992	151
	ESKUIN (TOOLS) **	2010	
	ADDIMAT (ADDITIVE MANUF)	2017	
Household Appliances	ACEDE***	1992	N/A
Automotive	ACICAE	1993	129
Environment	ACLIMA	1995	64
Transport & Logistics *	UNI PORT BILBAO **	1995	229
	MLC ITS EUSKADI **	2005	
ICT & Knowledge *	GAIA (ICTS)	1996	248
	BASQUEGAME	2018	
	AVIC (CONSULTING)	2018	
Energy	CLUSTER ENERGÍA	1996	155
Business Management	Clúster del Conocimiento***	1996	N/A
Aerospace	HEGAN	1997	37
Maritime	FORO MARÍTIMO VASCO	1997	128
Paper	CLÚSTER DEL PAPEL	1998	12
Audiovisual & Digital Content *	EIKEN **	2004	119
	LANGUNE (LANGUAGES) **	2012	
Foundry & Forging *	AFV / FEAF (FOUNDRY)	2009	97
	SIFE (FORGING) **	2009	
	FUNDIGEX (INTERNATIONALISATION)	2016	
Agrofood	CLUSTER ALIMENTACIÓN	2009	93
Habitat & contract	HABIC	2009	100
Bioscience	BASQUE HEALTH CLUSTER	2010	50
Steel	SIDEREX	2010	44
Construction	ERAIKUNE	2010	76
Railway	MAFEX	2012	29

* Grouped COs. With several associative entities. The first one is coordinator.

** Previously independent. Now integrated into a grouped cluster management organisation

*** Discontinued support

Associated full members pay a yearly member fee. Additionally, there are several companies (around 10-15%) that are allowed to participate in some selected activities before deciding to become full members.

Source: Orkestra (2017), Aranguren et al. (2009) and information facilitated by SPRI (2019).



Orkestra

INSTITUTO VASCO
DE COMPETITIVIDAD
FUNDACIÓN DEUSTO

www.orquestra.deusto.es