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Research Article

Regional Entrepreneurial Ecosystems: The case of the Basque Country

Ecosistemas Regionales de Emprendimiento: El caso del País Vasco

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Abstract: By using the concept of regional entrepreneurial ecosystems, the article analyses the case of the Basque Country (Spain). Specifically, the paper focuses on the analysis of two ecosystems: machine tool and smart mobility. While the former serves as a reference of a consolidated ecosystem, the latter represents an incipient and emerging activity in the region. Based on qualitative methodologies and stakeholder's participation it presents a description of each of the ecosystems described focusing on socio-economic aspects in a context of digital transformation. In addition, the article includes some policy implications and conclusions that can contribute to ecosystem development. In particular, the ability to extract knowledge that can be transferred from one ecosystem to another.

Keywords: entrepreneurial ecosystems; regional development; digital transformation; inclusiveness.

Resumen: Mediante el uso del concepto de los ecosistemas regionales de emprendimiento, el artículo analiza el caso del País Vasco (España). En concreto, se centra en el análisis de dos ecosistemas: el de la máquina herramienta y el de la movilidad inteligente. Mientras que el primero sirve como referencia de un ecosistema consolidado, el segundo representa una actividad incipiente y emergente en la región. El artículo, basado en metodologías cualitativas y en la participación de los interesados, presenta una descripción de cada uno de los ecosistemas descritos centrándose en los aspectos socioeconómicos en un contexto de transformación digital. Además, el artículo incluye una serie de implicaciones políticas y conclusiones que pueden contribuir al desarrollo de los ecosistemas. En particular, la capacidad de extraer conocimientos y aprendizajes que puedan transferirse de un ecosistema a otro.

Palabras clave: ecosistemas de emprendimiento; desarrollo regional; transformación digital; inclusión.

1. Introduction

Following the neo-Schumpeterian concept of technological revolution (Freeman et al., 2001; Perez, 2002) it has been recognised that technologies do not evolve in isolation. Technological revolutions involve successive technology systems.

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The building of a technology system sees the creation of positive context factors or synergies, as the socio-economic context gradually adapts to facilitate the flourishing of the new technologies. This adaptation is aided by the establishing of adequate business arrangements and institutional context (Perez, 2002). In the light of digital transformation revolutionary technologies are defined as:

> "*Major radical innovations – e.g., computers – with multiple uses across many sectors and see technology systems as strongly inter-related groups of radical innovations – e.g., computers and software – and finally technological revolutions as the creative gales of destruction that encompass many technology systems and spread across the whole economy*" (Perez & Murray Leach, 2021, p. 31).

The strength of neo-Schumpeterian research on technological revolutions is that it identifies recurring structures and a regular sequence in the diffusion process and the form of absorption of change by the economy, society and policy.

Where technological transformations are concerned, regional ecosystems stimulate and support through technology and innovation policy. At regional level entrepreneurship is an important vector of economic change. It is probably for this reason that entrepreneurial ecosystems are starting to gain relevance in research (Alvedalen & Boschma, 2017) and policy making (Martiarena et al., 2019).

Importantly, there is an emphasis on system-wide capacity building to manage, with stakeholders recognising and being committed to a broad agenda of individual, business and local economic interests. In this regard, interventions within ecosystems are designed for whole regions or industries, not just individual companies (Anderson & Warhurst, 2012).

The entrepreneurial ecosystem approach (Stam, 2015) has proven successful in linking the supply and demand for innovative ideas. Literature suggests that effective entrepreneurial ecosystems are a blend of 'top down' and 'bottom-up' approaches (Mason & Brown, 2014; Stam, 2015). In this scenario, the ecosystem approach enables exploration of the role and impact of main actors and institutions in technology transformation.

The article is organised as follows. First, a conceptual approach to regional entrepreneurial ecosystems is presented. This section incorporates an introduction to the regional ecosystem of the Basque Country (Spain), which distinguishes between the incumbent machine tool ecosystem and the emerging smart mobility ecosystem. Secondly, the methodology used is described. Then, thirdly, the results for each of the ecosystems are presented, focusing on socio-economic issues in relation to digital transformation. Finally, the article ends with a series of policy implications and conclusions.

2. Entrepreneurial Ecosystems

First coined by Moore (1993), definitions of entrepreneurial ecosystems emphasize the importance of localized and interdependent relationships between different entrepreneurial actors (firms, venture capitalists, business angels, banks) (Isenberg, 2011; Brown & Mason, 2017). Other actors such as universities, public research institutes and public sector agencies interact with entrepreneurial actors and co-shape performance. In addition, governments influence ecosystem behaviour and growth in important ways.

This article connects the functioning of the entrepreneurial ecosystems as described by Stam (2015). An entrepreneurial ecosystem is "a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship" (Stam, 2015, p. 1765). Resorting to this concept allows us to explain economic results by emphasizing the interaction between the actors of the ecosystems in question. Additionally, this approach allows observing the role of governments, regional authorities and other government institutions.

Ten elements play a role in regional entrepreneurial ecosystems; entrepreneurship culture; networks; physical infrastructure; finance; leadership; talent; new knowledge; demand; and, intermediary services. Table 1 provides an explanation of each of these elements.

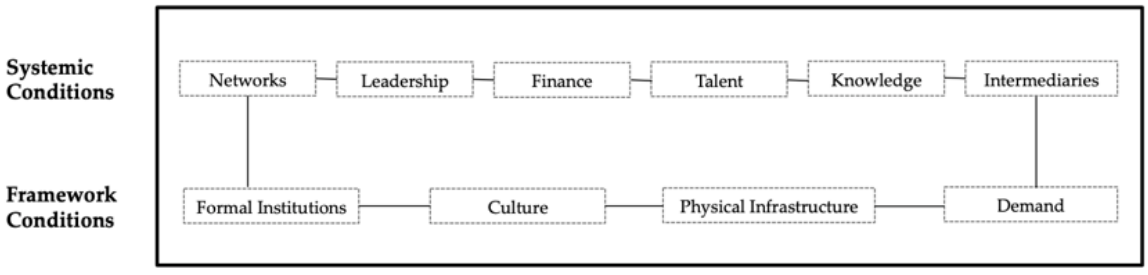
Table 1. Description of entrepreneurial elements.

Elements	Description
Formal institutions	The rules of the game in society
Entrepreneurship culture	The degree to which entrepreneurship is valued in a region
Networks	The connectedness of businesses for new value creation
Physical Infrastructure	Transportation infrastructure and digital infrastructure
Finance	The availability of venture capital and bank loans to firms
Leadership	The presence of actors taking a leadership role in the ecosystem
Talent	The prevalence of individuals with high levels of human capital, both in terms of formal education and skills
New Knowledge	Investments in new knowledge
Demand	Potential market demand
Intermediate services	The supply and accessibility of intermediate business services

Source: Author's elaboration adapted from Stam, (2015).

Of the ten elements described in Table 1, four are associated with framework conditions (formal institutions, culture, physical infrastructure, and demand) and the other six with systemic conditions (networks, leadership, finance, talent, knowledge, and support services/intermediaries) (Stam, 2015). Figure 1 indicates the organisation of these elements.

Figure 1. Framework and systemic conditions of entrepreneurial ecosystems.



Source: Author's elaboration adapted from Stam and van de Ven (2021).

The entrepreneurial ecosystem approach focuses on growth-oriented entrepreneurship. However, since each ecosystem is based on specific conditions, each ecosystem is unique, which requires the application of different approaches (Mason & Brown, 2014). The impact of an ecosystem depends on the context and the type of enterprise. For that reason, formal institutions are considered as crucial elements for the functioning of the ecosystem and the results it produces (Stam, 2015). Schrijvers et al. (2021) suggests the positive relationship between the quality of the ecosystems and the entrepreneurial output. If regions improve their ecosystems' framework and

systemic conditions, then they can expect more entrepreneurial activity. In this sense, well-developed entrepreneurial ecosystems generate more growth (Leendertse et al., 2020).

3. From incumbent to emergent ecosystems; a taxonomy to understand how ecosystems perform at regional level

When studying entrepreneurial ecosystems in the light of digital transformation, we differentiate between two forms or types. On the one hand, the incumbent ecosystems, i.e. those that have a strong presence/articulation in a given region, compared to the emerging ecosystems, which are in the process of formation.

The term incumbent entrepreneurial ecosystem refers to the concept of incumbent industry. Incumbent industry is an already longer existing business ecosystem with a strong presence in the region, often represented by a large 'anchor' firm with its headquarters and R&D facilities, and sometimes also main production facilities in close regional vicinity, together with its main suppliers, and other relevant stakeholders such as relevant research institutes and universities and local/regional government (for an extensive list of characteristics see Brown and Mason (2017, p. 23)).

The concept of emerging ecosystem refers to a business ecosystem that still is in the process of being formed, hence not yet fully matures, and is created around to a specific theme or industry, or applies to new industries. Emerging ecosystems can be – but not necessarily are – characterised by a high number of growth-oriented start-ups. An emerging ecosystem can also arise from the dissolution/disintegration of a large incumbent ecosystem. An emerging entrepreneurial ecosystem may, over time, transform itself into a scale-up ecosystem with mature characteristics, such as strong levels of interaction, large rapidly growing companies, strong vertical networks, a strong base of financiers and many more characteristics (Brown & Mason, 2017).

4. Entrepreneurial ecosystems in the Basque Country region; Machine-tool and Smart Mobility

Although the Autonomous Community of Basque Country (onwards: Basque Country) has been analysed as an ecosystem (Dhondt et al., 2022; Schrijvers, Bosma & Stam, 2022), this article focuses on two regional entrepreneurial ecosystems. Specifically, the ecosystems under study are the machine tool ecosystem, as a reference of a consolidated economic activity, and the smart, electric and sustainable mobility ecosystem, as an example of an emerging activity.

Located in the north of Spain, the Basque Country (NUTS21) is one of the most advanced and economically competitive regions in Spain and Europe. The region has been recognised as a success story of industrial transformation (OECD, 2011). In addition, the 2021 Regional Innovation Scoreboard (RIS), which evaluates innovation performance in different regions of Europe, considers the Basque Country to be a reference of excellence as a high innovation region with moderate levels of innovation (European Commission, 2021). However, this pattern is affected by automation and digitalisation, which is catching up with the COVID-19 scenario in certain sectors, generating an impact on inclusion (OECD, 2020). The region has many employed in knowledge-intensive sectors and shows relatively high innovation expenditures. Public support drives most of the knowledge spill-overs.

4.1. Commitment of institutions and decision-makers

The machine tool sector is a mature economic activity in the regional ecosystem that has been defined as resilient, especially at the territorial level (Valdaliso, 2020). Although the manufacturing sector has its roots back to the end of the 19th century, it is from the 1960s onwards that a domestic market and foreign trade began to grow. Since then, the sector has been at the

technological forefront, first importing technology and later developing it, characterising the activity as highly specialised.

The machine tool sector is important for the region, mainly because of its relevance in international markets. This industrial tradition is currently supported by the regional smart specialisation strategy, in which Industry 4.0 plays a major role. Furthermore, given the relevance of the application of machine tools in key sectors such as energy, aeronautics, and automotive, Industry 4.0 key technologies play a key role in the digitalisation process of the sector.

The regional ecosystem is made up of a set of leading international companies. The sector is the third-largest machine tool producer in the world behind countries such as Germany and Italy, with exports exceeding 75%. The sector consists mainly of SMEs, which are highly flexible and specialise. In addition to business leadership, the ecosystem has a cutting-edge network of technology centres, assisted by a network of universities and vocational training centres that place it at the forefront of the sector. One example is the cluster of machine tool manufacturers (state-wide) established in the region (AFM). Another example, which emerged from the cluster, is IMH, the Machine Tool Institute, a pioneer in training and education.

4.2. Smart Mobility as an emergent ecosystem

"Smart mobility" is an emerging entrepreneurial ecosystem in the Basque Country. The term refers to the application of new technologies in traditional sectors, which can lead to the emergence of new products and services related to transport and mobility. However, the concept of smart mobility in a broad sense covers different industrial sectors and activities. Smart mobility is at the core of the so-called Industry 4.0. Mobility is one of the most disruptive segments currently immersed in a technological, energetic, and social transition. The ecosystem emerges due to the identification of a market in full development in which the automotive, energy and Electronics, Information and Communication Technologies (EICT) sectors converge. This case highlights the crosscutting and enabling nature of EICT in Industry 4.0. At the regional level, the Basque Smart Specialisation Strategy includes Advance Manufacturing and Energy as strategic priorities, focusing R&D efforts on the different phases of the value chain.

The positioning of local companies has many faces as it addresses different activities ranging from the automotive industry, transport, logistics and intelligent transport systems. As a point of reference, the presence of large local companies operating in international markets, dedicated to the manufacture of buses and trains stands out. Currently, the ecosystem has a production capacity of about 4,500 electric vehicles per year and 14,000 products between companies such as Mondragon Corporation, Irizar Group and CAF. In addition, there are other strategic companies and stakeholders related to the energy sector (electricity, oil and gas). In addition, the ecosystem has a robust network of research centres and strong public institutional support in conjunction with business actors.

5. Method

In order to carry out the research and elaborate the case studies analysing the two ecosystems mentioned above, the methodology employed combines desk research, interviews, identification of relevant actors and stakeholders and the organisation of workshops. All these actions were carried out from the end of 2020 until mid-2021.

The first part of the research work consisted of reviewing literature and websites with qualitative and quantitative information on the region and its development. Desk research also helped us to define what we understand as an entrepreneurial ecosystem.

The second step was to develop a method to measure the main variables of the study to operationalize the dominant concepts and constructs. Since the study aims to understand better the mechanisms of how ecosystems evolve, the accent was on a qualitative approach. Sources of data to answer the questions were: stakeholders in regions, the ecosystem and the particular

businesses, core companies and companies in the network of companies; existing publications; statistical databases, documents; and websites and other sources. An interview guide was developed to conduct interviews with stakeholders and company representatives, which contained the operationalization of the main concepts and the elements of the entrepreneurial ecosystem model.

Having a clear vision of an entrepreneurial ecosystem, the third step identified the relevant actors to help us assess the performance and functioning of an ecosystem. The fieldwork consisted of conducting interviews with regional stakeholders and company representatives. Regional stakeholders were representatives of governmental bodies, business associations, employer organizations, unions, knowledge institutes and educational institutions, financial institutions, and regional development organizations. Company representatives were also interviewed. Table 2 lists the actors and stakeholders involved. See Annex 1 for an extended list of participants. The research was conducted by probing with different sets of interviews into the functioning of the ecosystems.

The fourth step was to conduct regional workshops for each entrepreneurial ecosystem. The workshops allow for corroborating the interview results. They also allowed for the development of future perspectives.

Table 2. List of interviewees and participants.

Companies & Employees	1 sectoral organisation 11 managers (5 companies) 1 venture capital 9 employees (4 companies)
Policymakers & Stakeholders	7 policymakers 4 associations specialist
Research & Education	2 educational specialists 4 technology experts, academics

Source: Author's elaboration.

6. Results

This section is dedicated to the analysis of the incumbent and emerging ecosystem. To this end, each of the two ecosystems is described and analysed separately. In this analysis, the socio-economic dimension and digitalisation are taken into account.

6.1. Incumbent ecosystem: socio-economic performance

The regional machine tool ecosystem is slowly declining, but still the most important business activity in the region. The sector is representative of Industry4.0 in Spain.

The ability of the machine tool sector to successfully adapt to different transformations over the decades is directly related to aspects such as "business size, flexibility and productive specialisation; absorptive and innovative capacity; and geographical concentration in a regional ecosystem highly favourable to skilled human capital formation, innovation and cooperation" (Valdaliso, 2020). The machine tool sector has been concentrated in the Basque Country region. Geographical proximity and clustering have facilitated learning and knowledge, improving the absorptive capacity of firms, as well as company collaboration. In this framework, it can be argued that the region has developed a productive system very favourable to innovation and human capital. From the 1970s onwards, the number of firms tends to decline. However, in terms of employment, the number of workers per company has remained unchanged. Overall, it can be

stated that the machine tool sector confirms the maintenance of employment, as an example of resilience, despite the fact that sales in the sector were in line with the decline in industrial production due to the pandemic context. Although the effect of the pandemic is evident, in absolute terms, the final turnover for the sector in 2020 was lower than in 2019. The sector has received institutional support that has allowed its reorganisation and internationalisation, in particular with the demand crisis at the end of the 20th century. In the context of digital transformation, the machine tool cluster is working on a strategy for the reactivation and transformation of the Advanced Manufacturing and Machine Tool sector, which includes measures to support activity and employment focused on digitalisation and sustainability.

The Basque Country has developed a regional policy that has strengthened its industrial base by supporting industry-based skills (OECD, 2013). According to OECD data (2020), between 2000 and 2017, the region's labour market has become polarised: low and high-skilled jobs are growing, while medium-skilled jobs are decreasing. However, compared to other regions in Spain, polarisation has been more moderate. The pace at which technology is introduced determines the effects of automation, how workers adapt and the many differences in work organisation between countries and regions. The region has a higher proportion of jobs at high risk of automation compared to the OECD average (22.2% compared to 14% of OECD countries), which can generate inequalities (OECD, 2020). According to the Employment Agency of the Basque Country, the employment opportunities to be created between 2020 and 2030 by the prospects of economic development (expansion demand) and by the needs for replacement due to retirement of people currently working in the Basque labour market (replacement demand) in the manufacturing industry indicates an increase in the variation of 4% (from 197,385 to 206,670 jobs). In terms of net job openings by occupation in manufacturing, fixed plant and machinery operators will have a negative change of 7% (from 38,065 to 35,189).

6.1.1. The incumbent ecosystem in the light of the Stam model

The determining factors of the machine-tool ecosystem in the Basque Country are related to production flexibility and its specialised nature, competing in a niche market of international dimension. The added value is thus translated into a competitive offer. The formation of human capital, supported by the training and research system, as well as the innovation dimension create a favourable ecosystem that has proven to be sustainable over several decades and transformation processes.

Table 3 summarises the findings for each of the elements that make up the entrepreneurial ecosystem model.

Table 3. Description of the incumbent entrepreneurial model elements.

Formal institutions	Strong institutional context, well developed network and attitudes
Entrepreneurship culture	Strongly developed and supported
Physical and IT infrastructure	Strongly developed, multi-modal
Demand	Markets are global, not building on local demand
Finance / financing	Well-developed and strongly funded financial system
Talent	Strong supply of talent and system to support it
(New) Knowledge	Strong knowledge system support for the ecosystem
Services by Intermediaries	Strongly developed network of intermediaries
(Social) Networks	Very strong, historical networks in the ecosystem
Leadership	Sector associations driven leadership

Source: Author's elaboration.

Entrepreneurial leadership in conjunction with knowledge, intermediary structures, networks and talent has positioned the ecosystem at the forefront. In addition, key aspects such as demand, infrastructure, talent and financing have played an important role.

6.1.2. Digital transformation

Digital technologies are transforming traditional industrial production models. The machine-tool ecosystem is directly linked to manufacturing and innovation in strategic sectors that apply to all types of products. Industry 4.0 means that machines, lines and systems as well as factories are connected. In particular, sensorisation, data collection and interpretation, process improvement, and the provision of new services are emerging as new ways of generating value. Within the Regional Smart Specialisation Strategy advanced manufacturing is a priority. In this framework, advanced manufacturing is understood as: the incorporation of intelligence in production means and systems; the use of emerging capabilities and technologies in new products and processes; the integration of advanced materials in solutions with higher added value or improved processes; the efficiency and sustainability of the resources used; and, the integration of high added value services in business activities related to different industrial sectors (transport, capital goods, etc.).

6.2. Emergent ecosystem: socio-economic performance

The smart mobility regional ecosystem represents an extra industrial network, building on the incumbent ecosystem strength.

One of the characteristics of the smart mobility ecosystem lies in the Reference Centre called MUBIL. This centre for Smart and Sustainable Mobility brings together two transformation processes shared by administrations and companies: technological-digital and energy. MUBIL was created within the framework of the “Building the Future” collaborative and open governance programme, promoted by the Provincial Council of Gipuzkoa, whose aim is to identify the challenges of the territory in order to plan and carry out projects for the future. One of the pillars is to reinforce the smart specialisation of the territory, with new mobility being one of the main lines of action. Smart mobility is included as a "strategic project for economic recovery and transformation” in the basque regional government's “Recovery and Resilience Programme (2021-2016)".

The region has a strategy for employability and inclusive activation for the period 2018-2022, which aims to promote the development of an integrated strategy for; economic reactivation and competitiveness; quality employment; and social policies to improve the social cohesion of groups (such as people in a situation or at risk of exclusion; unemployed people with a medium-low degree of employability; and people in precarious employment).

Within the framework of the energetic revolution, the automation of automobile production is causing a significant drop in employment in the industrial sector. However, the new mobility, electric and sustainable, has sufficient potential for the creation of new direct jobs in sectors related to new technologies. This leads to a scenario where competences become highly relevant. In particular, the creation of new occupations will require the adaptation of the labour force to new occupations. Considering the industrial concentration and diversity of the Basque Country, the region has developed a policy that has reinforced industry-based skills, innovation and cluster development (OECD, 2013). The region has evolved from the traditional vision of industrial innovation policies towards a more systemic vision involving other departments such as education. However, between 2000 and 2017, the region's labour market has become polarised (OECD, 2020): low-skilled and high-skilled jobs are growing, while medium-skilled jobs are declining. During this period, medium-skilled jobs have decreased by more than 6 percentage points, while low-skilled and high-skilled jobs have grown by 1.6 and 4.8 percentage points

respectively. In relation to employment, the smart mobility sector brings together different activities such as manufacturing industry (transport materials; machinery and mechanical equipment; electrical material and equipment); transport and warehousing; ITC and energy provision. The diversity of activities encompassing this emerging ecosystem makes it difficult to have a clear picture. However, job opportunities and net employment projections for the period 2020-2030 can be obtained independently.

6.2.1. The emergent ecosystem in the light of the model

The driving forces of the ecosystem are mainly public and business leadership in direct conjunction with support services (intermediaries) leading to the creation of new knowledge. Table 4 summarises the findings for each of the elements that make up the entrepreneurial ecosystem model.

Table 4. Description of the emergent entrepreneurial model elements.

Formal institutions	Strong trustworthy institutional environment
Entrepreneurship culture	Strongly developed
Physical and IT infrastructure	Strongly developed
Demand	Local demand and international focus
Finance / financing	Well-developed public and private funding system
Talent	Abundant supply
(New) Knowledge	Sufficient knowledge to support
Services by Intermediaries	Systemic support system; public and private cooperation.
(Social) Networks	Strong sector association networks
Leadership	Public sector leadership with strong participation of lead companies

Source: Author's elaboration.

The territorial commitment aims at the creation of productive entrepreneurship. The regional strategy, which involves a variety of actors, revolves around three axes: specialisation, excellence and collaboration. The first seeks to orient the mobility, transport and automotive industry towards electric, connected, shared and autonomous mobility. The excellence axis aims to turn the local industry into an international benchmark in smart and sustainable mobility. Finally, the collaboration axis aims to generate new opportunities, transform and strengthen the industry ecosystem.

6.2.2. Digital transformation

The development and application of information technologies are contributing to the generation of an unknown amount of data. New trends driven by digital technologies make it possible to generate a multitude of new services based on connectivity between people, vehicles and infrastructures. To carry out this interaction, it is necessary to develop technologies that companies in the sector must incorporate. The alignment of policies for the creation of new value and inclusive growth of the ecosystem are aligned with other regional policies; this is how the entrepreneurial ecosystem takes advantage of the digitalisation process. Specifically, within the Smart Specialisation Strategy, which prioritizes smart mobility, the set of core technologies transversally linked to the areas of specialisation. Within the emergent ecosystem the use of digital technologies is increasing but us still limited, mainly based on the sectorial application of technologies (Industry 4.0). The impact on business models is data-driven by lead companies.

7. Policy implications

This section summarises the most important points for each of the ecosystems described. Implications for regional public policies are also outlined. In relation to the incumbent machine tool ecosystem, three ideas stand out:

- To maintain a competitive position, flexible production and specialised products in international niche markets have become critical.
- As the sector is highly dependent on external shocks (especially related to investment levels due to its high dependence on strategic sectors), it is necessary to consider policy action in terms of industrial policy.
- For the future, among other things, it is essential to have highly qualified staff to deal with any problems that may arise during the digitisation process. In this scenario, coalition building with the actors (such us universities, vocational education centres, government and industry) becomes relevant.

As far as the emerging smart mobility ecosystem is concerned, it can be argued that the policy implications impact on:

- Strong institutional leadership and public-private collaboration in areas related to smart specialisation and niche markets.
- Support sectoral diversification in mature economic activities through the use of levers (new digital technologies).
- Improve the adaptation of new professional profiles (occupations) in emerging activities.

8. Conclusions

In summary, the entrepreneurial ecosystem model seems to be recognized by actors from the ecosystems as a useful tool for investigating and assessing these ecosystems.

As reflected in the previous sections, a key determinant of the sustained success of the machine tool industry is directly related to the capacity it has shown to cope with change. In the highly concentrated and geographically proximate configuration of the ecosystem, a knowledge network has formed that has enabled learning to take place. This absorption capacity has enabled research and training centres (university and vocational training) to respond to products that are highly valued and competitive in international markets, i.e. niches with a very specific range of products.

With regard to the ecosystem of smart mobility, the institutional capacity to link local action with regional policies should be highlighted as an element of success. Public support for the transformation of high-contribution sectors (in economic and employment terms) and the promotion of sectoral diversification is a driver in a process where enterprises simultaneously undertake the adoption and adaptation of new technologies. The adoption of territorial strategies also contributes to the potential attraction of structural funds and the possibility of higher levels of public and private investment.

In overall, from comparison of the entrepreneurial conditions, it appears that the emergent ecosystem covers all conditions. The initiative should be able to stimulate new entrepreneurial activity in the Basque Country. New products and services appear to function under major companies´ umbrellas in the region. These companies reduce the risks for new product and services to launch, and work as knowledge spill-over context to these new initiatives.

Appendix. List of participants in the field study.

Ecosystem	Sector	Type of interviewee	Role
Incumbent	Machine Tool	Education and Research	General Director
Incumbent	Machine Tool	Policymakers and Stakeholders	Adjunct General Director
Incumbent	Machine Tool	Education and Research	Director
Incumbent	Machine Tool	Education and Research	Head of strategy
Incumbent	Machine Tool	Policymakers and Stakeholders	Head of Service of Knowledge Promotion
Incumbent	Machine Tool	Policymakers and Stakeholders	Technician
Incumbent	Machine Tool	Policymakers and Stakeholders	Project manager
Incumbent	Machine Tool	Companies, employees	Chief Executive Officer
Incumbent	Machine Tool	Companies, employees	Head of Manufacturing
Incumbent	Machine Tool	Companies, employees	Chief Executive Officer
Incumbent	Machine Tool	Companies, employees	Sales Director
Incumbent	Machine Tool	Companies, employees	General Manager
Incumbent	Machine Tool	Companies, employees	Engineer IT
Incumbent	Machine Tool	Companies, employees	Engineer IT
Incumbent	Machine Tool	Companies, employees	Engineer IT
Incumbent	Machine Tool	Companies, employees	HR Director
Incumbent	Machine Tool	Companies, employees	President
Incumbent	Machine Tool	Companies, employees	Director
Incumbent	Machine Tool	Companies, employees	Assembler
Incumbent	Machine Tool	Companies, employees	Assembler
Emergent	Smart mobility	Policymakers and Stakeholders	General Director
Emergent	Smart mobility	Policymakers and Stakeholders	Director of Strategic Projects
Emergent	Smart mobility	Policymakers and Stakeholders	General Manager
Emergent	Smart mobility	Policymakers and Stakeholders	Project Manager
Emergent	Smart mobility	Education and Research	Coordinator of Technological Innovation and Intelligent Systems
Emergent	Smart mobility	Education and Research	Technician of Technological Innovation and Intelligent Systems
Emergent	Smart mobility	Education and Research	Executive Director
Emergent	Smart mobility	Education and Research	Researcher
Emergent	Smart mobility	Education and Research	Head of Intelligent Transport Systems
Emergent	Smart mobility	Policymakers and Stakeholders	Project Manager
Emergent	Smart mobility	Companies, employees	Chief Technical Officer

Emergent	Smart mobility	Companies, employees	Chief Executive Officer
Emergent	Smart mobility	Companies, employees	Engineer 1
Emergent	Smart mobility	Companies, employees	Engineer 2
Emergent	Smart mobility	Companies, employees	Engineer 1
Emergent	Smart mobility	Companies, employees	Chief Executive Officer
Emergent	Smart mobility	Companies, employees	Chief Technical Officer
Emergent	Smart mobility	Companies, employees	Head of Testing
Emergent	Smart mobility	Companies, employees	Engineer

Source: Author's elaboration.

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