
Vocational Education Training Centres in the context of the challenges associated with RIS3. The case of Navarre

In our paper we reveal the shortcomings of regional innovation systems and smart specialisation strategies concerning technical training, the provision of technological services to SMEs and local development, before showing how VET centres could contribute to resolving these issues. To this effect, unitary VET centres should be turned into multi-functional VET centres. The performance of the new non-traditional functions by VET centres depends on the prevalent type of centre, as well as internal and external factors. The analysis of the case of Navarre is useful, not only to illustrate the previous points, but to serve as a guide for how the transformation of the VET centre model should be undertaken.

Tras exponer las carencias que los sistemas regionales de innovación y las estrategias de especialización inteligente han presentado en el ámbito de la formación técnica, de los servicios tecnológicos a las pymes y del desarrollo local, el artículo muestra el papel que los centros educativos de FP pueden jugar en su resolución. Para eso es necesaria la transformación de los centros de FP unitarios en centros integrados y multifuncionales. El desempeño de esas nuevas funciones no tradicionales depende de la tipología de centros imperante, y de factores internos y externos a estos. El análisis del caso de Navarra permite, además de ilustrar todo lo anterior, extraer orientaciones para llevar a cabo esa transformación del modelo de centro de FP en dicha comunidad.

Berrikuntzako sistema erregionalek eta espezializazio estrategia adimentsuek heziketa teknikoan, ETEentzako zerbitzu teknologikoen prestakuntzan eta tokiko garapenean izandako hutsuneak azaldu ondoren, (LH) lanbide-heziketako ikastetxeek haien konponbidean bete lezaketen papera erakusten du artikulu honek. Horretarako, LHko ikastetxeek funtzio bakarrekoak izatetik funtzio anitzekoak izatera igaro behar dute. Ohikoak ez diren eginkizun berri horiek egin ahal izateak zer ikusia du LHko ikastetxe-motarekin eta LHko ikastetxeen barne eta kanpo-faktoreekin. Nafarroako kasuaren azterketak, aurrekoa argitzeaz gainera, erkidego horretan LHko ikastetxeen eredia eraldatu ahal izateko hainbat orientabide eskaintzen du.

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1. INTRODUCTION

In times of crisis, governments and institutions such as the OECD and the European Commission turn their attention to those institutions which, like Vocational Education Training (VET) systems, seem to explain the different behaviours of countries in terms of employment. Likewise, the awareness that countries like the United States and the United Kingdom have lost industrial competitiveness has turned attention towards vocational training, as a key element of a new industrial policy (Westwood, 2018, in this same issue). However, in spite of this, the innovation economy in general, and the regional innovation systems (RIS) in particular, continue to largely ignore the role played by vocational training and its main providers: VET centres, within the system (Porto and Doloreux, 2018, in this same issue).

More particularly, the RIS literature has relegated the issues concerning workforce qualifications, the needs of small and medium enterprises (SMEs) regarding innovation services, and the diversity of local contexts existing in each region (Navarro, 2014). This lack of consideration has been transferred to what is the main expression of this line of thought in the field of strategies and policies: research and innovation strategies for smart specialization (RIS3).

This article argues that VET centres are key actors which could help overcome the problems that RIS present in the three areas mentioned above. Furthermore, in addition to these questions of a horizontal nature, VET centres could contribute to fulfilling the needs arising from the vertical priorities of the RIS3 through the performance of their functions; as well as contributing to the new governance and entrepreneurial discovery processes that RIS3 require through their knowledge and facilitation activities.

However, for this to take place, changes must be made in the model of VET centres. Without abandoning and weakening what is their original function, such centres must also perform other functions, gradually transforming from unitary centres into multifunctional centres.

In addition to pointing out the shortcomings and biases of the RIS and regional RIS3 literature in the areas mentioned above and how VET centres could contribute to their correction, this article aims to shed some light on the factors which, related to the type of vocational training centres as well as to various internal and external factors, influence VET centres to develop additional functions to the provision of vocational training for young people.

To illustrate this, our article will explain how VET centres have responded to various needs arising from Navarre's RIS and how their activities relate to the horizontal and vertical priorities and the governance model of the RIS3 of this particular region. The pertinence of the case of Navarre comes from the relatively advanced situation of its VET system within the Spanish panorama, from the Government of Navarre's (GN) commitment to align its VET system with the recently redesigned RIS3 and from its willingness to explore changing the VET centres model. As it emerges from the analysis of the case, the obstacles for this transformation from unitary centres into multifunctional centres, and thus respond to the challenges posed by RIS, are often more related to governance than to resources.

Consequently, the content of this article is structured as follows. After this brief introduction, the second section will deal with the role of VET centres within RISs and regional RIS3. The third section will examine the diversity of functions performed by VET centres in different places, the factors that influence this diversity and how the centres tend to be more unitary or more multi-functional. In the fourth section, we will analyse the functions performed by the VET centres of Navarre and their alignment with the RIS3 of the region, before concluding the article with the final reflections.

2. VET CENTRES IN THE FACE OF RIS AND RIS3

Although virtually all the foundational works on regional innovation systems (Cooke, 1998, Asheim and Isaksen, 2002, Tödtling and Tripple, 2005) mention VET centres as an important component of the subsystem of knowledge generation and diffusion, and therefore see them as key components of such systems, there are very few works that focus on the role of such agents within such systems (Porto and Doloreux, 2018). The explanation for this is that, among other factors, the RIS literature presents certain biases (Navarro, 2009):

- The innovation and learning model called STI (Science, Technology and Innovation) has tended to prevail over the so-called DUI («by Doing, by Using, by Interacting»).
- It has paid great attention to high-tech sectors (bio, ICT ...) and large companies, overlooking traditional sectors (metallurgy ...) and SMEs.
- It has prioritized the studies on R&D infrastructures, investment and capital, etc. over those on the labour force and the labour market.
- Even when dealing with the qualifications of workers, the focus has been on the higher levels of the workforce (researchers, engineers, managers ...), and not on the intermediate or high-intermediate levels.

All the above-mentioned has occurred despite the fact that in Alfred Marshall's seminal works on industrial districts (upon which the RIS literature has largely been based), it was the labour force and its competencies as well as labour markets that were the fundamental basis of the success of such districts (Hommen and Doloreux, 2005).

The RIS literature rightly claims that the conditions of different places are not homogeneous and that the differences among regions in the same country can be even greater than the differences between that country and other countries of the same geo-economic zone (for example, the European Union). But in its analysis the RIS literature does not incorporate the heterogeneity and great diversity of local contexts that may exist within a region, and it does not articulate adequately the regional with the local level (Estensoro and Larrea, 2016).

In terms of policies, research and innovation smart specialization strategies (RIS3) constitute the current response to the problems presented in RISs. There are three main features that characterize RIS3, in relation to previous approaches to regional development strategies. First, its emphasis on R&D&I investments rather than on physical infrastructures; second, the requirement to set thematic or vertical priorities and not only try to solve problems or market failures of a horizontal nature; and third, the requirement that these priorities are determined as a result of a new governance in which all the agents of the so-called *quadruple helix* model (gov-

ernment, companies, knowledge organisations and civil society) participate in order to overcome the lack of knowledge attributed to the government by analysts opposed to active industrial policies (Aranguren *et al.*, 2012).

But because, among other reasons, one of the main lines of thought of the RIS3 literature is precisely the RIS literature, a good part of the biases that RIS literature presented have also been transmitted to the RIS3 and to the practical implementations in most of the regions of the EU. Thus, the literature and practice of the RIS3 has given priority to the following:

- R&D activities over other activities and types of innovation.
- Agents and knowledge infrastructures which are more linked to R&D (mainly universities but also technology centres) over others which are less based on R&D activities (VET centres and services to knowledge-intensive companies).
- Establishing thematic priorities for the region as a whole, and not coordinating them with the specific priorities of the districts that compose the region.

According to the above, there are three areas through which VET centres could participate in the RIS3 of their region.

The first major area in which VET centres and the RIS3 in their region are connected is the horizontal problems existing in the field of R&D&I to which RIS3 should respond. After reviewing this issue that can be found in most RIS and in which VET centres could be involved in its resolution, Navarro (2014), following Rosenfeld (1998) and Olazaran and Brunet (2013), highlighted the following:

- Training young people to meet the growing need of profiles with intermediate and high level technical qualifications (OECD, 2010).
- The increasing necessity to update and requalify the active population, in view of the evolution towards the knowledge society.
- Providing SMEs with technical and innovation services, especially those not based on R&D activities.
- Supporting entrepreneurship by fostering the development of entrepreneurial spirit and skills, as well as business incubation and creation of companies (especially when these require special equipment and technical knowledge).
- Developing connectivity and cooperation among the agents of the system: both among companies (in sectors or clusters, or in the region) and between these and other scientific-technological agents (particularly universities and technology centres).
- Taking into account the different local contexts within the RIS so that the R&D&I activities adjust and exploit the uniqueness of each one.

The second major area in which VET centres are connected with RIS3 concerns the thematic or vertical priorities chosen by the RIS3 of the region. One of the factors to consider when choosing such thematic priorities is in what skills the region has comparative advantages. Once the thematic or vertical priorities are set by the RIS3, VET centres must ensure the training of technical and other skills required by the workforce for the prioritized strategic activities. Moreover, not only should the training be «verticalized» (i.e., the specific requirements of the selected vertical priorities should be considered), but also the answer given to the other failures in the system mentioned above which are of a horizontal nature (the implementation of technical services, entrepreneurship, connectivity ...).

The third major area in which VET centres are connected with RIS3 is its governance. In other words, the participation of VET centres in the different steps of the entrepreneurial discovery process –macro, or relative to the system as a whole; or meso, relative to specific priorities– in which the different components of the quadruple helix interact.

3. UNITARY OR MULTIFUNCTIONAL VET CENTRES

When studying the behaviour of VET centres in advanced countries, it has been observed that this varies substantially from one place to another (Grubb, 2006). Although there are educational centres in all countries that provide VET to young people, the extent and way of providing such training can differ significantly. Likewise, in all countries VET centres provide additional functions to the vocational training of young people. But it is also observed that the types of functions and their relevance vary from one place to another.

For instance, in Anglo-Saxon countries initial VET (or for young people) is much less developed than in the mainland EU. In addition, the same centre in the former, offer VET of different educational levels (e.g., upper secondary and tertiary) even providing general education courses at the same time (both for young people and adults). However, in central and northern EU countries the centres tend to specialize in VET offering only one level of education.

Regarding other types of activities than initial VET (Rosenfeld, 1998, Navarro, 2014 and 2018):

- Anglo-Saxon centres tend to offer continuous VET. This is less frequent continental European centres where this type of training is provided by other types of entities.
- Anglo-Saxon centres do not usually develop research activities, but they provide certain technical services. Secondary level VET centres in central and northern EU countries do not develop R&D or service provision activities, whereas tertiary level centres do.

- Part of the Anglo-Saxon literature refers to the role of VET centres in the development of clusters and networks with other agents, while in the European literature there are no references to this type of activities.
- In Anglo-Saxon centres, the role of supporting the economic and community development of the towns, cities, regions or states in which they are located is included in the mission of the centres. This is less common in continental European centres, and when it does happen, it is in tertiary level centres and with a more regional rather than local perspective.

What this means is that although these centres were initially created to provide vocational training for young people (which constitutes their essential function and without which it is not possible to speak of this type of centre), in response to the opportunities and needs that emerged in their environment, VET centres later expanded their activity to other functions (which we call non-traditional functions of VET centres in our article).

What does the provision of other types of non-traditional functions by the centres depend on? According to the review of the literature by Navarro (2018), in which the pros and cons of unitary and multifunctional VET centres were examined, there are three types of factors that influence these decisions: the type of VET centre, other factors specific to the centre not considered in the previously mentioned typologies and a set of external factors.

Starting with the typology of the centre, there are three main characteristics of vocational training centres that can influence a greater or lesser inclination to become a multifunctional centre: (i) the learning mode of the centre; (ii) the level, orientation and status of the offered programs; (iii) the public or private nature of the centre (see Grubb, 2006).

Currently in all advanced countries, VET for young people combines, training in school and training in companies in varying degrees. Depending on the weight of one and the other, we could speak of school-based or company-based learning. In general, VET centres that participate in school-based learning models, having more capabilities, also address other types of functions.

Regarding the type and levels of education offered, centres that operate at a higher level (tertiary education) usually have greater capacities and, consequently, have more chances to address other types of functions. Teaching solely VET (and a single level of VET education), or together with general education (or with several levels of VET), is usually linked to the status level of the centre: generally, in countries with centres specialized in VET (continental EU), VET and its centres tend to have a higher status than in countries with mixed centres (Anglo-Saxon countries).

Finally, the public or private nature of the VET centre is related to certain characteristics of the centres: their mission (greater focus on market principles or more

general interests of economic development), their management autonomy (greater in the private ones), their location (greater concentration of private centres in urban locations), the types of courses offered (private centres tend to offer training that requires less equipment and investments). Thus, private centres are, in principle, better positioned to provide certain functions (for example, continuous VET) which require flexibility and operate in accordance with market principles, while public centres are more likely to offer other functions (for example, R&D&I services and support for local development), where the market shows a higher rate of failure and which require a higher level of public intervention.

In addition to the above-mentioned three criteria linked to the typology of VET centres, there are other internal factors of the centres that can influence whether they tend to be unitary or multifunctional (Dougherty and Bakia, 1998). These factors include the size of the centre (the bigger the centre, the easier and more likely it is to be multifunctional), the fields of knowledge offered (the centres that offer professional studies linked to the industry tend to be multifunctional), the composition of its governing bodies (when companies or representatives of the local administration are present in the councils, it is more common for the centre to be multifunctional), the organizational structure, the personality of its management (active directors with innovation and leadership spirit tend to broaden the scope of action of the centre) or the composition of their personnel (the industrial experience of teachers and their ability to develop research activities seem to be positively correlated with the expansion beyond the mere teaching of initial VET).

Regarding the external factors that may affect the unitary or multifunctional character of centres, it is useful to distinguish between those corresponding to general trends and those related to the specific environment in which the centre operates (Grubb *et al.*, 1997).

Thus, the external factors related to general trends are, among others, the following:

- Demography (demographic ageing favours the development of adult education and vocational training for employment).
- The development of the knowledge society (which requires the working population to renew their knowledge permanently).
- The shift to open innovation models (so that companies increasingly rely on outside knowledge).
- The financial crisis that has affected governments (due to the reduction of funding, the centres are forced to look for other sources of financing and political support in developing other types of activities).
- The progress in decentralization and regionalization processes (and the consequent willingness of regional and local governments to rely on local

knowledge organisations to support their regional and local development policies).

And among the external factors linked to the local context, the following ones should be mentioned:

- The sectoral and business structure of the environment (in particular, it is the predominance of industrial SMEs which makes multifunctional centres especially relevant).
- Their socio-economic situation (in the more developed regions, the centres usually have more resources and there is greater demand for their services).
- The institutions and agents of their labour market (the strength of business and worker associations has a significant effect on the development of VET centres).
- The composition and development of their knowledge infrastructures (depending on the degree of development and orientation of the university and the technology centres, there might be training and services needs which are basically non-covered and which could be covered by VET centres).
- Government strategies and policies.

In any case, there is an intense debate in the literature about whether it is preferable for VET centres to have a single mission or function or if it is better for them to simultaneously carry out several missions or objectives (Bailey and Averianova, 1998). It is a debate that takes place mainly on a logical level, and not so much on an empirical one. The criteria which, from a logical or speculative point of view, should be met in order to advance towards a multi-objective VET centre are the following:

- There is a failure in the system, so that certain additional functions are not already covered by other agents.
- Such progress does not bring a reduction of resources that jeopardizes the essential or core function of a VET centre: the delivery of initial VET.
- Its implementation and maintenance within the centre allows the exploitation of economies of scale and scope.
- The progress towards new functions should be experienced in the most capable centres and the most promising niches; and such experimentation and learning should be accompanied by the centres' advances in associationism, to take better advantage of the assets and capacities distributed among the different centres and to spread their experience more rapidly.

4. THE VET CENTRES OF NAVARRE IN THE CONTEXT OF RIS3

The methodology used in this article is based on combining the analysis of the existing literature on RIS, RIS3 and VET with territorial analysis. Thus, in addition to illustrating with a real example the role that VET educational centres can play in regional RIS3, some guidelines are offered for the government and for the different agents related to the VET system of Navarre.

From July 2017 to April 2018, the authors of this article participated in a study carried out for the Government of Navarre (GN) in this particular region, funded by the Bankia Foundation for Dual Training. A methodological triangulation was followed for this study:

- Several studies conducted on the VET system of Navarre were analysed (in particular, Olazaran *et al.*, [2013a and 2013b]; and those developed for the *Strategic Plan for Vocational Training of Navarre 2017-2010*).
- Public statistics (both national and international) and statistical data on VET centres and VET programs for employment, facilitated by the GN were used.
- Online surveys were conducted with VET centres (broadly answered) and companies (130 answers).
- And personal interviews were carried out with different agents of Navarre's VET system (12 VET centres, 3 Departments of GN representatives of 3 departments and 19 companies, business associations and unions)¹.

The role of VET centres in the RIS3 of Navarre is structured, according to our previous presentation of RIS3, into three main areas: (i) the role of the centres in resolving the horizontal problems presented by Navarre's RIS; (ii) the adequacy of the offer of such centres to the thematic or vertical priorities of the Navarre's RIS3; (iii) and the participation of VET centres in the governance of the system. Additionally, in the first area we differentiate the role of VET centres according to their essential function, i.e., the provision of VET for young people, from VET centres providing other functions that help meet certain needs or resolve failures in the system.

4.1. The provision of initial VET

As is the case in the rest of Spain, VET for young people is developed under two models: the traditional one, in which at the end of the second year one quarter of training is provided in companies; and the dual one, in which at least one third of all training is provided in the company. In both cases, training at the centre and in the

¹ Navarro *et al.* (2018) provide detailed information about the sources and organizations consulted, as well as data on the Vocational Training system of Navarre, on which the evaluations included in this article are based but could not be included for length reasons.

company are combined and the main manager of this process is the centre. Therefore, both models can be classified as «school-based».

Navarre is one of Spain's most advanced regions and has been a pioneer in the separation of VET from general education. Almost all the public centres that offer intermediate and higher-level VET are integrated centres; and although not all private schools are considered so, they have administratively separated VET from general education².

Like the majority of Spanish VET centres, the centres in Navarre provide simultaneously several levels of vocational training. Proportionally, the percentage of students studying higher VET is slightly lower than the Spanish average, although in recent years this difference is being corrected. From a social status point of view, VET is considered a less prestigious type of education and VET centres are not considered as key actors in the R&D&I system by other agents. The current GN is trying to change their image, status and role.

Almost 80% of the Navarrese VET students take their courses in public centres. In general, private centres are somewhat smaller and are located in the urban area of Pamplona. These private centres are more directed towards the service sector, they have a much more flexible management and, according to the surveys conducted, they have better equipment and a teaching staff with a higher educational level.

Having characterized the centres which provide the initial VET, we would like to highlight the features of initial VET in Navarre. Among the positive aspects are:

- The average size of Navarrese centres is higher than in Spain (423 VET students on average)
- A high degree of specialization in the courses offered by the centres, which favours the exploitation of economies of scale and avoids duplication.
- Smaller group size and student/teacher ratios.
- Good educational level and technical skills of the teaching staff.
- Well-equipped centres, despite the standstill of investments during the economic crisis.
- VET graduates have remarkable technical skills.

² In Spain, the integrated centres are regulated by the Royal Decrees 1558/2005 and 564/2010, and the Foral Decree 63/2006 in Navarre. According to article 2.1 of the latter, «integrated centres are those which are authorized as such and that provide initial, occupational and continuous professional training». Among the key requirements to be considered an integrated centre, is the following: «to be specialized centres in the delivery of vocational training offers» (art. 6.1.a), i.e., general education is separated from such centres. Among their basic functions, in addition to the initial and continuous VET, «is the development of innovation projects» (article 4.1.c). In this section, we will refer exclusively to integrated public centres and subsidised private centres. These centres concentrate 91.5% of the intermediate and higher level VET. Therefore, the rest of the centres are more focused on basic vocational training, excluding those that combine vocational training with general education and those that provide special education.

But among the negative aspects, the following should be noted:

- A low percentage of students in VET (8% of all non-university education, compared to 10% in Spain), especially among women; and graduation rates which, although somewhat better than Spanish ones, are low in an international comparison.
- Low implementation of VET taught in English and of collaborative projects based learning which, as a consequence, causes an insufficient development of transversal skills.
- Teachers' lack of professional experience (common to all Spanish vocational training), as well as insufficient training in new pedagogical methodologies.
- Low usage of the equipment.

To summarize, although VET centres have a capacity to offer VET to young people which the companies and agents interviewed describe as remarkable, the number of VET graduates they produce is clearly insufficient. The graduates also have weaknesses in transversal skills and in English. The weakness in transversal skills, as well as the low rate of completion of studies, are partly caused by the insufficient progress in collaborative learning methodologies based on projects and dual VET.

Dual VET was introduced in Spain this decade and is still far behind the rest of the EU, although it is more advanced in Navarre than in the rest of Spain: the total of VET Navarrese students represents 1.1% of Spanish VET students, while specifically dual VET students represent 2.7%. Among the singularities of Navarre's dual vocational training system, we can consider the following: normally, the whole group studies under the dual system (and not only some students of the group); it is relatively more present in studies related to industry and in SMEs; it follows a model of alternating short periods in the centre and in the company; since 2017 students are required to work in companies with a work contract or a scholarship; and finally, specialization programmes are offered (with a third year of dual training) such as those carried out thanks to Volkswagen.

4.2. The provision of other non-traditional functions by centres

4.2.1. *Factors that influence the provision of other non-traditional functions by centres*

As mentioned above, the degree of involvement of VET centres in the provision of functions, other than the initial VET, is influenced by the typology of centres existing in the territory and by other internal and external factors of the centres. We will explain the influence of these factors in the case of Navarre.

In principle, the separation between VET and general education that exists in Navarrese centres fosters the provision of non-traditional functions. On the contrary, the lower degree of development of higher level courses and, more generally, mixing different educational levels in Navarrese VET centres does not favour the offer of these non-traditional functions. As a consequence, VET centres are subject to teaching staff regulations, quality assurance systems, financing mechanisms or infrastructure allocation more related to secondary education schools (see Santiago *et al.*, 2009), which is not suitable for the performance of such functions. Regarding the considerable weight of public centres, this is favourable for the development of certain additional functions (for example, involvement in local development strategies), but relatively unfavourable for others (e.g., continuous VET) as is observed in practice in Navarre.

Among the internal factors likely to influence the provision of non-traditional functions by Navarrese VET centres, the following can be taken into consideration:

- The size and specialization of the centres are positive factors, as well as the greater specialization of Navarrese centres in studies related to industry.
- There is a good level of equipment and technically competent teachers, which favours the possible development of other functions. However, the lack of industrial experience of most of the teachers is a significant obstacle.
- The GN offers teachers a considerable number of free hours for developing other activities. But a non-strategic management of these hours and the obtained resources takes place, which hinders their use for the development of such functions.
- The regulation of integrated centres theoretically offers them management autonomy and demands that they undertake functional projects for the medium-long term. But the reality is that this autonomy is strongly restricted by the interpretation that other bodies of the GN (Intervention and Legal Services) make of the regulations, as well as by the inertia of the teaching staff and management teams of the centres. As a consequence, most of the centres do not have a real strategy and an appropriate organizational structure.
- In the social councils and governing bodies, business and union representatives have very little weight and, therefore, cannot actively transmit the needs of the productive world.
- Navarrese VET centres do not have a specific association and almost all the joint activities they carry out to exploit synergies and share knowledge do not arise from the initiative of the centres but rather in response to the initiatives or demands coming from the GN VET Service.

Concerning the external factors linked to the local context, the industrial specialisation of Navarre is in principle a favourable factor for the development of non-traditional functions, as the industrial firms are the most in demand of continuous training and technological services. In addition, the Navarrese business structure is

characterized by the predominance of SMEs. In general, large companies have their needs for technological services covered and they demand more R&D services (which other actors provide better than VET centres) and training (partly obtained from VET centres); whereas SMEs demand less R&D services, and more technological and training services (although to a lesser extent than large companies). It follows that, in general, the economic-business structure of Navarre provides a favourable context for the demand for these non-traditional functions.

Navarre's level of technological development is advanced within Spain, but somewhat lagging compared to the EU central countries. The higher the level of technological development, the greater the capacity of absorption of firms and the greater the demand for the provision of new functions by centres.

Within its knowledge infrastructures, Navarrese universities are very advanced and stand out especially for the development of the universities' «third mission» (as shown by the ranking of Spanish universities prepared by the IVIE)³. However, universities mainly provide R&D services. There is also an important network of technology centres mostly grouped under the Aditech Corporación Tecnológica foundation. But these organisations serve the needs of large companies more than those of SMEs. In terms of the rest of services provided to knowledge-intensive companies, Navarre has a certain weakness.

Business and worker associations are well established in Navarre and have played a major role in policies linked to employment. As in most of Spain, they used to control the offer of VET programs for the unemployed and employed. But as a result of the 30/2015 Law for continuous vocational training for the employed, these agents have stopped managing and, to a large extent, carrying out such programs, and have been largely relegated to their role of informing about the programmes offered. The partial restructuring of the network of VET providers for employment that has been linked to that law, opened an opportunity for VET centres to provide these services, but it has barely been exploited because of the regulation established for their participation and the strong inertia of VET centres, mentioned earlier.

Finally, the GN has a higher level of competences and resources than the average of Spanish autonomous communities, which has been made possible, among other reasons, thanks to the unique agreement that regulates fiscal relations between Navarre and the Spanish state. The current team of the GN, in addition to fostering an active industrial policy, has shown a firm commitment to the VET system. As proof of this, the following undertakings are worth mentioning: the approval of the VET Strategic Plan 2017-2020, the notable increase in resources allocated to this area, and carrying out (in collaboration with Bankia) a study on the change of the VET centres model and the possibility of developing non-traditional functions by these centres.

³ See <http://www.u-ranking.es/analisis.php>

4.2.2. *Degree to which centres provide non-traditional functions*

In this context of internal and external factors, what is the level of development of non-traditional functions by Navarrese VET centres?

Continuous VET is, in principle, the non-traditional function which is closer, more feasible and more synergistic with the traditional activity of centres, and which, when expanding their activities, would be more logical to address first of all. In fact, the regulations on integrated VET centres indicate that the provision of continuous vocational training is a constitutive feature of such centres (see footnote 2). This can also be observed when analysing the experience of vocational training centres in the Basque Country, as mentioned in the article by Mujika and Intxausti (2018), in this same issue. In addition to the extra resources it can provide for the centres, it allows them to take advantage of their capacities (during the hours not covered by the initial VET), to understand and adapt to the existing needs in the markets, to update the knowledge of teaching staff and to strengthen the relationships with companies.

Taking into account these considerations, Navarrese VET centres have a significant presence only in the training that relies on certificates of professionalism and subsidized offers to the unemployed. In this context, public centres are assigned a certain number of courses (approximately one million euros in 2017), which they offer without competing with other private training providers. However, although these courses are taught in public schools, the teachers involved are not staff at the centres and the schools have little involvement in their management. Therefore, such training does not have a significant positive and dynamic impact on the life of the centre. On the other hand, the subsidised private centres provide the same services competing with their own resources and are among the first providers of such training in Navarre.

In the subsidised VET for employed people, which is more demanding in terms of adapting to business needs, and despite what the GN would like, the Navarrese public vocational training centres do not participate and private subsidised schools have a small presence. In the provision of VET in response to company demand (for which they can be tax-advantaged), which is the most important kind of training in terms of funds and the one that requires the greatest interrelation with companies and adaptation to their needs, the presence of both public and private VET centres is marginal.

The provision of technical and innovation services to SMEs is the second major non-traditional function that Navarrese VET centres could perform because of the existing capacities, the synergies with other activities and the needs not properly covered by other agents. This should be a basic function of the integrated centres, as indicated in the list of functions that both state and regional regulations establish for them. It is an activity that has hardly been developed by Spanish vocational training centres, but which Basque centres have begun to develop in a remarkable way dur-

ing the last decade, as shown by Mujika and Intxausti (2018). However, this activity has a marginal presence in the centres of Navarre.

From the observation of how this function is provided in the Basque Country, we can draw some conclusions which could serve as a guide for the implementation of this function in Navarre: to coordinate the actions of all centres, to focus on technological services and training related to industry, to initiate actions with the most qualified and willing centres, to set up internal teams with a commercial perspective, to focus on certain types of services and companies, to communicate properly the capacities of the centres in this field and to implement measures of public support (both for the structure of the centre and for the demand by SMEs) are key ideas to foster this function.

The awareness and training of the students in terms of entrepreneurship should not be considered as a non-traditional function, but rather as a component of the initial VET, which has been successfully developed by the centres in Navarre. Business incubation and support to the creation of companies by VET centres are other matters. There are other agents (CEIN, CEN ...) already operating in Navarre actively in this field, and thus centres should be involved not only in coordination with these agents, but also in areas where they have something unique to offer: e.g., as in the case of industrial entrepreneurship, which may require equipment and technical advice and is not available in traditional incubators. In Navarre there have been interesting initiatives by VET centres to promote business incubation and the creation of companies, but their results have been rather limited, especially in the field of industrial entrepreneurship. Considering the synergies with the other functions and their feasibility and impact, this activity of incubation and creation of companies should have a lower priority than the other non-traditional functions.

Navarrese centres have barely played an active role in business collaboration initiatives, sectoral/cluster or territorial. In part, this can be explained because they have focused almost exclusively on initial VET and have not established a relevant connection with companies (except for the student work practice and dual VET). The most important initiative in this regard is the one of Salesianos private centre, which participated actively in the creation of the Functional Print cluster and continues to be an active member of its association⁴. Regarding the linking task that VET centres could develop between SMEs and other knowledge organizations (technology centres and universities), the reality is that it has been virtually non-existent in Navarre. Also, Navarre's knowledge infrastructures have been very isolated from each other.

⁴ In this same issue, Egaña *et al.* (2018) show the close relationship between another relevant centre of the Basque Country, the Machine Tool Institute, and the sectoral association (and cluster) of that sector. For further information on the great synergies between VET centres and clusters, consult Rosenfeld (2004).

Given that universities and technology centres are not present in most localities and districts and that their main market transcends that of their town or district, it can be argued that VET centres are the main knowledge organisation at a local level⁵. The centre generates a significant impact on its area by its mere existence (due to the employment, purchases, etc. that it generates) and the activities it develops (especially qualifying the workforce of the region). For these reasons, it should be considered in every local development strategy. Moreover, since it is generally the only knowledge organisation that the *triple helix* has at the local level and they are neutral as recognized by the business world, as well as having notable external connections and knowledge of technologies and labour markets, VET centres are crucial to the construction of local development strategies.

The problem is that, in most areas of Navarre, the conditions are not yet in place (namely a well-defined and accepted district organization, and agents –local development agencies– which have this goal as their mission) to carry out such strategies, and where VET centres could participate actively. Unlike the role played by many North American community colleges in their local environments, or what happens in the Basque district of Goierri, described by Estensoro (2018) in this issue, Navarrese VET centres have hardly ever been involved in local development strategies, even if in some areas (such as Sakana, Elizondo ...) which have particular development problems, this possibility could be considered.

4.3. VET centres and RIS3 thematic priorities

The RIS3 of Navarre has established six thematic priorities: three of an industrial nature (Automotive and Mechatronics, Agro-food and Renewable Energies) and three linked to services (Health, Integral tourism and Creative and digital industries). The thematic industrial priorities match the economic activities in which Navarre presents indexes of relative comparative advantages. This is not the case in the thematic service priorities, at least in the last two, in which Navarre appears sub-specialised in comparison to the Spanish average and which have been chosen for other reasons (growth potential or territorial impact, among others). But how do VET centres respond to the priorities of the RIS3 of Navarre?

A first imbalance of a general nature occurs because, as stated in the Navarre VET Plan, the studies demanded by students (especially those demanded by women) do not correspond with those demanded by companies or social needs.

To be more specific, we can observe that, in comparison to the Spanish average, initial VET in Navarre is very specialized in studies related to industry and in those

⁵ 66% of its students come from the same district; and more than 80% of work practices are carried out in companies in the district. In all the large areas in which Navarre is divided, it is possible to find at least one VET centre. And, in some cases, that centre is (and even more so if the qualifications it provides are considered) one of the main organisations of the region in terms of employment.

related to industrial thematic priorities. On the contrary, Navarre's VET system shows a clear sub-specialisation in the professional studies more linked to the thematic service priorities. In this regard, the alignment of VET educational centres with the thematic priorities of the RIS3 involves reinforcing the strengths of industrial professional studies and correcting the weaknesses in those areas linked to the thematic priorities of services.

But the alignment of vocational training centres with the RIS3 should extend beyond their offer of Vocational Training degrees to the other potential functions. Similarly to the rest of Spain, continuous VET in Navarre is concentrated in courses of a generic and transversal nature, which do not develop the technical competencies linked to the RIS3 priorities. If technical services, entrepreneurship, participation in collaborative initiatives are going to be addressed, they should start with those related to the RIS3 priorities.

4.4. VET centres and the governance of RIS3

Unlike the other two main knowledge organizations (universities and technology centres), which are present in the Management Committee of the RIS3 of Navarre, VET centres are not⁶. This is common in European regional RIS3 strategies and can be explained by the biases presented by these strategies mentioned before, and also by the lack of VET associations and absence of dynamism of VET centres.

The RIS3 strategies have not descended to the local level in most European regions or in Navarre, which is why we cannot discuss the participation of VET centres in local strategies. If it had existed, such participation could have occurred directly, since there are not too many VET centres at the local level.

Finally, the governance of the thematic priorities of RIS3 has taken different forms from region to region. In many regions such governance is carried out by the cluster associations linked to each priority, while in other regions specific groups have been created, such as the «pilot groups» in the Basque Country, in which cluster associations participate. Again, there are few cases of participation of VET centres in the cluster initiatives, although in the case of Navarre the role played by Salesianos private centre in the Functional Print cluster related to the priority of creative and digital industries is noteworthy. Depending on the size of the region and the cluster, and therefore on the number of VET centres that could be related to that

⁶ The Management Committee is made up of the Vice Presidency of Economic Development of the Government of Navarre, together with companies from priority areas, universities and technology centres, as well as representatives of employers and workers. The presence of VET centres in the said Committee would require that there be a representative of all the centres. The most natural solution for this would be an association of VET centres. Although the creation of an association of the centres is considered fundamental, as was developed in the Basque Country (see Mujika and Intxausti, 2018), this has not taken place in Navarre.

5. FINAL REFLECTIONS

The literature and policies on RISs and regional RIS3s must overcome the biases they still show. In particular, the qualification of the workforce, the needs for innovation services of small and medium enterprises and the different local contexts existing in the region must be addressed by them.

VET centres can be key players which address the problems or needs arising in these new areas. Although the essential and primary function of these centres is to provide professional qualifications to young people, depending on the type of centre and certain internal and external factors analysed in this article, it is likely that the centres go beyond this original function and perform other non-traditional functions.

In this article, the following non-traditional functions have been dealt with in particular: the provision of VET for the active population, the provision of technical services to SMEs, the support to certain types of entrepreneurship, the facilitation of connectivity and collaboration among companies and between these and other scientific-technological agents, and the active involvement in local development strategies. In spite of some of these functions (especially the provision of continuous VET and technological services and innovation for SMEs) having already been included in the regulations that make possible the creation of integrated centres in Spain, such functions are still not implemented in most of them.

This article presents a series of factors (typology of centres and internal and external factors) that could be behind the relative failure of the integrated centres, and more generally, of the transformation from a unitary centre into a multifunctional one.

However, as well as focusing their activities on the needs or problems of a horizontal nature that arise in the RIS, VET centres must align their functions with the thematic or vertical priorities set by the RIS3 and contribute with their knowledge to the macro and meso governance of such strategies.

In Navarre (i) VET centres have a relatively strong position in the training of young people and are relatively well equipped with resources; and (ii) there are needs that are not satisfactorily met by other agents in the fields of continuous VET, the provision of technical services and local development. But even so, the case

shows that the transition from a unitary centre to a multifunctional one is difficult if changes are not made in the governance of the system. A different framework for regulation and provision of resources is needed, changes that correspond basically to governments (both state and regional); a regulation and provision of resources which links the latter with real results in specific functions and which, in parallel, will provide these centres with autonomy of action.

However, important changes are also needed in the internal governance of the centres. Taking advantage of the room for manoeuvre allowed by the regulation of integrated centres, each centre must have an active strategy, an organisational structure with clearly defined responsibilities in the key areas of activity of the centre, and a governing council with an active business presence. And in this last point, the staff of the centre itself together with the agents that take part in its social council are crucial.

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