Orkestra
BASQUE INSTITUTE
OF COMPETITIVENESS
DEUSTO FOUNDATION

CUADERNO ORKESTRA
ISSN 2340-7638
https://doi.org/10.18543/RTWM2847

KEYS TO THE CONSTRUCTION OF THE "*BIZKAIA WITH THE TALENT*" ECOSYSTEM FOR THE PROMOTION OF STEM TALENT IN BIZKAIA

No. 10/2024
https://doi.org/10.18543/MTWV2661

Sofia Zhukova
Juan P. Gamboa
Edurne Magro

CUADERNO ORKESTRA, no. 10/2024

ISSN 2340-7638

Collection: https://doi.org/10.18543/RTWM2847

Report in Spanish: https://doi.org/10.18543/NAOB2736

Report in English: https://doi.org/10.18543/MTWV2661

Executive summary in Basque: https://doi.org/10.18543/SETK3815

Disclaimer: The original language of this document is Spanish. It has been translated using Deepl Pro and revised by the authors.

www.orkestra.deusto.es/en

Acknowledgements

This report has been made possible through Orkestra's participation since 2022 in the Commitment to Talent project, led by the Department for Economic Development of the Provincial Council of Bizkaia. The authors of this document would like to thank Ainara Basurko (Provincial Councillor of the Department for Economic Development), Joseba Mariezkurrena (Director General of Entrepreneurship, Talent and Business Competitiveness), Izaskun Artetxe (Economic Technical Secretary of the Department for Economic Development), and the Department for Economic Development team for their collaboration, review of the report drafts, and recommendations throughout the editing process.

We would also like to thank Iñigo Ochandiano, Iván Jiménez, and the rest of the colleagues at Bizkaia Talent, who were involved in the whole process and the implementation of the ecosystem, along with all the agents who participated in the creation process and who are now part of the *Bizkaia with the Talent* ecosystem.

The authors assume full responsibility for any errors or omissions in the content of this report.

Index

Executive summary

The need for talent is an issue that has been receiving increasing attention from a territorial public policy perspective. This is due to various aspects: i) the current context of global socio-demographic change, ii) the transformations taking place in the ways of working, iii) the international mobility of people, and iv) the growing significance of the knowledge economy. In light of this, talent is positioned as a key factor for the competitiveness of a territory and the main transitions we are undergoing: energy-climate and digital.

Addressing STEM talent mismatches has become more important for territories, given that this talent is directly associated with the science, technology, and innovation system and, therefore, with the economic promotion of the territory. The differential characteristics of this talent mean that its appeal, development, linkage, and loyalty require numerous dimensions to be taken into account in a systemic and coordinated manner. Firstly, it is essential to determine what STEM skills are available in a territory (the supply of talent) as well as both the capacity for absorption of talent by companies in the territory and the structure of the labour market (the demand for talent, which is different for each territory). In addition, other dimensions that affect the capacity to promote STEM talent, albeit more indirectly, are the integration of people into the labour market, lifelong learning opportunities, the availability of housing, the quality of basic education, and the health system, among other factors.

Since 2022, Orkestra has participated in an initiative by the Department for Economic Development of the Provincial Council of Bizkaia and Bizkaia Talent, which **aims to develop an ecosystem to address the shortage of STEM talent in Bizkaia, responding to the challenge of ensuring competitiveness for the welfare of the territory**. This process has generated the following results:

- The formulation of a **shared diagnosis** of the initial situation concerning talent in Bizkaia, characterised by significant gaps in STEM talent, especially with regard to professionals with high and medium-level qualifications in training areas related to engineering and ICT.

- The creation of a **shared vision and a decalogue of commitments** for promoting STEM talent in Bizkaia that responds to these challenges and to which the primary agents of demand (such as companies and business associations), supply (university and vocational training), and intermediation between the demand and supply of talent (including foundations and the third sector) adhered.

- The **development of an ecosystem for promoting STEM talent**, *Bizkaia with the Talent*, within which the agents involved have a space to tackle the challenges related to the shortage of STEM talent, and co-create a shared vision, through specific individual and collective projects, all based on a collaborative governance model.

This ecosystem is set up in the territory with the systemic leadership of the Provincial Council of Bizkaia and Bizkaia Talent, and within this framework, there are already 13 projects underway, and a further six are in the design process. The projects are organised around **four key dimensions of action regarding talent**: Discovering, Awareness Raising and Training, Developing and Connecting, and Attracting and Retaining. The figure below shows the projects underway and those in the design phase (in colour) in the four dimensions:

Figure Map of projects in the *Bizkaia with the Talent* ecosystem

Source: Prepared by the authors based on the presentation made by the Provincial Council of Bizkaia in December 2024.

The implementation of the ecosystem has produced key insights, highlighting the importance of:

- ➔ Creating **objectives, a mission, and a vision collaboratively for promoting STEM talent within the ecosystem, seeking a comprehensive approach to foster such talent.**
- ➔ Incorporating **the key agents involved in** attracting, developing, and linking talent, with the goal of generating a multiplier effect for the initiatives within the ecosystem.
- ➔ Establishing a **collaborative governance** model to facilitate the initiatives of agents within the ecosystem for the co-creation of projects that have an impact on the challenges identified.
- ➔ Developing **incentives for stakeholders to participate in the initiative** and for there to be a positive perceived value for stakeholders to be part of the STEM talent ecosystem.

- ➔ **Having leadership** that facilitates a balance between the participation of the agents in the ecosystem and its effectiveness.
- ➔ **Promoting open communication** between projects and dimensions of the ecosystem, with spaces for contrast and synergies between different initiatives and projects.

The key lessons from the process of creating the STEM talent ecosystem in Bizkaia aim to contribute to the global debate on regional public policies focused on talent, as well as the foremost global challenges related to talent today.

List of tables

List of Figures

List of abbreviations and acronyms

STEM	Science, Technology, Engineering and Mathematics
TAG	Talent Action Group
ICT	Information and Communication Technologies

1. Introduction

Transitions and changes in the way we work and the structures of labour markets in recent decades have resulted in transformations in how organisations manage talent. The working environments of most organisations today could be characterised as more global, dynamic, complex, competitive, and volatile (Tarique & Schuler, 2010), and therefore, it is increasingly important to develop actions to attract, promote, and manage talent at organisational, territorial, and political levels.

What in the 1960s and 1970s was defined as international talent mobility, based on the liberalisation of the movement of people, and associated with the term "brain drain", is now seen in the 21st century as a more multidirectional process of a "global movement of people" (Solimano, 2008). The emergence of the knowledge economy, digitisation, and faster globalisation have accentuated the global competition for talent, with many countries recognising the importance of skilled talent to boost their competitive advantage and drive innovation (OECD, 2023).

More recently, numerous countries around the world have suffered a shortage of talent, which is aggravated by a more marked demographic decline, as is the case in many European countries (European Commission, 2023), and also in the Basque Country, where the lack of people of working age due to generational change and demographic transition has become more pronounced in the last few years.

According to Orkestra (2019), 50% of employment in the Basque Country could be subject to replacement by 2030. Furthermore, Bizkaia Talent carried out a study back in 2014 on the need for talent in the Basque Country on the horizon of 2020. Two possible scenarios related to the creation of new jobs were analysed, with both predicting the same outcome, that the Basque Country would need to import scientific-technical talent (commonly known as STEM), including Information and Communication Technologies (ICT), to safeguard its development (Bizkaia Talent, 2014).

In this sense, STEM talent associated with the innovation system is not only key to positioning the territory and preserving competitiveness in the current socio-demographic context, but it is also critical for the main transitions we are undergoing: the energy-climate and digital transitions. In Europe, the situation is similar, with a shortage or gaps of talent in the STEM field in many countries, which makes this field an increasing priority also at the EU level (European Commission, 2023).

The purpose of this report is to outline and analyse the key elements of building an ecosystem to tackle the shortage of STEM talent in Bizkaia and respond to the challenge of ensuring territorial competitiveness for well-being. The creation of such an ecosystem is framed within a collaboration between Orkestra and the Department for Economic Development of the Provincial Council of Bizkaia and Bizkaia Talent, which started in 2022. The prioritisation of STEM talent was defined after a diagnostic work and situation analysis confirmed that this specific talent is crucial for the economic promotion and competitiveness of the historical territory of Bizkaia.

This report is divided into three main parts. The first discusses the state of the art in public policies concerning talent and the principal trends related to its promotion (socio-demographic change, new patterns of international mobility and the emergence of the knowledge economy). It also shows the need to provide a greater ecosystem approach to this multidimensional challenge from the perspective of territorial policies. In the second part, the process of building *Bizkaia with the Talent* is presented as an example of how this ecosystem vision is implemented to tackle the talent challenge, with the participation of multiple agents related to the territory's workforce demand and supply, aimed at attracting, raising awareness, linking, and encouraging loyalty of STEM talent. Finally, the third part contains the conclusions with a series of key lessons drawn and challenges that arose from the development of this ecosystem, the objective of which is to provide a reflection on how the talent challenge is approached from an ecosystemic perspective.

2. State of the Art

2.1. What do we mean by talent?

Talent is a term used more and more frequently in the literature, both in the business environment (more linked to Human Resources management), as well as in organisational and territorial contexts. Although it seems like an implicitly understandable term, its definition is rather ambiguous and depends on the dimension from which it is analysed (Lewis & Heckman, 2006; Vardi & Collings, 2023), making it difficult to develop consolidated theoretical foundations of the term given the multiple visions that approach it.

Several approaches can be distinguished from the perspectives that address the term in the literature. One of these **conceptualises talent in relation to the "characteristics that people have".** In this sense, it is usually interpreted as an extraordinary ability, or high performance in certain functions or range of functions, conceived as a "*superior mastery or skill that makes people who possess it stand out from the rest of their age-range peers in a special area*" (Gagné, 2000, p. 67). Here, "talent" refers to the "high capabilities" of a group of people in an organisation.

A second approach **considers talent as being people because they have certain skills** (Gallardo-Gallardo et al., 2013). From this perspective, talent is conceived from a more global point of view and is related to the value that different members bring to an organisation. However, it also proposes a **somewhat segmented view** of an organisation where **talent is interpreted as something that certain people in the organisation possess (compared to others)**, and is an attribute found in those who have the greatest value or performance.

While these views are dominant in the literature, recent academic debates **have been challenging the dual character of talent (i.e., you either have it or you do not).** It has been argued that in a complex organisational environment characterised by digital-technological and environmental transitions and crossed by the changing socio-demographic environment, **a more inclusive and pluralistic perspective** needs to be taken (Boudreau, 2013; Vardi & Collings, 2023), where talent strategies follow a valid path for **all individuals in an organisation.** It has also been stressed that people - and not only machines, technology, and capital - create value in organisations, being the primary sources of a company's performance (Tansley et al., 2013).

2.2. Talent from a global perspective

The term talent has become increasingly important **from a global perspective** in recent years, with the main international trends that have impacted these changes being the demographic context, new forms of talent mobility, and the challenges associated with the transition to the knowledge economy.

- **Socio-demographic change:** The population in developed economies is expected to remain relatively stable, albeit with high ageing rates, whereas

emerging economies are expected to continue to expand and remain much younger. This is because the Baby Boom generation is ageing (European Commission, 2023), affecting the size of the working-age population, among other factors.

- **Mobility:** Greater global geographical and cultural permeability has resulted in the liberalisation of international talent mobility to areas with advanced scientific technological systems, more attractive environments to live in, and good working conditions. This increased mobility of highly skilled individuals has led to the use of terms such as "Brain Drain" to describe the flight of talent from countries, especially less developed ones (Gibson & Mckenzie, 2011) or "the war for talent" (Beechler & Woodward, 2009) to refer to the international competition for talent that is triggered by this scenario. Also associated with the global mobility of people is the need to focus on **diversity** management, as organisations are becoming more diverse in terms of ethnicity, culture, intergenerational dynamics, and gender, as well as different preferences and ways of working (face-to-face, teleworking, etc.).

- **Transition to the knowledge economy:** The shift from a production and industry-based economy to a knowledge-based economy has been a fundamental transformation (Florida, 2002). In this sense, there is a change in the **main pillars of the knowledge economy**, and we are beginning to see that R&D, economic sophistication, and technological progress are not only based on technology and capital but also require people with the right competences and *soft skills* to drive the development of a territory (Froy et al., 2012). Thus, talent has become ever more crucial for competitiveness as territories compete with one another and also compete to attract and mobilise talent as a key lever for competitiveness (Orkestra, 2019).

Taking into account these challenges and the fact that the shortage of talent has intensified over the last decades, it is imperative to develop strategies to cope with **the "growing international competition for talent"**. Furthermore, in addition to focusing on attracting these individuals, it is also necessary to concentrate on developing, retaining, and engaging talent within organisations (Beechler & Woodward, 2009) in order to guarantee favourable conditions for these individuals in the organisations of a territory (Cappelli, 2008).

Moreover, all the aforementioned changes not only affect highly skilled talent, but it is also observed that **the shortage of talent with different or lower qualifications also affects the competitiveness of a territory** (OECD, 2023). In this sense, there is a growing trend towards a **more integrative focus on talent policies,** shifting from an emphasis on highly skilled talent to a broader one that includes people with mid- and lower-level vocational training, more basic qualifications, and entrepreneurial talent.

Talent as a key to territorial competitiveness

From a geographical perspective, the concentration of knowledge and talent in a given territory is related to a higher level of economic development, which **means that the territorial dimension plays a crucial role in formulating talent policies (Glaeser & Gottlieb, 2008).** In this regard, cities or territories become hubs for attracting talent, generating knowledge externalities that then translate into economic growth (Florida & Mellander, 2015). This also leads to economies of scale and offers opportunities for developing ***place-based policies*** to address the talent challenge in supra-national territorial units (Karlsson et al., 2012).

Territorial competitiveness is based on a series of levers, including talent; in short, people. A territory that has qualified individuals, alongside organisations and companies capable of incorporating and making the most of the talent available with the skills they require to project competitiveness and productivity, as well as to face future challenges, achieves higher levels of well-being (Orkestra, 2019).

For this to happen, it is essential that there is a **dynamic development of people's skills,** transforming them into active agents of the advancement and well-being of a territory by making a greater contribution to it. This also allows them to benefit from a territory with greater well-being and social cohesion. In addition, as skills are acquired through numerous channels (such as education, work experience, and lifelong learning), this objective requires the involvement of multiple agents in a coordinated manner.

The competitiveness framework - developed by Orkestra - **considers talent (the people of the territory and their competences, i.e., human capital)** as a dynamic lever of competitiveness and territorial well-being (Orkestra, 2021).

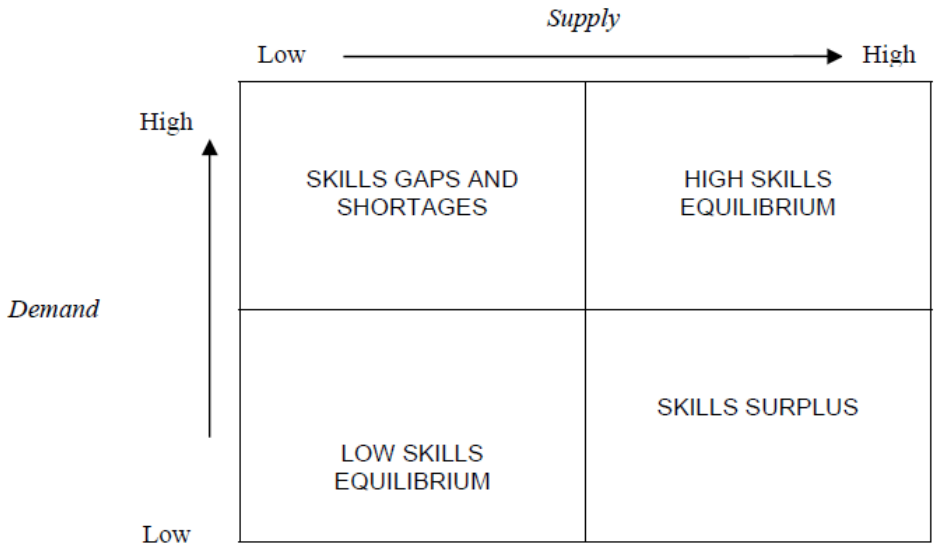
2.3. Policies to address talent challenges for territorial competitiveness

When discussing local or regional talent policies, we can differentiate between two visions of policies, depending on whether they focus on the **supply of talent**, skills of a given territory, or the **demand for talent**, which is related to a territory's labour market and the skills needs that arise there (Richardson, 2007).

Historically, the emphasis has been **on actions aimed at the supply of talent**, i.e., improving people's skills in a region as a solution to talent gaps. However, the last few years have shown that this **focus on supply is insufficient for regional competitiveness** since as long as factors related to demand and intermediation between the supply and demand of talent are not worked on, the following situations could arise: (a) a **surplus of qualified people** with profiles that are overqualified for the demand and who leave the territory to seek opportunities elsewhere (Froy et al., 2012); (b) a **shortage of people** in certain sectors of demand where vacancies are not filled (Green, 2016).

Such scenarios reflect the territorial complexity related to talent, and the vision commonly associated with this challenge is that of "seeking balance" between the skills demanded and those of the people in the territory. In other words, as the productive fabric of a place becomes more sophisticated, there is a natural tendency towards an **equilibrium in which more sophisticated skills are required (generating the situation of equilibrium known as the "*High Skills equilibrium*")**, and with better job opportunities comes higher productivity, a more advanced education system and, ultimately, **greater territorial competitiveness** (Froy, 2009; Giguère & Froy, 2009).

Figure 2.1 Supply-demand-skills equilibrium diagram



Source: Froy (2009).

Figure 2.1 shows different scenarios regarding the balance between skills supply and demand. The bottom left quadrant (*low skills equilibrium*) represents local situations where the supply of skills is low (low level of qualifications), as is the labour market demand for these skills; the occupational structures are therefore characterised by an equilibrium, which has a high level of employment and low-skilled occupations. This scenario is commonly associated with a weaker economy and lower wages.

The scenario in the top left quadrant is one of *skills gaps/ shortages* where the necessary skills are not available to meet demand. This situation is complex from a public policy perspective because more multidimensional solutions have to be considered to address the gaps.

The bottom right quadrant reflects a *skills surplus* situation, characterised by a comparatively high supply of skills while demand is somewhat weaker.

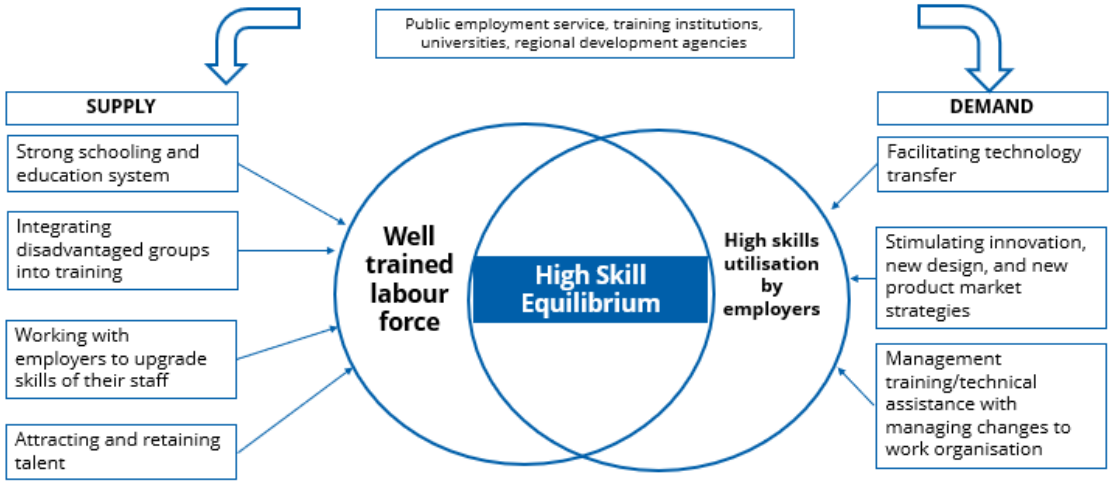
Finally, the top right quadrant depicts a *high skills equilibrium*, in which the available skills of a territory are both strong and well-placed. The literature related to high

economic growth and economic sophistication generally suggests that an economy's objective is to focus on achieving this equilibrium (Sissons, 2021).

Although the desirable situation for a territory is the aforementioned balance of high skills (Finegold, 1999), this complex goal requires a labour market capable of absorbing them and strong institutional coordination to ensure the use of these skills (Payne, 2018). This is especially true for **high- and medium-skilled STEM talent associated with the innovation system; in this case,** it is necessary to consider not only the availability of this type of talent and its integration into the market, but also the specific local characteristics around different elements, outlined by Advani (2022), Green (2016), and Keep (2017):

- **The capacity for absorption and use of skills by companies**: It is essential to possess both skilled individuals *and* a sufficiently sophisticated production system that is capable of attracting and retaining this STEM talent while also developing and adapting jobs to fit their existing talents and type of qualifications, whether high or medium-level.
- **The structure of the labour market:** Certain regions are highly characterised by an economy that can only create large volumes of low-quality, *skill-intensive* jobs, which affects social development, undermines people's opportunities, and impacts the possibilities of improving productivity and sophistication of the productive fabric itself.
- **Focusing on companies with greater innovative or driving capacity, but also on other businesses within the productive fabric**: Having a more systemic perspective implies understanding the characteristics of the entire business fabric and that the STEM skills and talent existing in a territory are absorbed by driving companies as well as SMEs and the productive sectors as a whole (industry, services, and public administration).

Figure 2.2 Conceptual framework for a skills policy



Source: Own elaboration based on Froy et al. (2012).

The conceptual framework in Figure 2.2 **reflects the main elements of a highly balanced scenario in skills from the talent supply and demand sides** based on Froy et al. (2012). On the supply side, the factors that influence whether human talent is equipped with a high level of skills are related to the population's education level and a strong education system, the possibility of integrating vulnerable groups into the training system, employers developing the skills of their staff, and the ability to attract and retain talent from abroad.

On the other hand, aspects associated with the use of skills by employers (skills demand) include the facilitation of technology transfer, the stimulation of innovation, together with the development of new markets and, finally, the organisational management of talent in the workplace and skills training within the company itself. It is also important to take into account that there are some atypical forms of employment, such as entrepreneurship or the "gig economy", which would require more compelling evidence and further study to align with this type of framework, given that these forms of employment do not fit so easily into such a linear skills supply and demand framework.

2.4. Dimensions of analysis, measurement, and intervention for talent at the territorial level

In recent years, various **analytical and indicators frameworks** have been developed **to analyse, measure, and compare the performance of regions in terms of their level of competitiveness in attracting, promoting, and developing talent.** The dimensions, and especially the indicators, incorporated into these frameworks are diverse. However, there are common key elements that stand out, such as accessibility of housing, quality of life, the level of security and well-being of a territory, and/or its openness to different cultures and migrants. Thus, the sum of these numerous

dimensions would make up the degree of competitiveness or preparedness of a region in the field of talent (Serban & Andanut, 2014).

Some of the best-known international frameworks for measuring the competitiveness of a territory in the field of talent are, for example, the *Global Talent Competitiveness Index* (GTCI) developed by INSEAD in 2013 or the *OECD Indicators of Talent Attractiveness* (ITA) (Tuccio, 2019).

First, as can be seen in Figure 2.3, the *OECD* framework identifies seven territorial talent dimensions based on determinants of talent mobility commonly used in the literature: (1) quality of opportunities, (2) tax policies, (3) future prospects, (4) family environment, (5) skills environment, (6) inclusiveness, and (7) quality of life. Also identified as a relevant factor is a territory's health system, although it is not considered as one of the key dimensions.

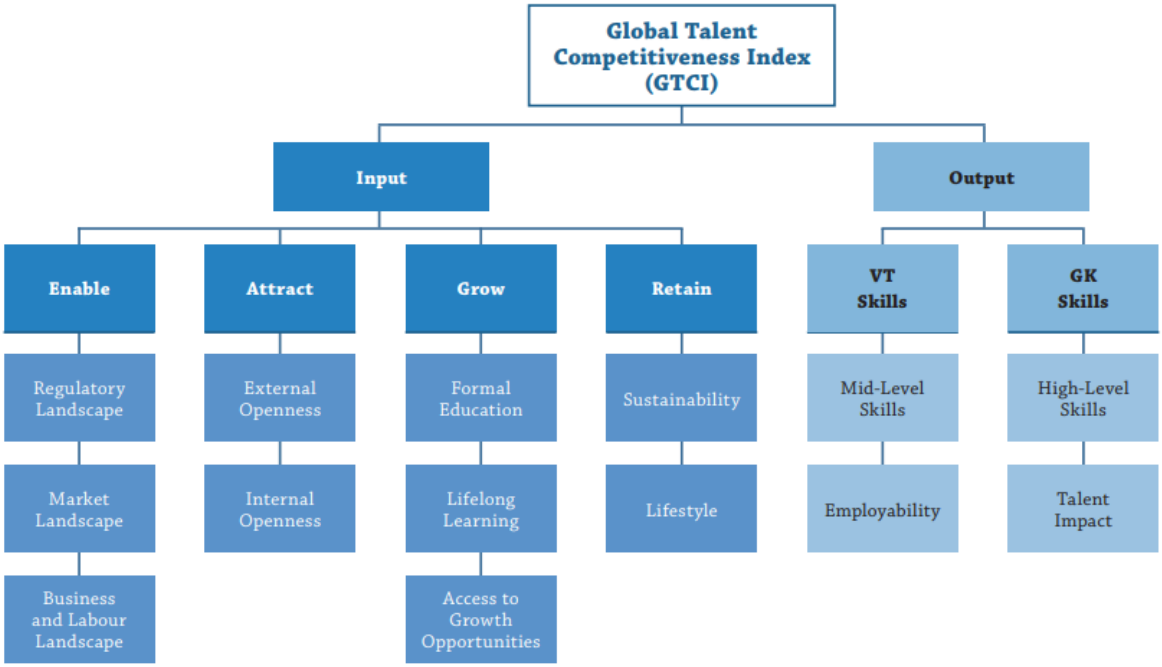
Moreover, the framework concisely characterises three types of talent in the analysis of the above-mentioned dimensions: highly qualified (Master's and PhD), university, and entrepreneurial.

Figure 2.3 Dimensions of Talent Attractiveness (OECD)

Source: OECD Secretariat cited by Tuccio (2019).

Secondly, the *Global Talent Competitiveness Index (GTCI),* developed by INSEAD, is presented in Figure 2.4. It is based on a conceptual input-output model, in which talent input elements are inspired by territories' elements for the facilitation, attraction, growth, and retention of talent in their organisations. In this case, 46 aspects organised by dimensions are added. For example, the facilitation dimension analyses the labour market and the business environment; the attraction dimension includes a territory's capacity for external and internal openness; the growth dimension covers the capabilities of the education system, lifelong learning, and access to growth opportunities; and the retention dimension refers to (environmental) sustainability and lifestyle. On the other hand, the output sub-index aggregates 19 variables related to the existing talent in a territory, encompassing both talent considered medium-skilled (vocational training or VET skills) and high-skilled.

Figure 2.4 GTCI dimensions and indicators model (2022)



Source: Lanvin et al. (2022). Note: VT (Vocational and Technical Skills), GK (Global Knowledge).

Thirdly, at the Spanish level, the Valencian Institute of Economic Research (IVIE), together with COTEC, has been working for several years on developing the *talent map of Spain*, the latest version of which includes a framework that incorporates a series of improvements to the GTCI methodology, allowing for an analysis and comparisons to be made between the autonomous communities in the field of talent. Table 2.1. presents the 2023 results for the Basque Country in six dimensions and 12 sub-dimensions.

The Basque Country is well-placed in the pillars of facilitating, attracting, and growing talent, technical skills and vocations, and knowledge, ranked in the top 5 of Autonomous Communities. However, the Basque Country has a somewhat lower relative position in the retaining pillar (in 7th place in Spain).

Table 2.1 Map of talent in Spain (2023). Results for the Basque Country

Basque Country (2023)	Ranking	Score	Spain = 100
PILLAR 1: FACILITATING	2	70	137
1.1 Working environment	2	67,3	130
1.2 Business environment	2	72,8	144
PILLAR 2: ATTRACTING	3	56,7	130
2.1 External openness	7	36	87
2.2 Internal openness	1	77,4	167
PILLAR 3: GROWING	1	71,3	137
3.1 Formal Education	3	63,2	120
3.2 Apprenticeships - opportunities for growth	2	79,5	154
PILLAR 4: RETAINING	7	57,4	128
4.1 Sustainability	11	42,3	92
4.2 Lifestyle	4	72,4	167
PILLAR 5: SKILLS AND TECHNICAL VOCATIONS	4	65,6	121
5.1 Intermediate skills	2	71,8	151
5.2 Employability	6	59,4	97
PILLAR 6: KNOWLEDGE	2	77,6	159
6.1 Higher level skills	1	87,3	191
6.2 Talent impact	2	67,9	130
GLOBAL INDEX	**2**	**66,4**	**135**

Source: Own elaboration based on COTEC and IVIE (2024).

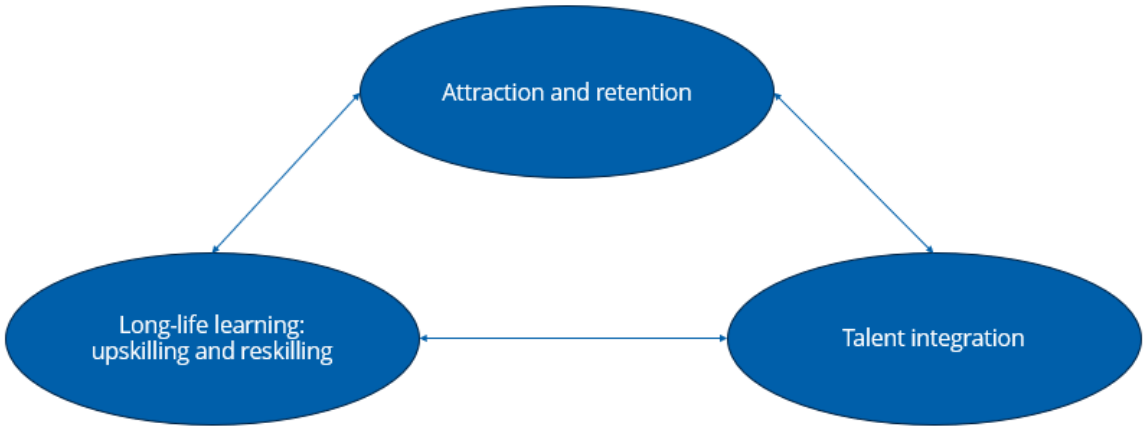
3. Ecosystemic approach to talent

As we have seen so far, the talent challenge is multidimensional and, therefore, needs to be addressed through territorial policies **from a holistic perspective.** That is, it is essential to pay attention to different factors associated with supply, demand, and other related dimensions in the territory as a whole in order to design solutions that tackle talent gaps.

Moreover, while STEM talent plays a key role in the economic development of a territory based on a sophisticated economy and high-value-added industries, it is also an increasingly mobile, scarce, and demanding talent in terms of the territorial conditions in which it can develop (Solimano, 2008). This situation means that **promoting this type of talent is an even more complex challenge that requires multi-agent strategies** (Grewatsch et al., 2023).

This approach includes creating strategies in different dimensions or focuses: attracting and developing highly and middle skilled talent, *upskilling and reskilling,* talent engagement and retention strategies, alongside other elements that have a more indirect impact on talent (Buchanan, 2006). Figure 3.1 depicts this approach.

Figure 3.1 Talent strategies from a holistic perspective



Source: Own elaboration based on Froy (2009).

The concept **of ecosystem** has long been a widely used term in different fields and is especially linked to innovation systems in the social sciences. The conception of ecosystem varies depending on the field, one of the most common being the **ecosystem** logic **as a multi-agent environment or network** generated by different actors (whether companies, education system, entrepreneurs or governments) or **public policies that do not follow a linear** cause-effect **trend** to address complex challenges and where relational innovation between agents is necessary (Tsujimoto et al., 2018).

Several authors have conceptualised the **notion of a skills ecosystem** as *"A dynamic network of interdependent institutions and actors which through their various interactions, roles, interests, needs and resources is in a constant process of change – evolving in ways that cannot always be predicted – but which shape the development, supply, demand and deployment of skills in any given industry or region."* (Anderson & Warhurst, 2012, p. 117).

The emphasis on **collaboration,** characteristic of skills ecosystems, is crucial in building bridges and connections between actors to create innovative solutions and navigate the multi-level challenges we may encounter in the talent domain. There are certain common dimensions identified as key in the skills ecosystem literature (Anderson & Warhurst, 2012; Buchanan, 2006; Hodgson & Spours, 2016):

- **Involvement of interdependent actors:** A talent ecosystem is characterised by the interaction between talent supply and demand actors, who pursue key activities in the talent ecosystem (Buchanan, 2006)**.**
- **Process of constant change and flexibility (**non-linear approach): More linear policy approaches have limited scope in the face of the talent challenge; for example, the prospect of improving the skills balance in a region through exclusively developing training initiatives. An ecosystem approach, on the other hand, is multilateral.
- **Focus on the use of skills developed in the region**: The use of skills goes beyond the limits of formal education, highlighting the importance of lifelong learning and the company's role as a trainer.
- **Collaboration between agents and emphasis on creating collaborative solutions:** It is widely accepted in territorial development and network theories that proximity between agents or companies that are connected and located in nearby areas is very beneficial for generating greater competitiveness (Aragón et al., 2014); and this is especially the case in territorial contexts such as the Basque Country and Bizkaia, where the figure of clusters serves as a link between agents or companies.
- Development of **vocational streams and bridges** between **low, medium, and high skills**: The notion of a high skills equilibrium is not the desirable goal in itself; rather, it is assumed that the reality of the talent domain is more hybrid and complex, with job families where vocational trajectories differ from the high skill perspective (Wheelahan et al., 2015). The view is more on the use of vocational streams and productive capabilities across the ecosystem, concentrating on the knowledge, skills, and attributes that are needed for occupations within an industry and less on the type of qualification obtained by individuals.
- **Facilitative and system leadership**: The leadership of a public actor is critical in facilitating the integration of visions within the ecosystem.

Moss Kanter (2012) and Senge et al. (2015) coined the term integrative leaders or systemic leaders.

- **Feedback and open communication**: A key characteristic of a living ecosystem is that the group of participating actors can provide feedback to each other. For this purpose, open communication and facilitation of interactions between the different spaces of the ecosystem are vital (Martinez-Fernandez & Weyman, 2013).

The notion of skills ecosystems has been applied in different territories, notably in the USA, Australia, Great Britain, and Scotland. Table 3.1 presents some examples where this approach has been used and its characteristic features.

Table 3.1 Examples of applying the *skills ecosystem* concept at the global level

Territory	Featured Authors	Application of the *skills ecosystem* concept
USA	Finegold (1999)	High-skills equilibrium concept with a case study on Silicon Valley.
Australia	Buchanan et al. (2001), Buchanan (2006), Wheelahan et al. (2015) Hall and Lansbury (2006)	Study of skills ecosystems linked to the field of "decent" work in different sectors. Focus on developing options to address regional skills gaps.
Great Britain	Hodgson and Spours (2016) Anderson and Warhurst (2012)	Conceptualisation of social skills ecosystems. Application in intermediate occupations.
Scotland	Payne (2018)	Focus on the use of skills as a key to conceptualising the ecosystem.

Source: Own elaboration.

3.1. Collaborative governance

The design of a talent policy from an ecosystemic approach involves not only a transformation in how policies are made but also the governance model would need to be adjusted to one that is more suitable for a participatory policy. In this sense, a governance model based on **collaborative governance** could be the most appropriate, as it offers opportunities to structure an initiative based on multi-actor collaboration (Arrona et al., 2018). Incorporating collaborative governance to develop a capacity ecosystem would yield the following benefits:

1. The **inclusion of different knowledge, experiences, and interests** creates conditions for producing and designing better solutions.

2. The **capacity to generate greater compliance with the actions taken** or policies designed, as commitment is usually greater when the people affected or who have a role in implementing the actions that are the object of the collaboration are involved in their design.

Among the different logics that typically support the arguments of collaborative governance (Ansell, 2016), three main logics can be considered for articulating a collaborative governance anchored to the notion of ecosystem:

(1) As a response **to the complexity** of the problems: Today's challenges are complex, multidimensional, and interdependent, and therefore require solutions of the same nature.

(2) As a way to address the issue of **working across differences**: This is based on the idea that the fragmented and polarised nature of public and private institutions, along with various interests and agendas in political contexts, make it difficult to develop effective public policies.

(3) As a strategy for **generating public value**: Collaborative governance is able to mobilise and synergise resources, knowledge, visions, and capacities so that public goods and services can be improved.

On the other hand, with regard to leadership, the key elements of a model based on collaborative governance that are suitable for creating an ecosystem include: Firstly, the existence of **leadership by a** governance **facilitator** (Zumeaga et al., 2020) whose role is central to the model; secondly, a governance model that provides the necessary horizontal structure for fostering synergies and collaborations more easily (Estensoro & Zurbano, 2010).

The following section of the report is dedicated to outlining the process carried out to build the ecosystem for promoting STEM talent in Bizkaia, under the initiative *Bizkaia with the Talent*, initially called "Commitment to Talent". The conceptual principles discussed here will be analysed on the basis of the process of building the ecosystem, aiming to derive insights and key elements from developing the ecosystem since its implementation.

4. Bizkaia with the Talent: Building the ecosystem to promote STEM talent in Biscay

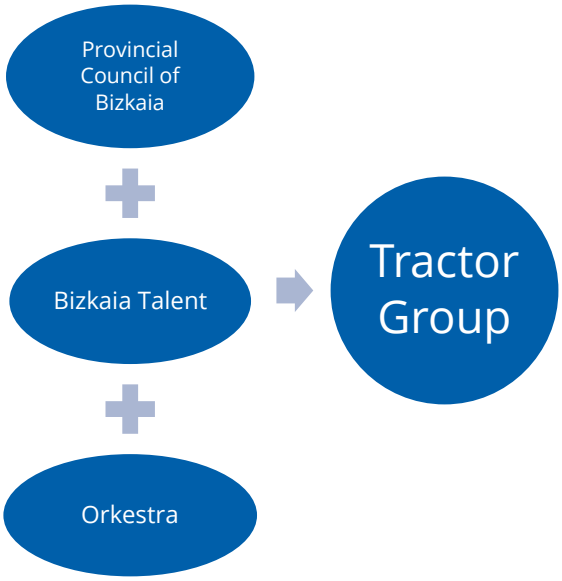
This section describes the process of building the ecosystem - *Bizkaia with the Talent*[1], currently operating in the territory, with pilot projects in various aspects related to talent. The focus of this report has been limited to the creation of the ecosystem; that is, from its starting point in 2022 - when a diagnosis of talent was developed as a result of the collaboration between the Provincial Council of Bizkaia, Bizkaia Talent, and Orkestra, from which it was decided to initiate a process of participative co-creation, and the actual shaping of the ecosystem took place. The constitution phase of the ecosystem concluded in March 2023, marking the start of a second phase where projects began to be developed within the framework of the ecosystem. This phase is currently underway, which is why this report focuses on the initial phase of the process.

This process began in 2022 in response to the need to implement new solutions to address the existing gaps in STEM talent, which had been increasing over the last few years in the Historical Territory of Bizkaia. It was promoted by the **Department for Economic Development of the Provincial Council of Bizkaia**, together with **Bizkaia Talent**[2] and the support of **Orkestra-Basque Institute of Competitiveness,** whose role as a transformative research institute was centred on structuring the process in terms of research and providing it with an appropriate methodology to achieve the objectives of the process. These three entities constitute what is known as the Tractor Group, shown in Figure 4.1.

[1] Initially called Bizkaia's Commitment to Talent

[2] *"With the support of the Department for Economic Development of the Provincial Council of Bizkaia, Bizkaia Talent was established in 2005 as a non-profit organisation with a clear mission: to foster and facilitate the implementation of the necessary conditions for attracting, connecting and retaining in Bilbao, the Historic Territory of Bizkaia and the Basque Country in general, highly qualified people in the areas of knowledge and innovation."* (https://www.bizkaiatalent.eus/).

Figure 4.1 Actors of the initiative's Tractor Group



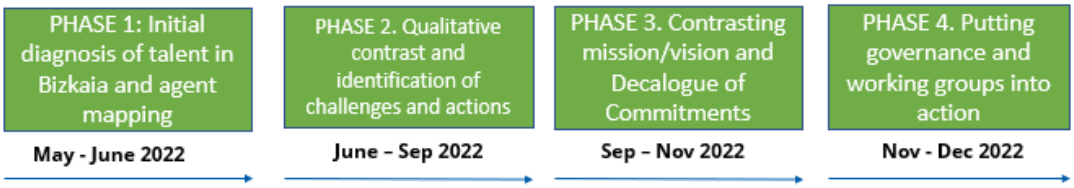
Source: Own elaboration

4.1. Process for building the ecosystem

The **creation of the ecosystem consisted of two processes, which were developed in parallel**. On the one hand, a quantitative/qualitative process of work was carried out with the main agents of supply, demand, and intermediation of talent in Bizkaia, and on the other, the Tractor Group conducted a series of iterative meetings to contrast the results with the agents and take the necessary the decisions related to implementing the ecosystem.

Figure 4.2. shows **the sequence of phases carried out in the methodological process with the agents,** which began with a quantitative/qualitative diagnosis of the talent situation in the territory and a mapping of the main agents involved in the field, with whom the diagnosis was contrasted and enriched through in-depth interviews. Subsequently, proposals for action made by the agents were gathered, which then served to build a shared mission/vision and a decalogue of joint commitments for the ecosystem within the Tractor Group. Finally, based on the governance model defined by the Tractor Group, working groups were set up by thematic groupings of the decalogue of commitments, with the purpose of encouraging collaborations and developing projects to address the priority areas of action identified.

Figure 4.2 Phases of the ecosystem-building process with the agents

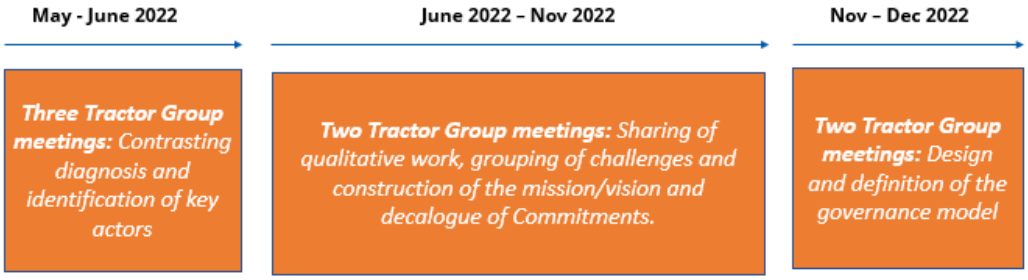


Source: Own elaboration

Various quantitative and qualitative techniques were used for researching and working with stakeholders throughout this process; they are explained in more detail for each phase in the sections below.

In parallel to the process of building the ecosystem with the actors, **the Tractor Group held a series of meetings to compare the work with the actors, reflect together, and make key decisions in the creation of the ecosystem**. **Figure 4.3** illustrates the meetings held in the Tractor Group and the main decisions made at these meetings, which were held at the same time as the phases described in Figure 4.2.

Figure 4.3 Reflection and decision-making process with the Tractor Group



Source: Own elaboration

The **working dynamic in the Tractor Group took the form of face-to-face meetings**, in which Orkestra played a role of facilitator by presenting and comparing the main results of the interaction process carried out with the agents, and collecting and systematising the key decisions made in relation to the development of the ecosystem.

4.2. Diagnosis of talent needs in Bizkaia and mapping of agents (Phase 1)

As a starting point, an initial diagnosis of talent in Bizkaia was carried out to (i) analyse the trends that affect talent/people's needs, especially impacting on the energy-climate and digital transitions, as well as the strategic economic sectors of Bizkaia, (ii) identify

the projections of employment evolution and talent demand in key areas, (iii) characterise the available talent and the system of skills provision in the territory (supply) and, finally, (iv) identify the main mismatches between the supply and demand of talent in the territory of Bizkaia, which turned out to be predominantly STEM talent.

This diagnosis was developed with data available in the spring-summer of 2022 using **secondary data sources** and **two surveys on talent living abroad** that enriched and helped to qualitatively determine critical factors as to why people could consider Euskadi/Bizkaia as a suitable territory in which to develop professionally. It should be noted that different sections of the diagnosis use data and pinpoint challenges for the Basque Country as a whole due to the absence of data disaggregated by historical territory.

Once the diagnosis was completed and contrasted in the Tractor Group, a mapping of the agents that make up the talent ecosystem in the Basque Country and Bizkaia was carried out, based on the conceptual framework for public policy in the field of skills and talent developed by the OECD (Froy et al., 2012). To this end, the first step involved determining the main types of agents required for developing a talent ecosystem in the territory:

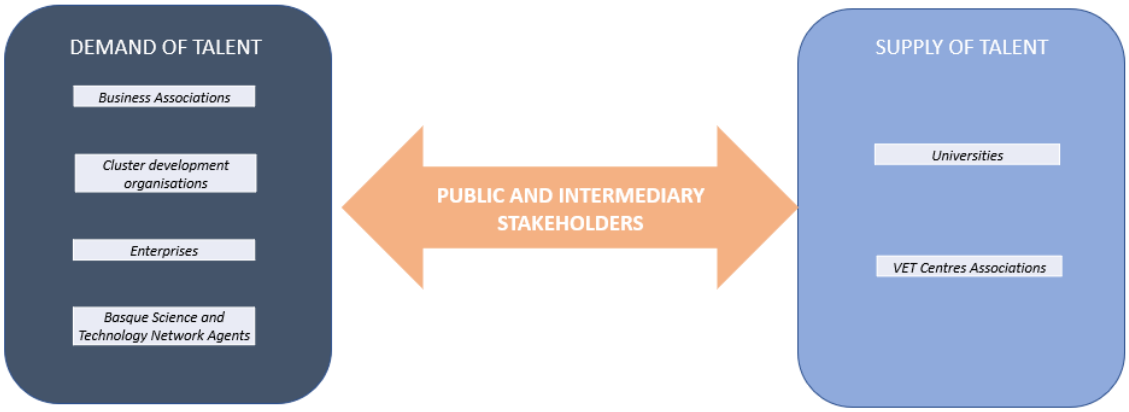
- **Agents of the demand for talent:** This typology of agents is linked to a territory's productive system and includes companies (among which are the leading companies as well as SMEs since they are the most common business fabric in Bizkaia). It also includes business associations, as they are key agents representing the interests and needs of companies, Cluster Development Organisations (CDOs), and agents of the Basque Science and Technology Network. Emphasis is placed on business associations in strategic sectors for the economic promotion of Bizkaia (STEM and ICT) since the diagnosis indicated that these sectors are key for addressing the talent gaps related to the current transitions and where there is greater urgency to act.

- **Agents of the talent supply:** These agents participate in training and developing talent in the territory. Universities are considered in the high-qualification talent category, while the three main associations of Vocational Training centres in Bizkaia are also incorporated into the map of agents to include those that represent the supply of talent with mid-level qualifications.

- **Public agents and intermediary agents**: This category consists of two types of agents. On the one hand, public administrations with competences linked to the field of talent at the Basque Country level (Employment, Education, and Industry) and at the local level (City Councils and Local Development Agencies); on the other hand, entities that play a crucial role in intermediation between the supply and demand of talent, such as different foundations in the private sector.

The outcome of the initial agent mapping exercise is presented in **Figure 4.4.** The process was also open to the input of possible additional new actors that could be incorporated into the ecosystem in the future.

Figure 4.4 Mapping of actors to join the ecosystem-building process



Source: Own elaboration based on Froy et al. (2012).

4.3. Qualitative contrast of the diagnosis and identification of challenges (Phase 2)

4.3.1. Qualitative research contrasting the diagnosis

After completing the mapping of the main types of agents involved in tackling challenges related to STEM talent in the Basque Country and Bizkaia, in-depth interviews were conducted with agents from the different categories mentioned above, selected using the *purposive sampling* technique (Anderson, 2010).

The interviews had the following objectives:

(1) Validate the challenges found in the quantitative diagnosis
(2) Identify possible important new challenges to be incorporated into the diagnosis
(3) Determine potential actions to respond to the challenges identified

Semi-structured interviews lasting approximately an hour were held with 23 talent agents from the typologies described above (**Figure 4.5**) via the Zoom platform. The diagnosis and challenges of talent were previously sent as material to be reviewed since the interviews would revolve around their content.

Figure 4.5 Typologies of actors interviewed

Main companies in the territory Cluster development organisations Business associations	Universities Associations of Vocational Training Centres Foundations and the third sector
Total of 23 interviews conducted	

Source: Own elaboration

In general, and by way of an overall conclusion, the diagnosis was found to correctly reflect the initial situation in Bizkaia (and the Basque Country). There was a clear consensus that STEM talent was a top priority. Among the perspectives shared by the interviewees were, for example, from a business association related to the STEM sector*: "We completely agree with the diagnosis. And we see the situation clearly in many young people, where generally they do not opt for STEM and do not stay in the Basque Country",* and from a cluster development agency: *"The data from the briefing are even optimistic. The picture we have is even more critical in relation to the talent deficit. We are talking about 8,000 ICT professionals, and there are many more. We are talking about other sectors such as banking, computer science, and electronics; That is what lies ahead".*

4.3.2 Main talent challenges in Bizkaia

Contrasting the diagnosis with the actors yielded some interesting conclusions, which served to enrich the initial diagnosis:

- **The importance of understanding young people's needs**

It was pointed out that more emphasis should be placed on understanding the needs of young people, as there had been changes in the values of the most recent generations, particularly among youth, and these factors were vital in designing actions aimed at attracting and retaining talent. In the words of one of the participating business associations: "*An analysis of the values of the new generations should be carried out. The importance of people's values and purposes in companies needs to be considered, and it would be interesting to analyse whether young people resonate with the values conveyed by these companies today, such as in the case of cooperatives, whether the issue of participation needs to be incorporated more in companies to make them attractive projects for young people, etc.*".

- **Greater focus on developing dual and more flexible training**

One aspect that many agents highlighted in the interviews was that adapting the training system to the business reality was slow and that this process was particularly rigid in the university sphere. Also stressed was the importance of continuing to promote **dual training, which is already well established in the region, and that training should be designed, as far as possible, in collaboration between the education system (vocational training and university) and companies in the region.**

One of the companies interviewed indicated: "*There is a lack of flexibility in the university system. Some degrees are very limited and there are problems with places and enrolment in certain degrees. The more traditional engineering degrees do not have so many outlets".*

For its part, an entity of the education system pointed out: *"The briefing must clearly emphasise the importance of prioritising dual training and the collaboration between VET and universities. Dual training can attract people from abroad. In relation to VET-University links, there are currently qualifications in VET centres linked to degrees. Often, this is an incentive for people from these higher VET programs to pursue other degrees, and this should be encouraged more so that there is continuous training throughout life.*

It was also noted that there is **a need to promote the development of short, agile, *ad-hoc,* and collaborative training programmes** aimed at training specific technical skills that are in high demand in the productive sector. In this respect, a business association stated: *"There is a need for the development of more specialised and shorter training programmes - and for vocational training and universities to develop programmes of this type. Formal training is not enough, and non-formal training is not recognised.*

- **Prioritising the guidance and monitoring of learners**

Another relevant aspect that emerged was the need for the education system, in collaboration with companies and other territorial agents, to focus more on guiding, mentoring, and monitoring students in order to facilitate their entry and adaptation to the companies in the territory, and to offer an attractive professional path that is appropriate to their personal strengths. An entity of the Vocational Training system proposed the following: "*We could set up a department specifically for intermediation work, bringing job opportunities to people and small companies. Right now, it is the teachers themselves who do this work, but we do not have the resources or the time to do this.*

This necessity was also seen at the university level: "*Regarding the guidance given to girls/boys, a closer link should be developed between university and VET, and secondary school. Create links between university and pre-university guidance in order to be able to follow up and give continuity to the mentoring processes of people throughout their educational pathway".*

- **STEM vocations, especially among girls**

It was noted that there was still some way to go concerning the promotion of STEM vocations from an early age, especially among girls. The perception of the interviewees was that many actors were creating a "trickle-down" effect through individual actions. However, the importance of building an impactful and collaborative strategy to intervene against gender stereotypes in STEM vocations was pointed out. These initiatives should be implemented not only through actions in VET and universities, but also at an earlier age, in primary and secondary education. Along these lines, an agent of the education system remarked*: "It is essential to address the issue of gender roles and encourage girls to believe that they can pursue STEM, thus breaking down barriers and stereotypes. We also have to work more on better explaining what STEM is about, focusing on experimentation and play to bring STEM closer to students, especially at an early age".*

- **Foresight and observatory**

The diagnosis showed that a prospective analysis of talent trends and needs at the territorial level was called for. However, some of the agents interviewed added relevant nuances, with one from the educational sphere highlighting that: "*It would be necessary to see what the talent trends are, from a more specific niche analysis, how much talent is retiring soon, how many people will be required and how many will be in training. We should focus on the impact of people in the labour market".* A member of an organisation that promotes clusters stressed that the profiles that will be needed should be more specific: "*An observatory of real profiles in demand in real-time could be set up. We should determine which profiles are in demand today and which ones are emerging, among others,*

and not only in terms of the necessary skills and formal training but also in emerging digital issues. Similarly, analysing the competitive advantages of local industry should be possible".

- **Raising awareness of the value of industrial businesses and Basque companies**

In at least five of the interviews, it became clear that it was important to raise awareness of the value of business, especially industry, which today does not have much social appeal. As stated by some business actors : "*We are seen as a masculine and ageing company. In addition, the image of the industry as a whole is a negative one. A concrete step to address this issue could be to promote the visibility of female and younger profiles", and "Young people can find the purpose that the industrial sector has in society, and we should contribute to making it visible. We believe that we have to spread attractive and realistic messages about working in industry. It is fundamental to make it visible and humanise it with families, educational centres, institutions, and companies. It seems that the image of the industrial sector transmitted to young people is typically associated with stereotypes that do not correspond to the reality of modern industry".*

Some of the **media mentioned to be used in this awareness-raising endeavour** were social networks and mass communication channels, such as television.

- **Levers for attracting and retaining talent in key business projects**

One of the aspects that emerged repeatedly in the interviews was the need to attract international talent through a quality training system and interesting business projects. In this respect, one cluster development organisation remarked: "*We have to attract people from abroad through appealing programmes. Many people want to come because of the industrial tradition of the region, and one could consider that there is a strong industrial heritage. Our job is to align it with a small place like Euskadi, which attracts people. The quality of life in the Basque Country is another valuable asset we have that could be made visible. And to achieve this, we can take advantage of the companies we have abroad - which serve as an embassy".*

In addition to developing actions to position and attract talent, also highlighted was the importance of continuing to focus on strengthening various levers for attracting and retaining international talent through strategies such as scholarships, attractive tax policies, reception and housing infrastructures, and other relevant areas such as creating facilities for studying official languages, assistance for accompanying members, such as partners and families, to enable them to integrate easily into the labour market and the local school environment. In this line, a business association proposed: "*It can be interesting to open lines of communication with other countries to attract people, which has been done in Germany with Ukrainians, for example. You can promote the recognition of qualifications to develop a professional career here along with language learning. This is crucial when you have to transfer someone. Another fundamental aspect is the school environment for the children".*

- **Focus on SMEs**

One business-related aspect that came to the fore was that providing closer support to SMEs and smaller companies in this particular talent challenge is imperative. The

view that emerged was that although SMEs comprise a large part of the business fabric, there is no widespread awareness of the urgency to address the issue of future talent gaps; therefore, it is crucial to raise awareness of how urgent the situation is. In this sense, one company indicated: "*We have to be careful of the communication capacity of the different agents we involve in this commitment. There are SME companies with much less capacity. You can leverage the strongest companies as intermediaries with the small ones, within suppliers, etc.*

- **Skilling, upskilling, and reskilling**

This aspect relates to the challenge of companies as trainers and the importance of providing training throughout people's professional lives. An intermediary entity between companies and talent remarked on this matter: *"Companies are social actors - and as such, they should play a transformative role in transitions and also have a pedagogical role. There has been a business approach to training, learning by doing, but the emphasis should also be on training related to transitions. In addition, companies should concentrate on training people – i.e., focus on workers' personal and professional development and create bonus systems for them to train. Mentoring courses could be set up for companies."*

The ability to encourage the *reskilling* and *upskilling* of active workers was also seen as key to developing and harnessing talent at older ages. In this regard, one company stated: *"More initiatives should be implemented for reskilling and upskilling in the areas of digital training for all employees of the group, with programmes such as Smart Factory, Industry 4.0, etc.".*

- **Employer branding: Attractiveness, talent strategy, employee journey**

A large number of agents found it essential to boost *employer branding* capabilities to be able to compete and position themselves in the field of talent. Companies need support in creating a talent strategy that takes into account the employer brand, the ability to attract people, and the *employee journey* of people in companies. In the words of a business association*: "Efforts should be directed at mentoring company staff: Ten new trainees in the business need Ten mentors to accompany them".*

A member of a talent intermediary entity stressed that: "*We must* create *a facilitating and common framework for the personal development of workers in companies, based on the European framework; that is, facilitating conditions, focusing on mentoring and accompaniment, and developing labels such as "Best Place to Work", etc.".*

Table 4.1 systematically describes **the challenges already identified in the diagnosis and the main issues that emerged as a result of the qualitative contrast with actors**, which were subsequently grouped to create a joint vision of the ecosystem (Phase 3).

Table 4.1 Summary table of the main talent challenges in Bizkaia

BLOCK 1: STEM TALENT, TRANSVERSAL ACROSS SECTORS, WITH HIGH CURRENT AND FUTURE DEMAND
CHALLENGE 1: ATTRACTING TALENT TO STRATEGIC TRAINING AREAS FOR TRANSITIONS LINKED PRIMARILY TO STEM TALENT
CHALLENGE 2: MEETING THE CURRENT SHARP DEMAND FOR SPECIALIST PROFILES (STEM)
CHALLENGE 3: ADDRESSING THE DIFFICULTIES COMPANIES FACE IN FINDING ICT AND ENGINEERING PROFESSIONALS
CHALLENGE 4: MEETING THE TALENT NEEDS TO ENABLE INNOVATION
ADDITIONAL CHALLENGES:
FORESIGHT AND TALENT NEEDS OBSERVATORY
RAISING AWARENESS OF THE VALUE OF INDUSTRY AND BASQUE COMPANIES
BLOCK 2: THE NEED TO MATCH TALENT SUPPLY AND DEMAND IN STRATEGIC AREAS FOR TRANSITIONS
CHALLENGE 5: FACILITATING THE GROWTH OF GREEN JOBS FROM THE SUPPLY AND DEMAND SIDE OF PROFESSIONALS (STEM)
CHALLENGE 6: EMPOWERING TALENT IN THE SILVER ECONOMY
BLOCK 3: STEM GRADUATES AND THEIR IMPORTANCE IN SUPPORTING TRANSITIONS AND STRATEGIC SECTORS
CHALLENGE 7: BOOSTING ENROLMENT AND GRADUATION IN STEM BACHELOR'S AND MASTER'S DEGREES
CHALLENGE 8: CONSOLIDATING THE POSITIVE TREND IN STEM VOCATIONAL EDUCATION GRADUATION
CHALLENGE 9: ENCOURAGING WOMEN'S ENROLMENT IN STEM VOCATIONAL PROGRAMMES AND DEGREES
ADDITIONAL CHALLENGES
GAINING INSIGHTS INTO YOUNG PEOPLE'S NEEDS
DUAL AND MORE FLEXIBLE TRAINING
FOCUSING ON STUDENT GUIDANCE AND MONITORING
FOSTERING STEM VOCATIONS, ESPECIALLY AMONG GIRLS
BLOCK 4: WORKING CONDITIONS, KEY TO TALENT
CHALLENGE 10: LEVERAGING TALENT ATTRACTION AND RETENTION THROUGH WORKING CONDITIONS
CHALLENGE 11: PROMOTING TELEWORK AND FLEXIBILITY AS A MEANS OF ATTRACTING AND RETAINING TALENT
CHALLENGE 12: COMBATING OVER-QUALIFICATION AND RECONCILING THE SHORTAGE OF SUPPLY OF CERTAIN PROFILES

ADDITIONAL CHALLENGES:
MAKING EFFORTS TO BOOST LEVERS FOR ATTRACTING AND RETAINING TALENT IN KEY BUSINESS PROJECTS
PRIORITISING EMPLOYER BRANDING TO INCREASE ATTRACTIVENESS OF COMPANIES
FOCUSING ON SMES
BLOCK 5: THE ROLE OF COMPANIES AS TRAINERS OF TALENT
CHALLENGE 13: INCREASING THE NUMBER OF COMPANIES PROVIDING TRAINING FOR THEIR EMPLOYEES AND INVESTMENT IN VOCATIONAL TRAINING
ADDITIONAL CHALLENGE: SKILLING, UPSKILLING AND RESKILLING

Source: Own elaboration

4.4. Building a shared vision and decalogue of commitments of *Bizkaia with the Talent (Phase 3)*

4.4.1. Shared vision

The whole of the above process served as a basis for co-constructing **the shared vision** of the STEM talent ecosystem in Bizkaia. This vision identifies and delimits the main dimensions of talent to be addressed in the initiative, the type of talent it focuses on, and the types of projects and approaches expected of the agents joining the ecosystem.

The vision that finally emerged from all the inputs was as follows:

> *"Change the trend (create a turning point) in the existing gap between the STEM skills demanded by companies and the supply of qualified people we have in the territory through a joint commitment between the agents involved in generating, attracting and developing talent, assuming coordinated commitments, individually and collectively, and monitoring their impact*".

This vision was primarily structured around the following principles:

- The needs of companies, with a special focus on the ***region's driving companies and SMEs.***
- Qualified people, especially ***high- and medium-skilled*** profiles.
- Main sectors: ***STEM occupations + strategic profiles*** for the technological-digital and ecological-environmental transitions.
- Coordinated commitments. Every agent involved in the ecosystem committed to participating through different roles, such as developing or leading projects

of a coordinated and collective nature, or providing contrast in participatory consultation groups around various projects.

4.4.2. Leadership of the initiative and the role of the Provincial Council of Bizkaia

The shared vision was built within the framework of the Tractor Group meetings, where a series of needs were also identified in order to advance the ecosystem, which the Provincial Council of Bizkaia itself decided to take on as the initiator of this process. Since the Provincial Council already had significant experience working on talent issues together with Bizkaia Talent, set up in 2005, it was able to facilitate the availability of certain resources for the development of the ecosystem.

Taking this commitment further, the Provincial Council of Bizkaia introduced a series of initial commitments, which were presented to the ecosystem agents at a collaborative event in July 2022. These initial commitments are presented in **Figure 4.6.**

Figure 4.6 Commitments by the Provincial Council of Biscay

- **Lead the governance instrument**: TALENT ACTION GROUP
- Strengthen the **ecosystem management team**
- **Levers**:
  - **Tax policies**: improve and support service
  - **Employer branding** service
  - Predictive, attractive and intelligent profiles **observatory**
  - **International intermediation** for disseminating local academic offerings
  - Training **scholarships**
- 2 million euros **annual budget**:
  - **Aid for SMEs** to find people outside the Basque Country with specific experience and training for the challenges of the company.
  - **Marketing and communication** campaign(s) to:
    - Disseminate initiatives that are already being carried out to develop, attract, and retain talent
    - Disseminate new initiatives in line with the ecosystem's mission
    - Highlight the value of the local business
    - Develop place branding actions
  - **Co-finance new initiatives** (seeking an incentive effect), prioritising those with the greatest potential impact and the highest investment by the agents (direct aid and/or decrees based on investment and impact).

Source: Extract from the presentation given by the Provincial Council of Bizkaia.

At the same meeting with the agents, it was proposed that a consultative group be set up, consisting of all those agents interested in joining the ecosystem, known as the ***Talent Action Group (TAG)***. This group of agents make up the ecosystem itself, whose operations, decided at the same meeting, will be structured as plenary meetings in which news, progress with different projects, and key issues for the ecosystem can be communicated and contrasted.

Another fundamental aspect involved appointing a person who would later become the coordinator of the Commitments, organisationally linked to Bizkaia Talent. Likewise, the Provincial Council undertook to initiate efforts in certain key areas of the territory that significantly impact talent: tax policies, establishing an *employer branding* service, creating a profile observatory, international intermediation, and providing grants for recruiting staff.

Added to this was a funding commitment of 2 million per year for five years (a total of '10 million) to promote projects under the initiative, highlighting three priority areas:

- Strengthen support for SMEs.
- Develop awareness and communication campaigns to disseminate initiatives and boost *place branding*.
- Co-fund new initiatives developed by agents belonging to the ecosystem, provided that these initiatives are of an innovative nature.

4.4.3. Decalogue of ecosystem commitments

From the date of the first joint event with the Talent Action Group (i.e., all the agents participating in the ecosystem), the Tractor Group built the decalogue of commitments that would guide the STEM talent promotion ecosystem (Figure 4.7). This was based on all the qualitative work of contrasting the talent challenges described above (Phase 2).

Figure 4.7 Decalogue of commitments

Source: Own elaboration

COMMITMENT 1: FORESIGHT

Facilitate the creation of effective tools for mismatch analysis and prospective assessment of STEM talent needs by establishing a predictive, attractive, and intelligent profile observatory. The observatory would be based on the model already existing in Bizkaia Talent but enriched with new information contributed by agents, who in turn will disseminate the information from the observatory to their target audience for

optimal use, while also providing feedback to the observatory for its continuous improvement, including incorporating qualitative information.

COMMITMENT 2: AWARENESS RAISING

Raise awareness in society in general and especially in the business world concerning the value of STEM talent and the challenges surrounding its scarcity, along with the difficulties of attracting and retaining it, proved crucial to developing this initiative. The following needs were identified:

- **Promote reflection, debate, and awareness of** the urgent challenge of talent in the Basque Country among social agents, clusters, professional associations, and society as a whole.
- Raise awareness within the **business community, especially among SMEs**, of the urgency of concentrating on developing innovative recruitment and attraction policies, given the magnitude of the current and future talent gap.
- Make visible the **contribution of STEM talent** to Basque industry and the positive social impact of industry in general.

COMMITMENT 3: STEM VOCATIONS

Promote STEM vocations from an early age, especially among girls, by making the economic and social impact of the industrial sector visible, in which they play a fundamental role. Among the different possible actions in this commitment, it was proposed that collaborative initiatives for **STEM** vocations be carried out **in primary education with Parent Associations** as well as **among young people.**

Given the large number of initiatives that were being carried out, it could be said that a gradual but persistent approach is being taken to tackle the challenge of breaking down gender prejudices and stereotypes concerning the possibility of developing scientific-technical careers. The proposal from this project is to go a step further and take more collaborative action with new agents and with an impact at an earlier age.

COMMITMENT 4: SKILLING, RESKILLING, AND UPSKILLING

Develop digital/STEM skills through collaborative *skilling, reskilling, and upskilling* initiatives between the education system and companies through more agile, ad-hoc training that is closer to practical realities and dual experiences to foster the qualification and requalification of people in STEM skills and reinforce the role of companies as trainers of talent.

COMMITMENT 5: DIGITAL SKILLS HUB

Promote Bizkaia as an international hub of excellence that attracts talent through specialised and applied cutting-edge training by collaborating with technology companies, technology centres, universities, and vocational training centres.

The objectives were as follows:

- Increase the **offer of postgraduate degrees in STEM-related fields**, significantly boosting the offer in English.

- Develop **driving, disruptive projects of international scope** with specific objectives of attracting and developing talent, adopting a dual focus from the outset.
- **Promote synergies and strategic alliances** between these projects and companies looking for digital talent in order to retain the talent trained.
- Enhance **collaboration between universities and VET centres** in the design and delivery of training by devising training with VET and university modules and jointly responding to talent needs.

COMMITMENT 6: MONITORING AND FOLLOW-UP

Provide personalised monitoring, tutoring and support for students and graduates with a STEM profile, as well as for companies seeking to recruit talent from this field, in order to connect people with local companies to advance their professional careers in Bizkaia.

- **Monitor all** local and foreign STEM bachelor's/master's/VET students during their training stage.
- Continue **monitoring and follow-up after the studies** to encourage their return or to retain them in the territory.
- **Match students and companies**, interacting with foreign and local students by conveying the benefits of the ecosystem, the business fabric, and specific companies related to their fields of study.

ENGAGEMENT 7: TALENT STRATEGY AND EMPLOYER BRANDING

Improve the positioning of companies in the territory to retain/attract talent through training in the development of:

- Strategies **for attracting and retaining talent** in companies, focusing on working conditions, professional careers, remote working, work-life balance measures, etc.
- **Employer branding strategies** for communication and dissemination actions, as well as establishing a **pathway towards *employer value* proposition** *-employer branding* throughout the employee's life cycle.
- Develop a **support and mentoring service** around strategy and employer branding with companies.
- **Create certifications** such as "*Great Place to Work*" or "*Best Employers*".

COMMITMENT 8: SMES

Enhance the **appeal of SMEs to attract, retain, and develop STEM talent** by:

- **Bringing these companies closer to the options** and tools for attracting/retaining this talent.
- Offering support for devising **employer branding strategies**
- Providing SMEs with **information, tutoring, and mentoring** through networks, intermediary agents, and larger companies.
- **Supporting** these companies so they can train their talent in collaboration with clusters and associations.
- **Encouraging collaborations between SMEs** committed to the issue.

COMMITMENT 9: INTERNATIONAL PRESENCE AND *PLACE BRANDING*

Promote the image of Bizkaia/Euskadi and Basque companies internationally as a reference point for advanced industrial and technological development and engage in proactive efforts at an international level to attract STEM talent to the territory. To this end, the following are possible objectives:

- Create a ***place branding* strategy** in which the strengths of the business fabric and the territory, in general, are highlighted, in addition to the training offer.
- Convey the **image of Bizkaia as a hub of outstanding companies** to work for, creating a narrative that illustrates the territory's industry and advanced services at an international level, highlighting the capabilities of the industrial ecosystem, the key projects, and the values and differential elements of the business fabric.
- Develop a **programme to attract international students** through international intermediary agencies and with the collaboration of local university centres.
- Organise **meetings and gatherings** (both small and large), with the involvement of companies in places outside of the Basque Country where there is a concentration of people (local or international) who may be interested in returning to the territory.

COMMITMENT 10. FACILITATING LEVERS FOR ATTRACTING AND RETAINING TALENT

Create a set of tools that contribute to positioning Bizkaia's ecosystem as attractive for retaining and attracting talent through:

- Attractive **tax policies** and a one-stop shop for tax assistance for individuals.
- Support in **visa and other administrative** issues.
- **Grants and scholarships** for students.
- **Spaces for temporary stays** for international talent: TALENT HOUSE.
- INTERNATIONAL OFFICE service, i.e., establishing a comprehensive service – a *one-stop shop* to welcome people for stays in Bizkaia.
- **Talent attraction guide** or "Welcome to Bizkaia" guide.

4.5. Defining an ecosystem governance model (Phase 4)

In conjunction with identifying the decalogue of ecosystem commitments, it was necessary to **define an appropriate governance model for the initiative**. This model would help implement a process to coordinate the agents and create an optimal space to facilitate collaboration and the creation of projects in the different pillars of the decalogue of commitments.

The initial phase involved **a reflection process carried out by the initiative's Tractor Group** (Provincial Council of Bizkaia, Bizkaia Talent and Orkestra) to establish the principles for constructing this governance. In this respect, Orkestra developed a proposal taking into account the ecosystem's needs and the theoretical bases for articulating the principles of collaborative governance. These **principles** sought to encourage the development of collaborative processes between agents, breaking away

from how projects were carried out until now by the different agents in the field of talent, which were executed unilaterally and led to more watertight solutions.

The governance proposal designed by Orkestra was worked on and agreed upon with the **Tractor Group through several meetings** and was subsequently presented to ecosystem actors at another **TAG event** held in December 2022.

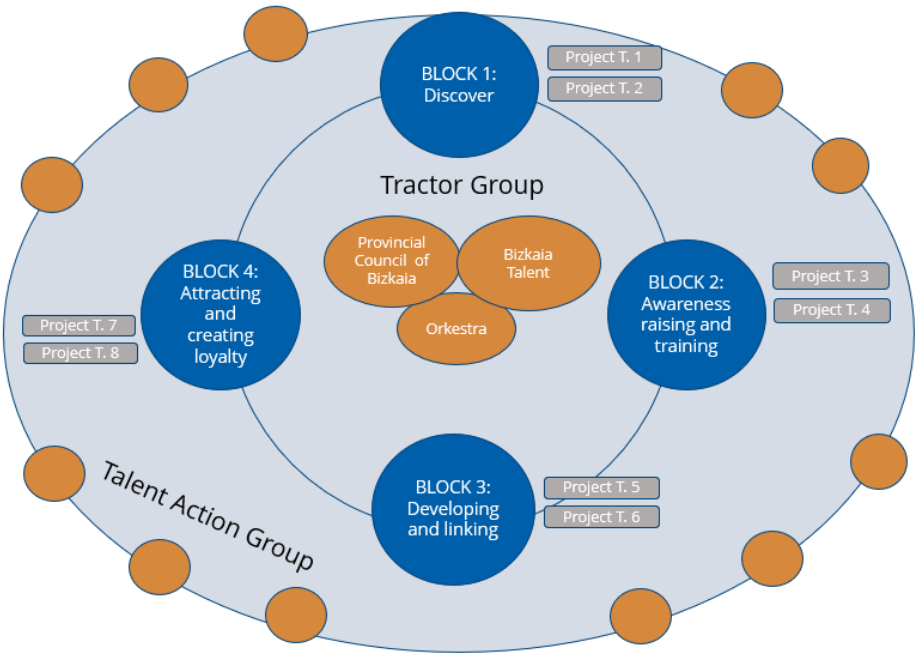
This governance model consists of two levels. The first level involves driving the ecosystem through the Tractor Group, depicted in the centre of Figure 4.8. The **second level** is **grouped according to lines of action, forming Commitment blocks based on the Decalogue of Commitments described above**. These blocks are:

- Commitment 1 - > Block 1: Discovering
- Commitments 2 and 3 -> Block 2: Awareness raising and training
- Commitments 4, 5, and 6 - > Block 3: Developing and linking
- Commitments 7, 8, 9, and 10 - > Block 4: Attracting and creating loyalty

The objective of this second level of governance was to **generate collaborative project teams** between actors to address the specific challenges of each of the blocks.

The resulting governance model is presented in **Figure 4.8**, where the **Talent Action Group,** made up of all the agents in the ecosystem, orbits around the four thematic blocks or areas of action. As already indicated, this level of governance is a consultative body comprised of all the organisations that adhere to *Bizkaia with the Talent* representing one of the three types of agents in the ecosystem: talent supply, demand, and intermediation. These agents are freely organised into specific project teams around the four thematic blocks.

Figure 4.8 Ecosystem governance model



Source: Own elaboration

Furthermore, the ecosystem has **collaboration mechanisms**, which include face-to-face meetings of the TAG (once or twice a year) to share progress on actions/projects, as well as project workspaces (online or face-to-face meetings) to facilitate communication in project teams. Such mechanisms allow for a collaborative operational structure that builds relationships of trust between agents, fostering collaborative reflection for action, feedback of information between projects, and the creation of new collaborative projects. An example of these mechanisms in action is a project led by Orkestra in block 1- Discovering where, in order to characterise the key STEM training offer for the territory, the project team made up of agents from the education system and the demand for talent has been used to reach a consensus.

5. Conclusions drawn from developing the STEM talent promotion ecosystem in Bizkaia

This report aimed to outline the process of building an ecosystem to address the shortage of STEM talent in Bizkaia in response to the challenge of ensuring territorial competitiveness for wellbeing. Furthermore, the report contributes to a deeper understanding of the development of regional public policies in this field.

The starting point of the process described above was the awareness of the need for imminent action on the part of the Department for Economic Development of the Provincial Council of Bizkaia, which also includes Bizkaia Talent, an agency with years of experience in promoting actions in the field of talent. The turning point that resulted in the launch of the *Bizkaia with the Talent* initiative in 2022 was the acute deficit of talent, especially STEM talent, in the historical territory of Bizkaia, which called for joint actions of greater impact to attract, link, and retain professionals in the territory.

The research carried out by Orkestra and its facilitation role throughout the process of setting up the ecosystem described above allows us to derive a series of key insights and challenges for the sustainability of the ecosystem, which are presented in this section.

5.1. Key insights

1. Common principles and an ecosystem vision: Having principles to guide the initiative and establish trust in the network of participating agents has been an important factor in this process. The presence of **common objectives, a mission, and a vision of the ecosystem** built collaboratively between the Tractor Group and the agents who adhered to the Talent Action Group throughout 2022 made it possible to create the space to generate these principles. In this sense, **defining STEM talent as a priority for the territory's areas of economic promotion was essential**, in order to focus on a specific type of talent. On the other hand, identifying that **Bizkaia's situation with respect to talent equilibrium scenarios was one of talent gaps and shortages** (see Figure 2.1 for more details) led to establishing a more ecosystemic vision as a more appropriate approach to the starting situation.

2. Existing local agent networks: Bizkaia already had multiple agents and public-private structures for the supply, demand, and intermediation of talent, which were organised and actively taking steps to target various challenges related to talent, as depicted in the mapping of agents. In turn, the existence of a network of agents that bring together the interests of various key groups in the territory has also favoured the

implementation of this ecosystem, including Cluster Development Organisations, business associations, and associations of VET centres.

3. A **flexible and interconnected structure that seeks to respond to multiple objectives:** The intervention model for the ecosystem was developed in 2023 and is based on the four fundamental blocks for addressing the challenges surrounding talent: discovering, awareness raising and training, developing and linking, and attracting and retaining talent. These are, in turn, the four pillars of the initiative's governance, from which project teams are formed to design specific solutions. This structure has made it possible to carry out projects aimed at the multiple challenges identified (between 2023 and 2024, when this report was prepared, 13 projects were already being implemented - in white - in the different blocks, as illustrated in **Figure 5.1**).

Figure 5.1 Ecosystem Intervention Model, launched in 2023 (version 2024)

Source: Prepared by the authors based on the presentation made by the Provincial Council of Bizkaia in December 2024.

4. Interdependence/collaboration between actors: Although the unilateral actions already carried out by the agents involved in talent were important, they had a lesser impact than what can be achieved by the ecosystemic approach. The possibility of developing joint projects between different agents, who previously lacked the means to collaborate, is fundamental for generating solutions within the framework of the ecosystem and increasing the impact of the actions. Moreover, it facilitates new collaborations between agents in future phases of the initiative.

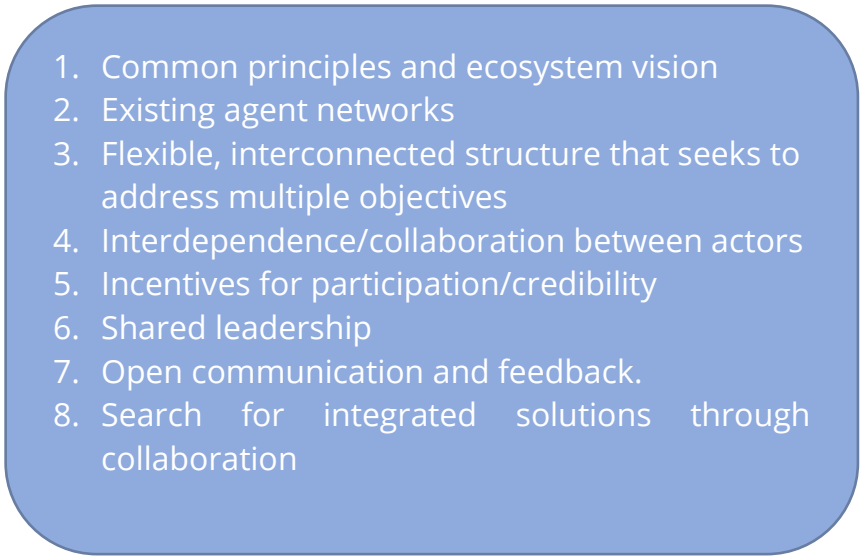
5. Incentives for participation and perceived value: An important factor in encouraging agents' participation in the initiative has been to provide incentives with tangible benefits, which agents recognise as a result of their participation. The main incentives perceived have been the possibility of having spaces to contrast different project proposals and pursue collaborations in the working groups already set up, along with the provision of resources and co-financing by the Provincial Council of Bizkaia for the development of projects.

6. Shared leadership: The integrating leadership of the Provincial Council of Bizkaia has been instrumental in developing this process. In this aspect, the initial commitments of the Provincial Council of Bizkaia (explained in greater detail in section 4.4.2), the appointment of a person to facilitate the initiative at the operational level in Bizkaia Talent, which led to the strategic and operational traction for the initiative, and the facilitation role of Orkestra, whose experience in the development of transformational research methodologies and actionable knowledge has been imperative, stand out.

7. Open communication and feedback. The whole participatory process (outlined in section 4) has promoted a more open and horizontal communication among the different agents, which has strengthened the ecosystem's feedback. This is seen as a fundamental aspect of the ecosystem, as it requires nurturing by the participating agents to ensure its survival and functioning in a sustainable manner over time. The collaboration mechanisms at different levels of the initiative's governance and intervention model have been key to maintaining this feedback.

8. Seeking holistic solutions through collaboration. The search for a turning point in the framework of this initiative was prompted by the need to address the talent challenge through more holistic and collaborative solutions. This factor provides a greater degree of innovation in the type of projects that can be designed, breaking down barriers and silos that arise if this type of challenge is tackled in an isolated and unilateral manner by different agents. In addition, lasting collaboration capacities are developed, enabling agents to continue generating alliances in new phases both within the framework of the ecosystem and beyond.

Figure 5.2 Key lessons from the ecosystem-building process



Source: Own elaboration

5.2 Challenges facing the ecosystem's sustainability

Although the development of the ecosystem has brought many opportunities and lessons learned, it also faces a series of challenges for its sustainability over time and functioning, described below.

Firstly, while **the financial resources made available** to the actors to develop initiatives are a key factor in gaining traction for proposals, they also pose risks if withdrawn. Therefore, it is essential to build capacities among the actors to be able to sustain these initiatives independently. An important aspect here is to ensure that participating actors see tangible benefits from participating in the ecosystem, and that these are measurable and quantifiable in order to assess impact.

Secondly, and closely linked to this first challenge, would be the fact that **the actors involved in the ecosystem are truly aware** of the need to take action and participate in the co-generation of solutions for the STEM talent challenge. On the demand side, for example, it is important to reinforce awareness of the urgency of addressing the STEM talent challenge, especially among smaller companies, as having the necessary talent is imperative to their survival and competitiveness.

Thirdly, the fact that there is an **ecosystem framework means that the approach to the talent challenge can be more collaborative**, which has many advantages, as explained above, but it can also carry the risk of slowing down the operability needed to get projects off the ground. In this sense, **a balance** should be sought **between the**

participatory approach in the ecosystem and the possibilities for effective project implementation by the different actors within it.

Finally, the **mechanisms generated to facilitate communication between ecosystem agents also require agents with a facilitating role** in order to encourage and build new connections between agents and potential projects in the ecosystem. It is important, therefore, to foster these interactions even when there is no traction from a facilitating agent.

Bibliography

Advani, A., Crawford, C., Keep, E., & Mayhew, K. (2022). *What is the role of skills and the skills system in promoting productivity growth in areas of the country that are poorer performing economically?*. Skills and Productivity Board. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1078360/Overview_of_Question_3_-_Skills_and_Productivity_Board_May_2022.pdf

Anderson, C. (2010). Presenting and Evaluating Qualitative Research. *American Journal of Pharmaceutical Education, 74*(8), 1-7. https://doi.org/10.5688/aj7408141

Anderson, P., & Warhurst, C. (2012). Lost in translation? Skills policy and the shift to skill ecosystems. In D. Nash, & T. Dolphin (Eds.), *Complex New World.: Translating New Economic Thinking into Public Policy* (pp. 109-120). IPPR. https://sussex.figshare.com/articles/chapter/Climate_change_policy_and_the_transition_to_a_low-carbon_economy/23387690#page=114

Ansell, C. K. (2016). Collaborative Governance as Creative Problem-Solving. En J. Torfing y P. Triantafillau (Eds), *Enhancing Public Innovation by Transforming Public Governance*, Cambridge: Cambridge University Press (pp.35-53).

Aragón, C., Aranguren, M. J., Iturrioz, C., & Wilson, J. R. (2014). A social capital approach for network policy learning: the case of an established cluster initiative. *European Urban and Regional Studies, 21*(2), 128-145. https://doi.org/10.1177/0969776411434847

Arrona, A., Estensoro, M., Larrea, M., & Sisti, E. (2018). When Collaborative Development Meets New Public Governance: The Case of Etorkizuna Eraikiz Territorial Development Lab In Gipuzkoa. *European Public & Social Innovation Review, 3*(1), 33-45. https://epsir.net/epsir/article/view/84

Beechler, S., & Woodward, I. C. (2009). The global "war for talent". *Journal of International Management, 15*(3), 273-285. https://doi.org/10.1016/j.intman.2009.01.002

Bizkaia Talent. (2014). *Análisis de las necesidades de talento en Euskadi, Horizonte 2020*. https://www.bizkaiatalent.eus/estudio/horizonte-analisis-necesidades-talento/horizon-2020-analysis-of-talent-needs-in-the-basque-country-3/

Boudreau, J. W. (2013). Appreciating and "retooling" diversity in talent management conceptual models: A commentary on 'the psychology of talent management: A review and research agenda. *Human Resource Management Review, 23*(4), 286–289. https://doi.org/10.1016/j.hrmr.2013.08.001

Buchanan, J., Schofield, K., Briggs, Ch., Considine, G., Hager, P., Hawke, G., Kitay, J., Meagher, G., Macintyre, J., Mounier, A., & Ryan, S. (2001). *Beyond Flexibility: Skills and Work in the Future*. Australian Centre for Industrial Relations Research and Training, University of Sydney, and Research Centre for Vocational Education and Training, University of Technology, Sydney, Sydney.

Buchanan, J. (2006). *From 'skill shortages' to decent work: the role of better skill ecosystems*. NSW Department of Vocational Education and Training. https://www.voced.edu.au/content/ngv%3A18365

Cappelli, P. (2008). *Talent on Demand – Managing Talent in an Age of Uncertainty*. Harvard Business Press.

European Commission. (2023). *Employment and Social Developments in Europe, Annual review*. Directorate-General for Employment, Social Affairs and Inclusion. https://op.europa.eu/webpub/empl/esde-2023/PDFs/KE-BD-23-002-EN-N.pdf

COTEC & IVIE. (2024). *Mapa del Talento en España 2023*. *La capacidad de atracción de Alemania.* https://cotec.es/informes/mapa-del-talento-2023/

Grewatsch, S., Kennedy, S., & (Tima) Bansal, P. (2023). Tackling wicked problems in strategic management with systems thinking. *Strategic Organization*, *21*(3), 721-732. https://doi.org/10.1177/14761270211038635

Estensoro García, M., & Zurbano Irizar, M. (2010). Innovación social en la gobernanza territorial: los casos de Innobasque y de las redes comarcales de la Comunidad Autónoma del País Vasco. *Ekonomiaz: Revista Vasca de Economía, 74*, 132-159. https://www.euskadi.eus/web01-a2reveko/es/k86aEkonomiazWar/ekonomiaz/abrirArticulo?idpubl=69&registro=1050

Finegold, D. (1999). Creating Self-Sustaining, High-Skill Ecosystems. *Oxford Review of Economic Policy, 15*(1), 60–81. https://doi.org/10.1093/oxrep/15.1.60

Florida, R. (2002). The Economic Geography of Talent. *Annals of the Association of American Geographers, 92*(4), 743–755.

Florida, R., & Mellander, C. (2015). Talent, Cities and Competitiveness. In D. Audretsch, A. Link, and M. Walshok (Eds.), *The Oxford Handbook of Local Competitiveness* (pp. 34-53), Oxford University Press.

Froy, F. (2009). Local Strategies for Developing Workforce Skills. In F. Froy, S. Giguère, & A. Hofer (Eds.), *Designing Local Skills Strategies*. OECD. https://doi.org/10.1787/9789264066649-en

Froy, F., Giguère, S., & Meghnagi, M. (2012). *Skills For Competitiveness: A synthesis report. OECD, Local Economic and Employment Development (LEED)*. https://doi.org/10.1787/20794797

Gagné, F. (2000). Understanding the complex choreography of talent development through DMGT-based analysis. In K. A. Heller, F. J. Mönks, R. J. Sternberg, & R. Subotnik (Eds.), *International Handbook for Research on Giftedness and Talent (2nd ed.)* (pp. 67-79). Pergamon.

Gallardo-Gallardo, E., Dries, N., & González-Cruz, T.F. (2013). The meaning of talent in the world of work. *Human Resources Management Review*, *23*, 290-300. https://doi.org/10.1016/j.hrmr.2013.05.002

Gibson, J., & McKenzie, D. (2011). Eight Questions about Brain Drain. *The Journal of Economic Perspectives, 25*(3), 107-28. http://www.jstor.org/stable/23049425

Giguère, S., & Froy, F. (2009). A New Framework for Labour Market Policy in a Global Economy. In S. Giguère and F. Froy (Eds.), *Flexible Policy for More and Better Jobs* (pp. 17-34). OECD Publishing. https://doi.org/10.1787/9789264059528-en.

Glaeser, E., & Gottlieb, J. (2008). The Economics of Place-Making Policies. *Brookings Papers on Economic Activity*, 155–239. http://www.jstor.org/stable/27561617

Green, A. (2016). *Low Skill Traps in Sectors and Geographies: Underlying Factors and Means of Escape*. Foresight, Government Office for Science UK. https://assets.publishing.service.gov.uk/media/5a7fa10eed915d74e622b9e4/LowSkillsTraps-_final.pdf

Hall, R., & Lansbury, R. (2006). Skills in Australia: towards workforce development and sustainable skill ecosystems. *Journal of Industrial Relations, 48*(5), 575-592. https://doi.org/10.1177/0022185606070106

Hodgson, A., & Spours, K. (2016). *The evolution of social ecosystem thinking: its relevance for education, economic development and localities*. UCL Institute of Education. https://discovery.ucl.ac.uk/id/eprint/1537510/3/Spours_Ecosystem%20thinking%20Stimulus%20Paper.pdf

Karlsson, C., Johansson, B., & Stough, R. (2012). Human Capital and Agglomeration. In: C. Karlsson, B. Johansson and R. Stough (Eds.), *The regional Economics of Knowledge and Talent, Local Advantage in a Global Context, New Horizons in Regional Science* (pp. 1-24). Edward Elgar Publishing. https://doi.org/10.4337/9781781953549

Keep, E. (2017). Current Challenges: Policy Lessons and Implications. In C. Warhurst, K. Mayhew, D. Finegold, and J. Buchanan (Eds.), *The Oxford Handbook of Skills and Training* (pp. 671-691). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199655366.001.0001

Lanvin, B., Monteiro, F., & Bratt, M. (2022). Is Talent Competitiveness Becoming More Unequal? In B. Lanvin, & F. Monteiro (Eds.), *The Global Talent Competitiveness Index. The Tectonics of Talent: Is the world drifting towards increased talent inequalities?* (pp. 3-27). INSEAD. https://www.insead.edu/sites/insead/files/assets/dept/fr/gtci/GTCI-2022-report.pdf

Lewis, R. E., & Heckman, R. J. (2006). Talent management: A critical review. *Human Resource Management Review, 16*(2), 139–154. https://doi.org/10.1016/j.hrmr.2006.03.001

Martinez-Fernandez, C., & Weyman, T. (2013). Skills and training ecosystems. In OECD (Ed.) *Skills Development and Training in SMEs* (pp. 97-114). https://doi.org/10.1787/9789264169425-en.

Moss Kanter, R. (2012). Enriching the ecosystem. *Harvard Business Review, March, 2012*. https://hbr.org/2012/03/enriching-the-ecosystem

OECD. (2023). *Rethinking Regional Attractiveness in the New Global Environment*. OECD Regional Development Studies, OECD Publishing. https://doi.org/10.1787/a9448db4-en

Orkestra. (2019). *Informe de Competitividad del País Vasco 2019: Las competencias ¿una panacea?*. https://www.orkestra.deusto.es/images/investigacion/publicaciones/informes/informe-competitividad-pais-vasco/publicacion-las-competencias-2019.pdf

Orkestra. (2021). *Informe de Competitividad del País Vasco 2021: construir la competitividad al servicio del bienestar.* https://www.orkestra.deusto.es/images/investigacion/publicaciones/informes/informe-competitividad-pais-vasco/210037-Informe-Competitividad-CAST.pdf

Payne, J. (2018). LE(a)P in the dark? Devolution, local skills strategies and inclusive growth in England. *Journal of Education and Work, 31*(5-6), 489-502. https://doi.org/10.1080/13639080.2018.1534226

Richardson, S. (2007). *What Is a Skill Shortage?*. National Centre for Vocational Education Research Ltd, Australia.

Senge, P., Hamilton, H., & Kania, J. (2015). The Dawn of System Leadership. *Stanford Social Innovation Review, 13*(1), 27-33. https://doi.org/10.48558/YTE7-XT62

Serban, A., & Andanut, M. (2014). Talent Competitiveness and Competitiveness through Talent. *Procedia Economics and Finance, 16*(2014), 506-511. https://doi.org/10.1016/S2212-5671(14)00831-4

Sissons, P. (2021). The local low skills equilibrium: Moving from concept to policy utility. *Urban Studies*, *58*(8), 1543-1560. https://doi.org/10.1177/0042098020915859

Solimano, A. (2008). Causes and Consequences of Talent Mobility. In A. Solimano (Ed.) *The International Mobility of Talent: Types, Causes, and Development Impact* (pp. 1-18). Oxford Academic. https://doi.org/10.1093/acprof:oso/9780199532605.001.0001

Tansley, C., Kirk, S., & Tietze, S. (2013). The currency of talent management—A reply to "talent management and the relevance of context: Towards a pluralistic approach". *Human Resource Management Review, 23* (4), 337-340. https://doi.org/10.1016/j.hrmr.2013.08.004

Tarique, I., & Schuler, R. (2010). Global talent management: Literature review, integrative framework, and suggestions for further research. *Journal of World Business, 45*(2), 122-133. https://doi.org/10.1016/j.jwb.2009.09.019

Tuccio, M. (2019). *Measuring and assessing talent attractiveness in OECD countries*. OECD Social, Employment and Migration Working Papers, No. 229, OECD Publishing https://doi.org/10.1787/b4e677ca-en

Tsujimoto, M., Kajikawa, Y., Tomita, J., & Matsumoto, Y. (2018). A review of the ecosystem concept — Towards coherent ecosystem design. *Technological Forecasting and Social Change, 136*, 49-58. https://doi.org/10.1016/j.techfore.2017.06.032

Vardi, S., & Collings, D. G. (2023). What's in a name? talent: A review and research agenda. *Human Resource Management Journal, 33*(3), 660–682. https://doi.org/10.1111/1748-8583.12500

Wheelahan, L., Buchanan, J., & Yu, S. (2015). *Linking qualifications and the labour market through capabilities and vocational streams*. Synthesis Report. NCVER. https://files.eric.ed.gov/fulltext/ED561378.pdf

Zumeaga, A., Magro, E., & Salazar, M. (2020). ¿Cómo construir un modelo de gobernanza colaborativa para el desarrollo territorial? *Deusto Social Impact Briefings, 5*, 1-66. http://dx.doi.org/10.18543/dsib-5(2021)-pp49-65.pdf

www.orkestra.deusto.es