

Interreg Europe - CLUSTERS3 Leveraging Cluster Policies for Successful Implementation of RIS3

Policy Brief

SWOT Analysis: Looking into the context



1. Introduction

Clusters and cluster policy have been on the European agenda already for several decades. Lately in the light of the latest development trends cluster policies together with smart specialization strategies (RIS3) have been placed “at the heart of delivering the EU’s growth strategy, as they help to take the geographical and thematic context into account in order to boost jobs, SME growth and investment” (European Commission, 2016, p.5).

Yet while clusters as an economic concept and policy instrument has been in place for more than two decades, this is not the case for regional smart specialization strategies, which were introduced by the European Commission in late 2013 as a pre-condition for European Structural and Investment Fund support and are seen as an “important concept for better and more targeted innovation policy” in Europe (European Commission, 2016, p. 13).

In this way RIS3 are not substituting cluster policies, but rather complementing them and directing them towards more targeted, inclusive and place-based research and innovation investment strategies. As such, regional policy-makers and institutions, as well as education and research centres, businesses and other socioeconomic actors, need to jointly understand and learn how to efficiently blend and implement the two concepts for the benefits of territorial development, growth and competitiveness.

In the framework of the INTERREG project *CLUSTERS3 Leveraging Cluster Policies for Successful Implementation of RIS3*, 9 regional and national authorities have joined forces to learn, understand and share experiences in the design, implementation and monitoring of their cluster policies and smart specialization strategies. They represent considerable diversity of regional context and therefore provide an excellent basis for mutual learning (see Graph 1 in the Annex). This learning process will lead to the development of action plans and ultimately to the upgrading of cluster policies and to a better RIS3 implementation in these territories.

The project is structured in two phases. In the 1st phase the focus is on an exchange of knowledge on cluster policy and RIS3 by means of policy learning events, policy learning documents, identification of good practices and conducting peer reviews. In the 2nd phase action plans will be developed, leading to the application of learnings in real policy settings.

This policy brief sets out the main findings from the project’s first policy learning document, which provides a baseline analysis of the approaches to clusters, cluster policy and smart specialization of the 9 regions. This resulted in an analysis of the strengths, weaknesses, opportunities and threats (SWOT) of the partner regions in terms of clusters, cluster policies and smart specialization strategies.

2. Methodology

A policy learning framework that would result in a SWOT analysis was developed through a participative approach, meaning that a proposed conceptual framework was discussed with partner regions to integrate their specific experiences and interests. The resulting SWOT framework is therefore tailored to the context and needs of the partner regions; its 5 sections provide a rich basis for policy learning and exchange:

- Exploring Territorial context and background to clusters
- Cluster Policy Background
- Cluster Organization Ecosystem
- Cluster Policy Monitoring and Evaluation
- Territorial Regional Smart Specialization Strategies blended with Cluster policy.

The study of the partner regions' clusters, cluster policy and RIS3 context is first explored in a **discourse part** of the policy learning document, with the main SWOT learnings and recommendations presented in a **reflection part** of the document. Moreover, the full policy learning document also includes theoretical notes, practical examples and links to online resources.

This policy brief summarises the analysis, highlighting the partner regions core strengths, weaknesses, opportunities and threats with respect to clusters, cluster policy and linkages to their RIS3. These findings are presented in two blocks, first giving the general picture on partner regions, and then providing some background information on the key characteristics of the regions in terms of (i) territorial development and cluster policy practices, (ii) the cluster organisation ecosystem and (iii) RIS3 and clusters. The key recommendations from the policy learning document are then summarised.

3. SWOT General Picture

A review of the SWOT specifics of all partner regions in relation to their cluster policies and RIS3 produced some general observations that are reflected in the combined SWOT in Table 1

Table 1 SWOT picture for all partner regions' cluster policies and RIS3

<h4 style="text-align: center;">Strengths</h4> <ul style="list-style-type: none"> • A mix of similar and unique strengths across partner regions provides a strong foundation to learn from each other • Key sectors - clusters are well known in the regions and in line with RIS3 priorities • Along with institutional infrastructure for clusters and RIS3, there is a relatively high degree of awareness and participation from business, research institutions, development agents, etc. • Generally high engagement from cluster associations and companies • Good knowledge of territorial economic and industrial strengths • Common values of long-term cooperation and government support 	<h4 style="text-align: center;">Weaknesses</h4> <ul style="list-style-type: none"> • Very specific clusters & priorities - requiring specific approaches to working with them in different partner regions • Diversity of partner regions institutional contexts also requires different approaches (e.g. partner regions from EU15 less challenged by weaknesses in the economic or business environment, and have a higher level of cooperation experience) • Common weaknesses detected in terms of: <ul style="list-style-type: none"> • Financial challenges in funding cluster policy & RIS3 • Cooperation challenges within some clusters and some specific institutional groups (e.g. research and business) • Challenges around misunderstanding of concepts such as clusters and innovation, leading to vague policy prioritization
<h4 style="text-align: center;">Opportunities</h4> <ul style="list-style-type: none"> • Looking for opportunities in new emerging industries, by facilitating cross-sector/cluster initiatives, which would also stimulate the identification and emergence of new clusters and cluster associations • Exploring new types of clusters • Improving the quality of cluster associations' operation • Enhancing selected types of services given by cluster associations • Enhancing and strengthening results based on cooperation between companies and especially research centers • Exploring more opportunities from international networks • Learning from better monitoring and evaluation • Working towards a stronger policy mix 	<h4 style="text-align: center;">Threats</h4> <ul style="list-style-type: none"> • Increased competition - challenge of maintaining local strengths while promoting internationalisation • Some weaknesses are further expressed in threats, which is the case if weaknesses are not being addressed over the long period of time, among these ones are: <ul style="list-style-type: none"> • Budget cuts • Wrong perception of cluster associations as money providers • Lack of cooperation in certain groups/institutions • Inadequate support to clusters in specific development stages • Partner regions coming from the non EU15 are facing threats rooted in an overall low-quality business environment

Strengths

Overall most of the partner regions showed a number of quite similar strengths. First of all, the partner regions seem to have successfully completed the exercise of defining their RIS3 strategic areas. Beyond that the partner regions also clearly know their key sectors and industries, which are being included in or coincide directly with their prioritized areas. Moreover, not only public (managing and implementing institutions) are aware of the thematic areas, but also the leading institutions and territorial actors. Thus one of the strengths is that businesses, research institutions, development agents, etc. are aware of the strategic RIS3 areas and have a high interest in participation. Particularly on the private-sector side, cluster associations and companies seem to show high levels of engagement and implementation of both RIS3 as well as in the cluster policy (or clusters seen from a broader perspective).

Beyond the above, some partner regions have specific strengths. In the case of the Basque Country, for example, one of the key strengths is their long term experience and continuity of regional government's commitment to cluster and cluster policy implementation for the last 25 years, which has been progressively adjusted and modified providing rich experience for RIS3 implementation. Piedmont region sees its strengths in the development of feasible and strategic R&D investments. Hajdú-Bihar due to its geographic location and the historic specifics of Central and Eastern Europe is strong in the area of cross-border cooperation Northern Ireland has developed a robust cluster evaluation and appraisal methodology, which informs decision making with regard to ongoing funding and programme design. Finally, Latvia from the perspective of state coordination has strengths in taking decisions and making changes to a wide range of policies.

Weaknesses

In comparison to the strengths identified, weaknesses are very specific for each of the partner regions, requiring territory-specific approaches to tackling them. For example Latvia identifies its main weaknesses in capacities of cluster actors and associations to self-finance and the absence of guidelines and dialogue space in some of the areas related to connecting RIS3 and clusters. The Highlands and Islands meanwhile sees their weaknesses in the wide dispersion of businesses and the absence of all components of the value chain locally, and Lubelskie stresses a weakness in the level of social capital (based on trust and cooperation) among different entities.

There are also a number of common weaknesses. Some of the central ones are the financial constraints or challenges associated with the funding of cluster policies as well as RIS3. Beyond that, the advantages of cooperation are not similarly acknowledged and perceived among all groups of agents, and misunderstandings and different approaches to concepts such as clusters and innovation can result in vague policy prioritization.

Opportunities

Partner regions see their opportunities in line with the European call for stronger specialization within strategic priorities and clusters, as well as value chain(s) diversification. Due to the character of the partner regions all of them identify opportunities in emerging industries via facilitation of inter-sector / cross-cluster linkages. These issues are seen as a principal opportunity for their territories, which

would also assure their successful escape from industrial lock-in and path dependency. In this line, the exploration of new types and kinds of clusters in their territories along with the identified RIS3 priorities are seen as an opportunity.

Several partner regions also identified opportunities related to enhancing the management, services offered and overall performance of cluster associations. While aware that formal cluster associations are only one of the instruments of cluster policies, they are increasingly recognized as a bridging institution between government (policy) and market (business) needs & reality. Strengthening the performance of cluster associations therefore could facilitate the natural cluster, and also the information / knowledge flows between slightly “different worlds”.

Another set of opportunities that the partner regions have seen is in strengthening the results of cooperation between companies and especially with research centres, as well as stronger exploration of the opportunities from international networks and platforms. Finally, the Basque Country and Latvia, in particular, have also addressed opportunities from improvement of evaluation methods and stronger policy mixes.

Threats

Most of the threats tend to reflect territories weaknesses, in particular those that have not been addressed over a longer period of time. In brief, among the most general threats across partner regions one can state a constant increase in external as well as internal competition, where the issue of keeping local strengths and scope while balancing with companies’ internationalization strategies is a concern. In addition to the above, the financial sustainability of cluster associations’ resources, especially the public side, is seen as a concern across the partners, and something that could grow into a threat, especially if firms and other institutions are unable to perceive the benefits and advantages of cooperation and collaboration.

Similarly to weaknesses, many of the threats were very place specific. Partner regions from outside of the EU15, for example, are facing threats rooted in a poor overall business and competitiveness environment, which is feared to affect the business absorption of the cluster concept. In Hajdú-Bihar for instance prime threats are centred on inefficient use of innovation capacities and lack of bridging with business needs. For the industrial regions of Piedmont and the Basque Country, on the other hand, there are threats in orienting cluster activities to the needs of the most active cluster members and re-enforcing path-dependency in mature industries. Finally, for Northern Ireland one of the key threats for clusters lies in the lack of critical mass in terms of numbers of businesses operating in key sectors.

4. SWOT Background

This section provides more detail on the background to the SWOT overview provided above. It sets out some general characteristics of the partner regions in terms of (i) territorial development and cluster policy practices, (ii) the cluster organisation ecosystem and (iii) RIS3 and clusters. This background is supported by a series of graphs and diagrams from the policy learning document which are included as Annexes.

Territorial development and cluster policy practices

Economic growth context

Most of the partner regions demonstrate a **positive evolution of growth** rates of GDP (Gross domestic product in Purchasing Power Standards) and GDP per capita during recent years (Graph 2). GDP per capita in 2014 remained below the EU28 average in several regions, however, and in many of the regions unemployment remained stubbornly high (Graph 3).

R&D context

Three research and development (R&D) themes are identified as particularly important across the partner regions in terms of the presence of industry/sector specific research centres (Graph 4):

- **Advanced manufacturing** (including a broad perspective of industries, e.g. from general approach to specific industry focus, such as automotive, mechatronics, aerospace, etc.);
- **Energy and related** (focused on traditional as well as renewable and alternative energy sources);
- **Health and biotechnology** (where the focus is on the direction of technological or medicine development for enhancing human health and products);
- **Engineering and Information and Communication Technologies (ICT)** (where engineering is related with physics in advancing so called “smart materials” and ICTs are a source of transformation along the latest Industry 4.0 trends).

This pattern is in line with overall EU trends, which show high business R&D investment into such areas as high-tech sectors, specifically in Healthcare, Pharmaceuticals and Technology Hardware. Moreover, a number of partner regions (namely the Basque Country, the Highlands and Islands and Piedmont) also have multisector technology centres, which could support cross-sector technological development.

Cluster concept

Although all partner regions have developed their own interpretations of the **cluster concept**, they share common conceptual building-blocks which enable a common language (Graph 5).

Cluster policy

Cluster policies themselves are quite different across partner regions, providing a rich basis for learning. From the public policy side support can come in the form of a dedicated cluster programme, or from a wide range of economic/structural programmes stimulating innovation or internationalization of the companies with the goal of promoting collaborative growth and

competitiveness (Graph 6). Three supporting instruments for the cluster development that tend to be chosen across partner regions are: projects (in collaboration with various conditions and thematic areas); cluster associations (or collaborative networks, as well as other formal forms, such as sector/cluster managing organizations); and general activities related to collaboration and joint R&D promotion (Graph 7). However, much of the attention is focused on “cluster associations” (Graph 8). Indeed, all partner regions, regardless of having or not a specific cluster programme, apply mainly **two policy activities for cluster development**, which are channelled through cluster associations.

- Financial support (public and private funding) for the **action plans of cluster associations**
- Financial support for the **projects developed in cooperation by members of cluster institutions** (associations).

Policy towards clusters tends to be focused in one government department, and in that sense the broadening of policy instruments, activities and programmes could be explored through stronger inter-departmental cooperation.

Funding

Partner regions have gathered rich experience in **resource accumulation** (different funding schemes and sources), especially from state and sub-state levels. Nevertheless, a number of partner regions rely on a narrow range of funding sources (Graph 9).

Cluster Organizational ecosystem

Cluster association (general)

Cluster associations are a very organized and suitable instrument for cluster policy coordination, monitoring and implementation. They are often a key instrument in the partner regions, especially those that have a dedicated cluster development programme. At the same time, as earlier mentioned, they shouldn't be the only instrument in the implementation of cluster policy (Graph 10).

Cluster manager

The position of **cluster manager** at cluster associations is taken seriously, and most of the associations' management were shown to have a background in sectors related to the cluster, usually in the private sector.

Governance

In terms of the **governance of cluster associations**, almost all cluster associations observed in the partner regions have established management structures, which typically includes a management board and a general assembly (Graph 11). Fewer have Advisory Boards, which even if an informal structure can provide strategic guidance for the association and cluster in general. Moreover, the roles of Advisory Boards are potentially compatible for integrating clusters with diverse forms of RIS3 implementation.

Services and themes

Most of the partner region's cluster associations similarly provide services in four main areas: **information** (also including services for communication collection and sharing), **strategy** (would be

also referring to market research and development), **collaboration** (networking and matchmaking) and **projects** (Graph 12). Following the Graph 12 in terms of thematic areas, where cluster associations work, along with strong dedication to technological and non-technological innovation, working on talent development and sustainability, attention to **internationalization** stands out slightly more.

Monitoring and evaluation

Most of the partner regions have developed methodologies for the **evaluation and monitoring** of their cluster policies, showing that they are interested in understanding how the policy is working. However, while the variety of evaluation & monitoring techniques creates richness and aids objectivity through the multiple sources of information, there are weaknesses in the de-centralized organization and non-harmonized approach across partner regions, and also in the strong focus on evaluation of results and activities, rather than social components and resources (Graph 14).

RIS 3 and Cluster policies

RIS3 strategic areas

All partner regions have identified their **RIS3 strategic areas**. Cross-matching of these areas has resulted in the identification of common areas across a number of partner regions. Specifically, these areas are associated with advanced manufacturing systems and materials, energy, bio- and health sciences, ICT and food- & agriculture. These priorities moreover coincide with some key priority areas across the European Union, meaning opportunities for inter-regional and cross-border collaboration (Graph 15). There are, however, certain risks with the very general prioritization of RIS3 strategic areas. If this generalization is maintained at the project level then the strategy may not lead to the development of a territory-specific research and innovation base. However, it is often argued that more granular thematic specification will take place at the level of programme and project definition.

RIS3 implementation governance

A wide range of institutional structures and forms of participation in RIS3 implementation processes have been identified across the partner regions, from more public to more private, and from formal to less formal (Graph 16). Overall, the analysis of **RIS3 implementation** tends to show stronger public coordinated (balanced between formal & informal) implementation of RIS3. At the same time it doesn't mean the backseat of private sector and cluster associations. On contrast, in some of the partner regions (e.g. the Basque Country) after the areas were prioritised the regional government proposed a distributed leadership and stepped back allowing stronger private sector implementation.

Funding

The **finance for RIS3 implementation** tends to come from the state, sub-state (regional) and EU funds, which is similar to cluster policy funding. This can provide a good basis for synergies between the two funding sources for mutual benefit (and learning). One of the distinctive weaknesses noticed is the quite low diversification of the **resource origin for RIS3**. Low diversification from one side could make the institutions in partner regions very competent in acquiring certain funding, but at the same time it may make them dependent and with dangers for a narrower, less rigorous and potentially less innovative RIS3 process (Graph 17).

Cluster associations in RIS3

Clusters and their formal/informal facilitating structures such as **cluster associations** constitute one of the most important institutional pillars in the RIS3 design and current implementation, and are acknowledged to also be important for RIS3 evaluation & monitoring. The cluster associations' role in RIS3 has been noticed in their participation, coordination, proposing initiatives, giving expert/strategic advice, evaluation & monitoring and bridging as well as streaming up/down knowledge between public and private territorial stakeholders (Graph 18). All partner regions have also undertaken a matching of cluster associations (or collaborative networks) with one or another RIS3 strategic area, which created a rich basis for exploration of the linkages and opportunities of their engagement.

5. Recommendations

The findings summarised in the previous two sections led to a series of recommendations for strengthening the opportunities and negating the threats highlighted in the SWOT analysis. These recommendations are summarised below in line with the six CLUSTERS3 project topics defining the process of bridging / leveraging clusters and cluster policies for successful implementation of RIS3.

Design and deployment of cluster policy

Cluster diagnosis / re-mapping

Cluster (as well as cluster association) mapping could serve as a good basis to understand the representativeness of cluster associations (or collaborative networks) with the natural structural conditions of the territory. In this way, periodic renewal of cluster mapping exercises may support policy makers in identifying new hidden or emerging territorial trends and strengths, as well as cluster organisations in reflecting their scope and scale.

Reinforcing industrial strengths

Combining updated review of the regional cluster and cluster associations structure alongside scanning global business trends in perspective of the potential linkages and opportunities with Key Enabling Technologies (KETs) could support identifying and strengthening new industrial niches. This exploration could give some initial ideas of the industrial transformative process and enable a favourable policy agenda.

Cluster concept definition

The vision of the main cluster policy components can determine the form of clusters (and cluster associations) prioritization, as well as their potential resource pool. Therefore it is important to build a clear vision within the territory of what a cluster (and a cluster association) is. This definition should form the basis for associated policy instruments, and the starting point for a strategy of communication to institutions in the territory, assuring a coherent vision.

Implement the policy through specific support instruments and programmes

Task-based policy learning

There is large scope for exploring opportunities and learnings from the variety of instruments and organizational forms applied across partner regions for their cluster policies and RIS3 implementation, specifically via developing joint tasks (e.g. joint external/internal projects, market/business analysis, study/stakeholder visits) between cluster associations and also including cluster policy related departments at the managing and implementation authorities.

Openness to cluster policy and programme formulation

Some of the advantages in having a specific cluster programme are in having a better overview and tracking of sector/cluster development and performance, ease of monitoring and evaluating progress, ease of reaching a bigger number of institutions from specific sectors, etc. At the same time, such programme-based support can leave out the other programmes and funding resources available. In this context, having a cluster policy programme can build a baseline for cluster supporting activities, but policy makers should be open to constant exploration of synergies with other programmes and instruments (for their potential inclusion for cluster promotion).

Synergies and new sources in funding

There is scope to explore the synergies in funding resources and experiences between clusters/cluster policies and RIS3, especially in areas of EU and regional funding, seeking to balance between different funding sources. This explorative journey could stimulate both rigor and networking/collaboration/learning with new kinds of institutions. Examples of new funding resources could be local/international/European financial institutions via loans or microcredits (extension of very small loans) under specific conditions.

Development of cluster policy and alignment with RIS3

Open platforms and spaces

Following developments in KETs, where innovation bridges different technologies, skills, clusters and actors should be a central component of the alignment strategy between cluster policies and RIS3. This requires creating appropriate spaces for open exploration and facilitation of these linkages; for example, Cambridge Network is a well-known example of an open innovation platform.

Local actor, especially business, engagement

As the mapping of RIS3 implementation in partner regions showed in more partner regions rather public (balanced between formal & informal) driven implementation of the RIS3, a general recommendation is to strengthen research and, especially, business engagement. In addition, opportunities to attract participation of finance institutions in RIS3 and cluster policy implementation are suggested.

Joint forms of governance

Most of the new technologies, innovation and business opportunities are being born in the intersection of scientific disciplines and industrial sectors, and without specific territorial restrictions.

For example, - clusters in the area of transport and mobility; where transportation of goods and services relates to (as well as goes beyond) such industries as automotive, energy & electricity and ICT. Or a RIS3 strategic priority such as a clear and sustainable (or smart) energy; where the definition of industries to be included can vary from services and products related to energy production, consumption, storage and the energy types, etc. In similar line, the strategic areas that include a wide range of industries, from automotive, chemicals, mechatronics, etc. into advanced and/ or innovative manufacturing also produce rich grounds for developing new products and technology opportunities. As such, public support for these processes isn't possible through the isolated engagement of one or two specific departments at provincial or municipal levels. A key recommendation, therefore, is to explore more areas of cluster policy contribution to RIS3, via such approaches as multi-level governance and integrated policy mixes. The two concepts call policy-makers to think about cluster and RIS3 domain development in the broader terms.

Monitoring and evaluation of cluster performance and cluster programmes

Harmonized and centralized monitoring and evaluation

Due to the wide variety in different evaluation instruments and techniques, it could be recommended to harmonize the tools and approaches for evaluation and monitoring, therefore providing better basis for comparison across territories leading to richer learning. In support of this establishing/naming one department/unit/group for monitoring and evaluation could ensure comprehensiveness and a long-term vision of information. As example can serve an established initiative of the Basque cluster policy implementing authority, which is aimed to engage cluster associations in creating and agreeing on common vision for evaluation.

Internationalization of cluster organizations

Cross-sector cluster cooperation within / between territories

Stimulate cooperation across the partner regions in the strategic RIS3 areas or cluster policy priorities, which would lead to new joint projects, experience exchange on the level of territorial stakeholders, establishing new product and innovation ideas streams, etc. Specific sector areas within these could be advanced manufacturing, energy, health and bio-related sciences, ICT technologies, food- and agro-industries as well as a number of other sectoral and cross-sector initiatives.

International cooperation in common RIS3 areas

Identified strategic RIS3 areas (associated with advanced manufacturing systems and materials, energy, bio- and health sciences, ICT and food- & agriculture) provide great opportunity for rich knowledge and policy exchange and potential collaboration across partner regions stakeholders and institutions, which should be explored during the project.

Building the capacity of cluster organizations

Cluster associations as a one of many policy tools

The importance of cluster associations (or collaborative networks) should be addressed and acknowledged, however, it should also be highlighted that this is not the only tool for the

implementation of cluster policies. It is important to acknowledge that support for activities in collaboration between institutions could be either via cluster associations but also directly to groups of collaborating actors with clear objectives, innovation ideas and a strategic vision.

Survey among cluster associations and sharing good practices

A survey within the project could be developed for the cluster associations (or collaborative networks), which would cover specific topics related to their performance, management and governance. This would respond to the particularly strong interest among partner regions stakeholders in the thematic area of cluster management and capacity building. In addition, it would stimulate and strengthen already started initiatives and process of learning by benchmarking, sharing experience in the learning session and identification of good practices within/across partner regions.

Membership fees

Membership fees are a common instrument for cluster associations (especially formal cluster associations) to diversify their financial resources. However, some of the members do not realize immediate advantages from membership and therefore face certain concern in paying it. Awareness and communication of the benefits from introducing membership fees (e.g. increase the level of cluster actors participation, engagement, motivation and dedication) could be highlighted and shared across the private sector participants.

*#clusters #clusterpolicy #smartspecialisation #InterregEurope #policylearning #innovation
#EuropeanPolicy*

Prepared by

Orkestra-Basque Institute of Competitiveness

Anastasiia Konstantynova and James R. Wilson

05 May 2017

Annexes

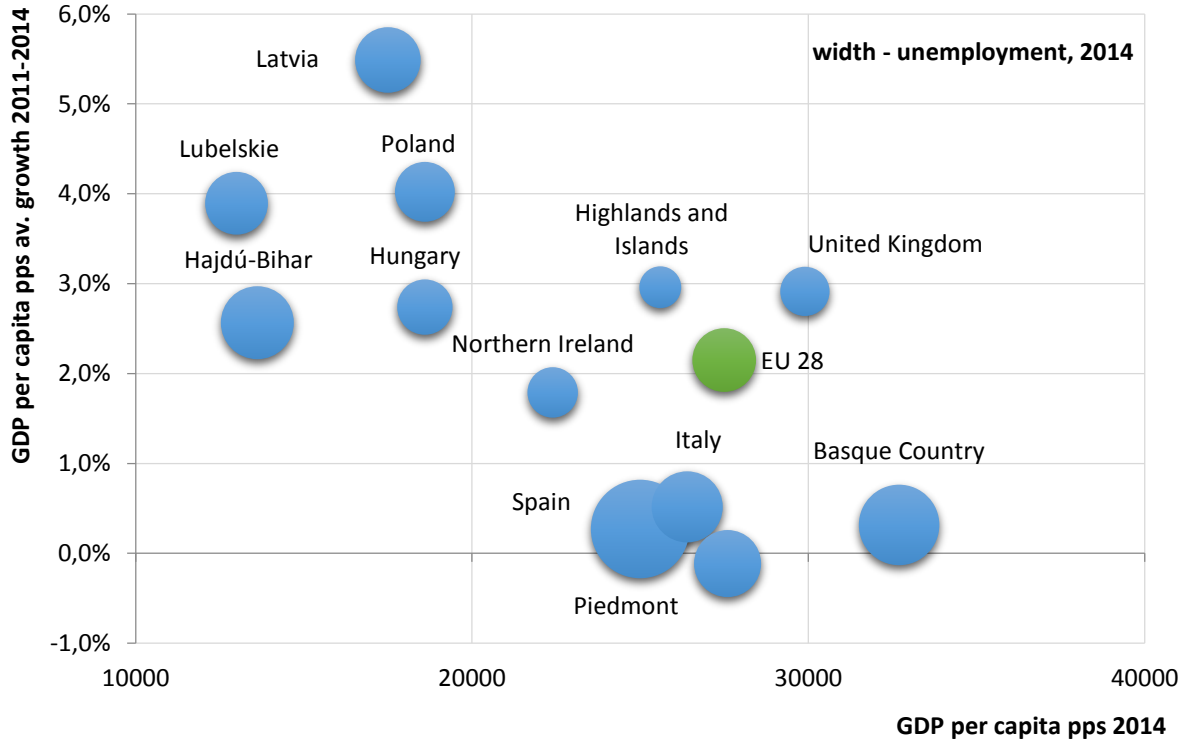
–	
Table 2 Organizational characteristics and partner regions’ cluster associations	20
Graph 1 Territorial context of partner regions, general overview	15
Graph 2 GDP per capita growth, average and unemployment 2011-14 and 2014	16
Graph 3 Unemployment rate 2015 and average, 2011 - 2015	16
Graph 4 Thematic specifics of science & research infrastructure across partner regions	17
Graph 5 Central characteristics of cluster concept definition	17
Graph 6 Matrix of partner regions based on defined cluster policy framework related categories.....	18
Graph 7 Selection of cluster policy objects	18
Graph 8 Main instruments/ activities of the cluster policy	19
Graph 9 Sources of cluster policy funding	19
Graph 10 Cluster policy framework.....	20
Graph 11 Organizational structure of cluster associations across partner regions	20
Graph 12 Services offered by cluster organizations (collaborative networks).....	21
Graph 13 Thematic areas of services across cluster associations	21
Graph 14 Main characteristics of monitoring/ evaluation methodology, overall.....	21
Graph 15 Partner region smart specialization strategic areas	22
Graph 16 Governance mode- distribution across partner regions.....	23
Graph 17 RIS3 funding sources.....	23
Graph 18 Activities of cluster associations in the RIS3 implementation	23
Explanatory notations.....	24
References	25

Graph 1 Territorial context of partner regions, general overview

		max	above/increa	mid/neutral	below/declin	min	Basque Country	Hajdú-Bihar	Highlands & Islands	Latvia	Lubelskie	Northern Ireland	Piedmont
Geo context	Density**						299,6	86,7	11,6	32,2	85,4	135,8	174,5
	Area**						7 228	6 209	41 974	64 573	25 122	14 130	25 387
Economic context	GDP per cap pps						32 700	13 618	25 600	17 500	13 000	22 400	27 600
							above	below	below	below	below	below	above
	GDP growth pps						0,3	2,6	3	5,5	4	1,8	-0,1
						below	above	above	above	above	below	below	
Labour market	Unemployment*						14,8	9,4	4,1	9,9	9,3	6,1	10,2
							above	same	below	above	below	below	above
High tech sectors						3,7 (below EU)	3,5 (*Észak-Alföld) (below EU)	2,2 (below EU)	3,1 (below EU)	1,5 (below EU)	3,1 (below EU)	3,7 (below EU)	
Sector context	Agriculture, forestry & fishing**						0,74	11,4	3,21	3,19	5,73	1,19	2,02
							1,48	15,28	4,37	7,44	25,76	3,55	2,11
	Industry						26,70%	22,48%	14,25%	16,80%	15,15%	18,80%	22,28%
							20,07%	15,16%	14,25%	16,59%	15,15%	12,37%	21,29%
						decline	down/ up	increase	decline	increase	increase	decline	
						decline	decline	increase	down/ up (higher '14)	decline	up/down	decline	

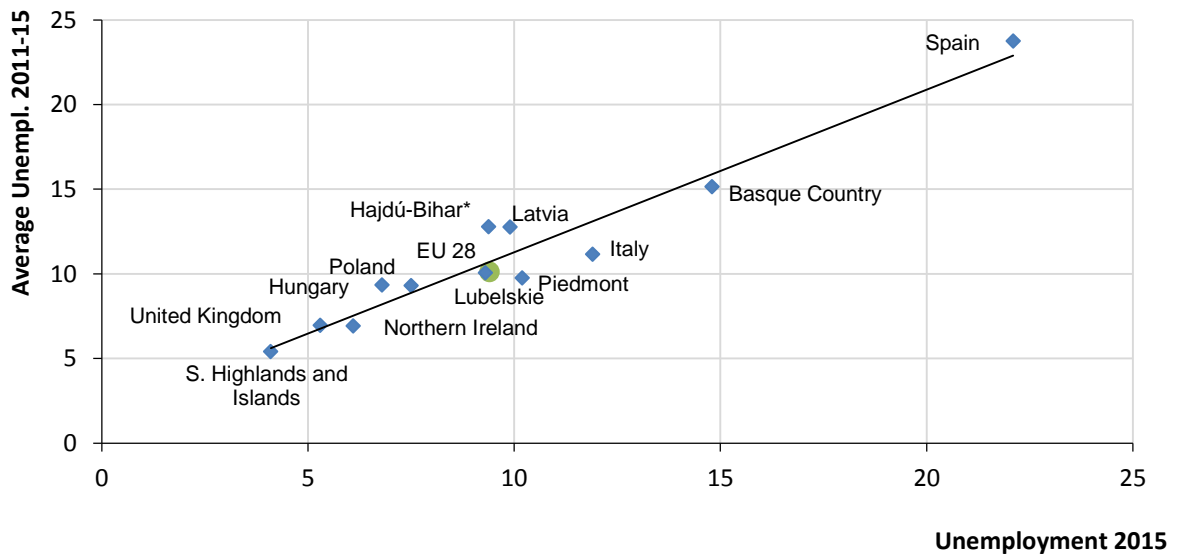
Note: colour coding reflects comparison among partner regions and if applicable trends with their national or EU28 values: max – maximum value (dark blue), increase/ above (blue), decline/ below trends (grey), min – min value (dark grey) (*due to the character of the indicator “unemployment” - the reverse character of color-coding is applied; **no colour coding applied)

Graph 2 GDP per capita growth, average and unemployment 2011-14 and 2014



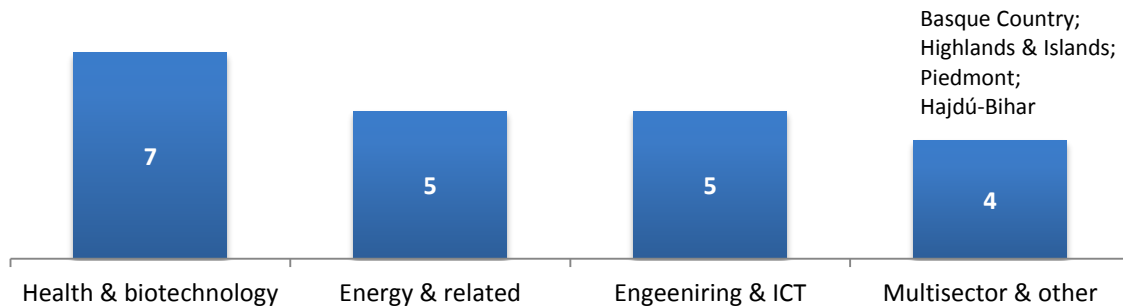
Source: data Eurostat; Gross domestic product (GDP) per capita and growth at current market prices in PPS per inhabitant (data availability); Unemployment rate (15 years and over) %

Graph 3 Unemployment rate 2015 and average, 2011 - 2015



Source: data Eurostat; Unemployment rate (15 years and over) %

Graph 4 Thematic specifics of science & research infrastructure across partner regions



Basque Country;
Highlands & Islands;
Piedmont;
Hajdú-Bihar

Note: number stands for the no. of partner regions having research center in the respected field (based on 3 leading examples); Examples in Health & biotechnology: Chemical Works of Gedeon Richter Plc. (Hajdú-Bihar) and Molecular Biotechnologi Center (Piedmont); Energy & related: Institute of Soil Science and Plant Cultivation (Lubelskie) and European Marine Energy Centre, Orkney (Highlands & Islands); Engineering & ICT Institute of Electronics and Computer Science (ICT) (Latvia) and Northern Ireland Advanced Composites and Engineering Centre (Northern Ireland); Multisector: TECNALIA & IK4 (Basque Country)

Graph 5 Central characteristics of cluster concept definition



Note: green marked/ in circle pies – building blocks of cluster definition; grey marked/ outer circles – concepts, which should be distinguished from cluster definition, but could be related to cluster growth; Source: Based on European Commission (2016) and Konstantynova & Wilson (2014)

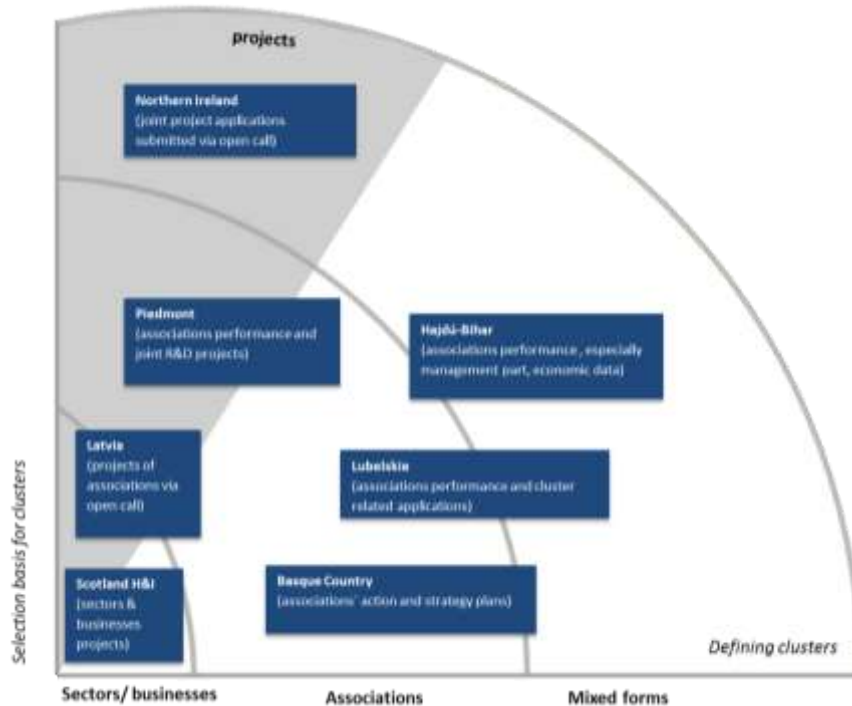
Graph 6 Matrix of partner regions based on defined cluster policy framework related categories

Umbrella/ framework programme		Lubelskie RIS LV 2020; Regional Operational P. 2014-2020	Hajdú-Bihar Economic Development & Innov. Operation P. 2014-20
Specific cluster programme	Northern Ireland "Collaborative Growth Programme"	Piedmont Cluster program	Basque Country Clusters Support Programme
Separate / individual programmes	Scotland H&I initiatives of Interface, Scottish Funding Council, Scottish Enterprise		Latvia "Cluster program"
policy/ instrument	informal cluster associations (e.g. groups of cluster actors)	Formal cluster associations (e.g. clusters managing organizations & their members)	

Notes: Indicates public support to/ via

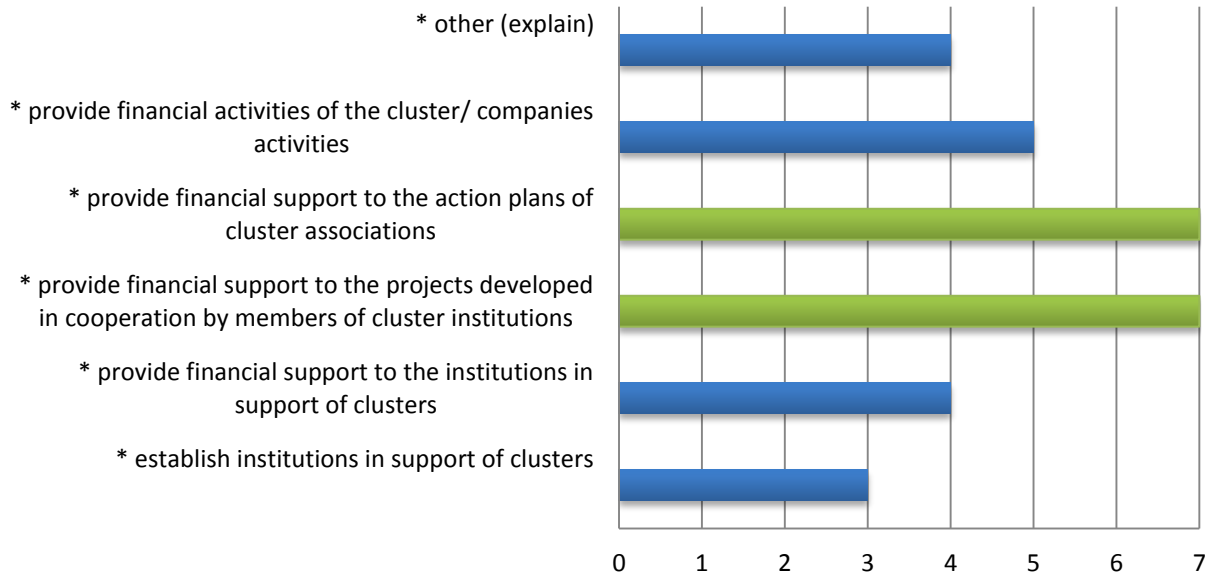
▲ -association(s) ■ -projects ● -services * Only to members of association

Graph 7 Selection of cluster policy objects



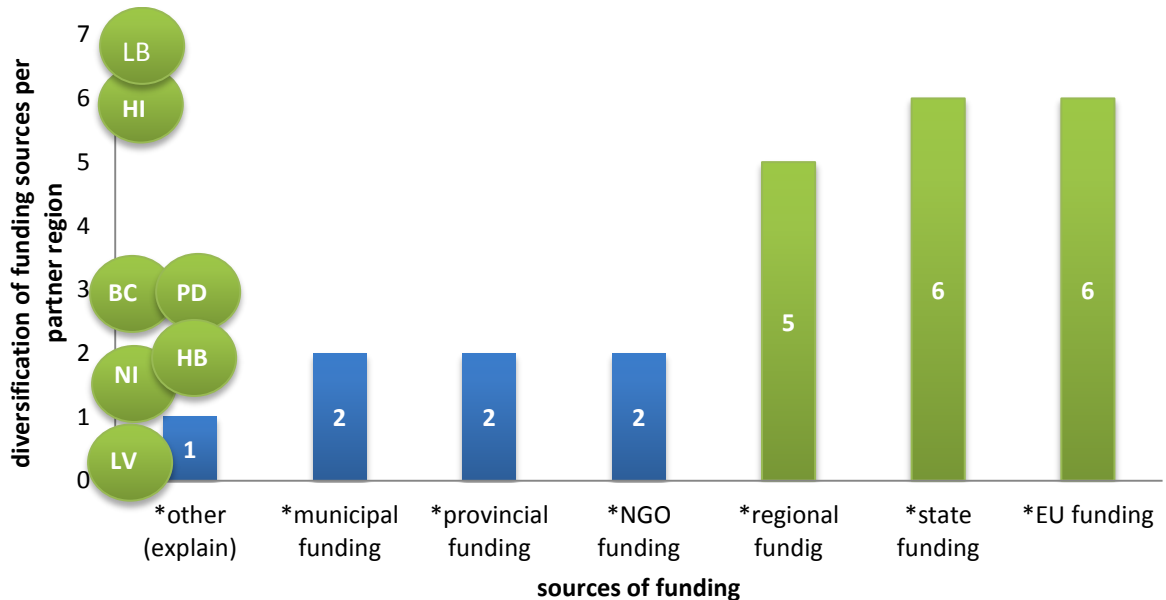
Graph 8 Main instruments/ activities of the cluster policy

What are the main instruments/activities of the cluster policy?

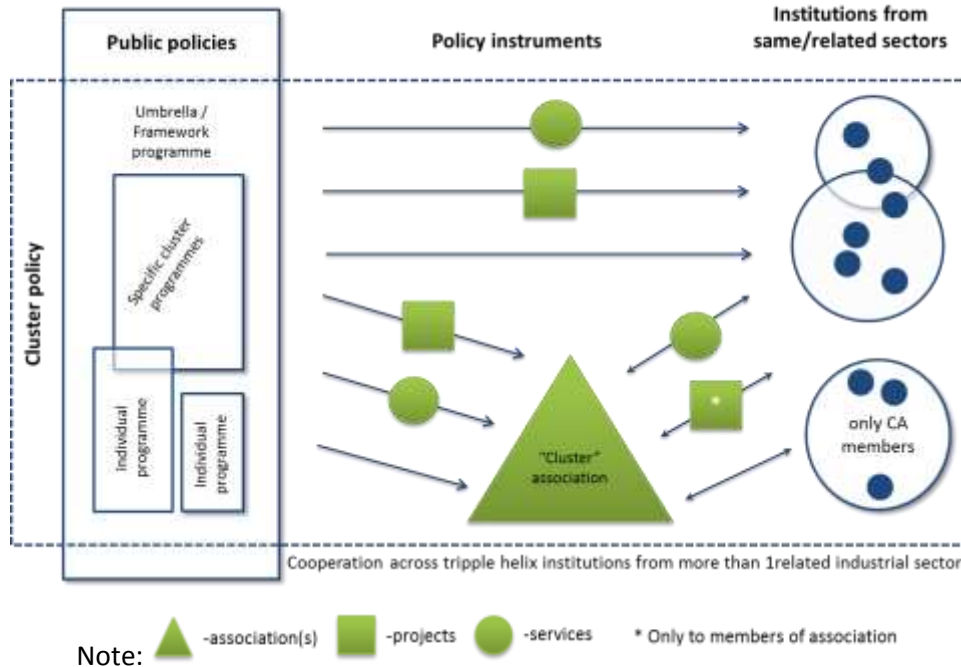


Note: horizontal line – no. of partner regions

Graph 9 Sources of cluster policy funding



Graph 10 Cluster policy framework



Source: Extended based on Konstantynova & Wilson (2014)

Graph 11 Organizational structure of cluster associations across partner regions

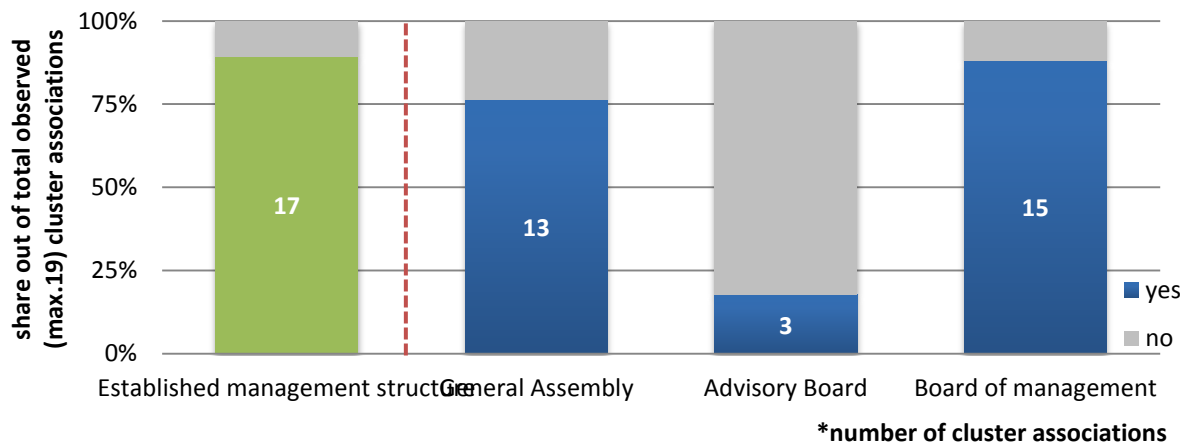
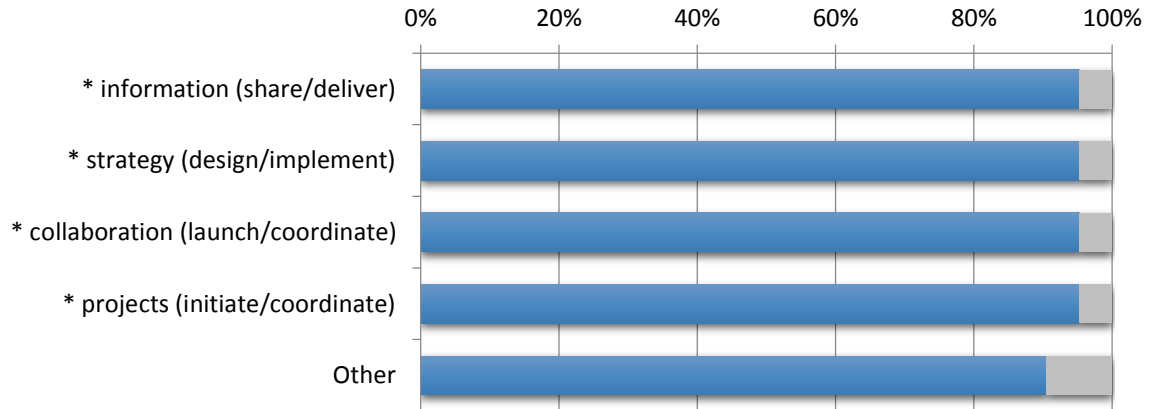


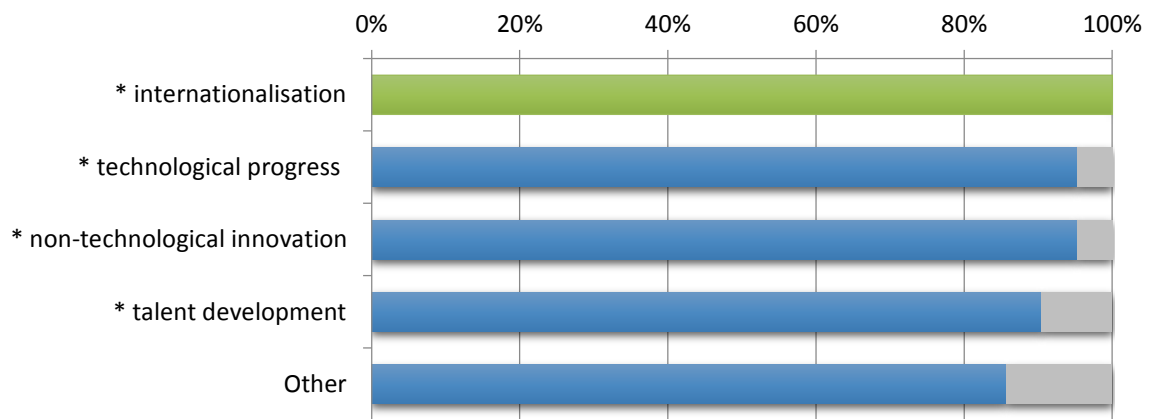
Table 2 Organizational characteristics and partner regions' cluster associations

Established management structure ("no")	General Assembly ("no")	Advisory Board ("yes")	Board of management ("no")
Highlands & Islands	<ul style="list-style-type: none"> Highlands & Islands; Northern Ireland; 	<ul style="list-style-type: none"> Northern Ireland Piedmont; Lubelskie 	Highland & Islands

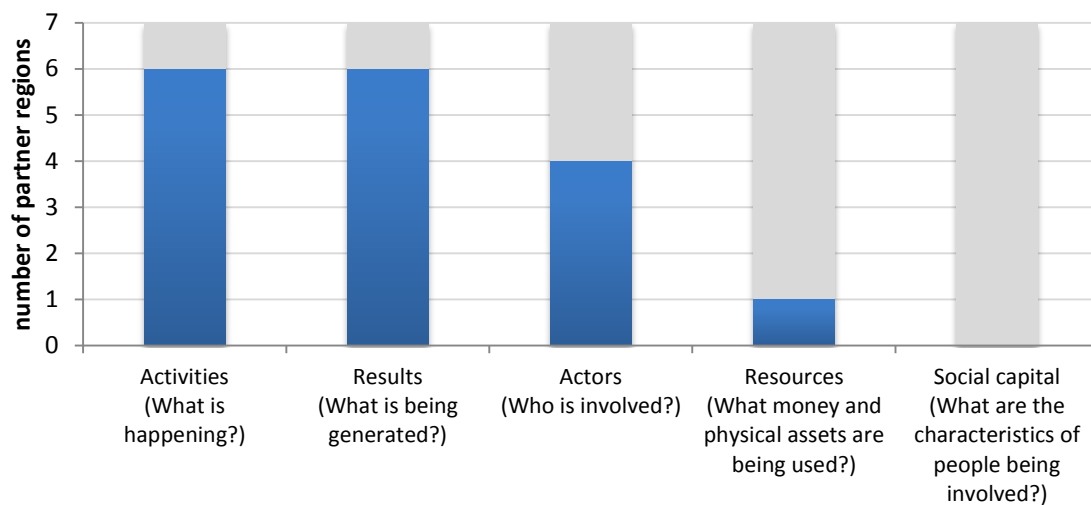
Graph 12 Services offered by cluster organizations (collaborative networks)



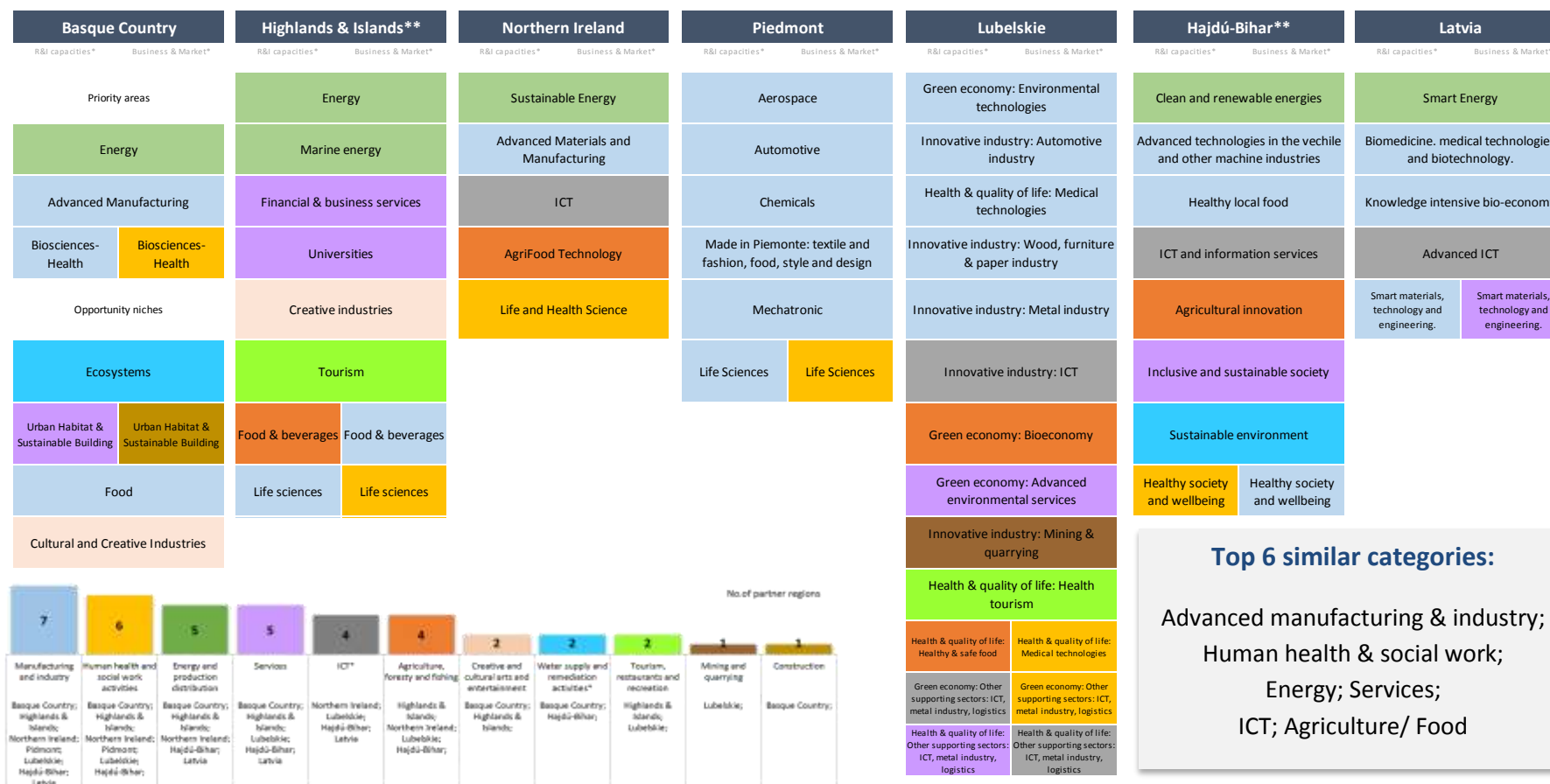
Graph 13 Thematic areas of services across cluster associations



Graph 14 Main characteristics of monitoring/ evaluation methodology, overall

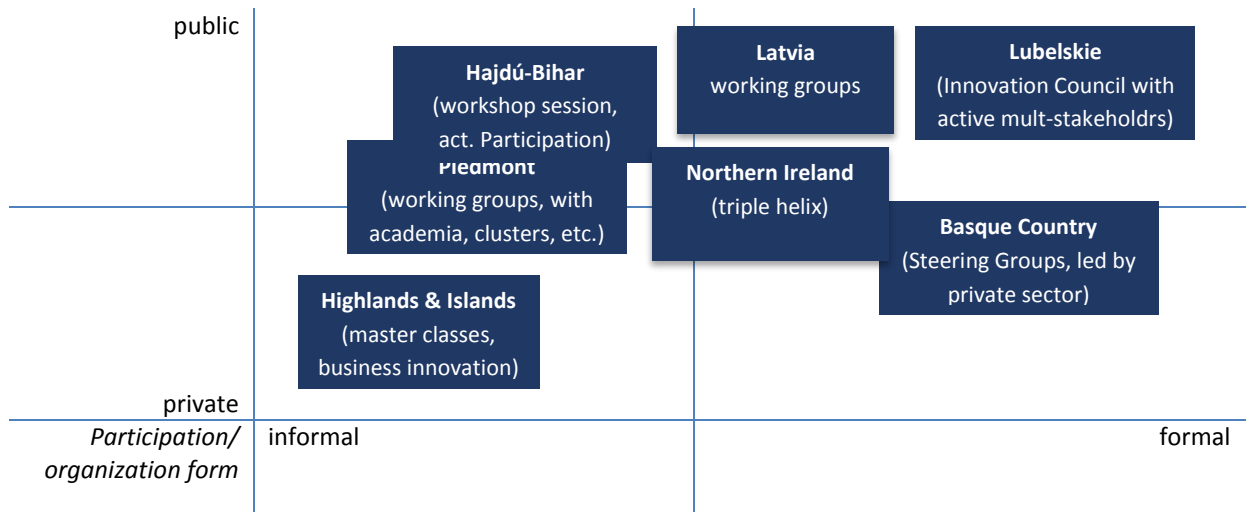


Graph 15 Partner region smart specialization strategic areas

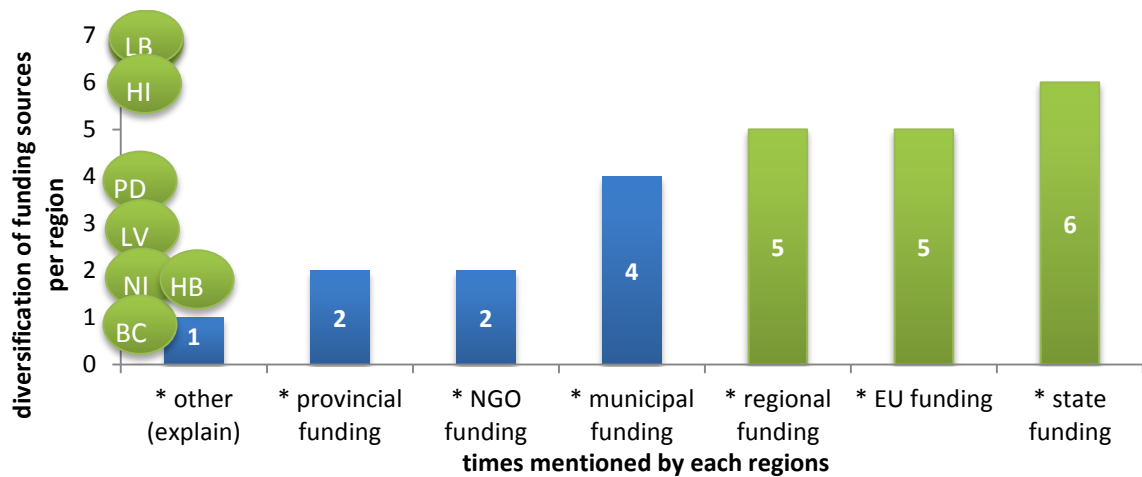


Notes: Each partner region strategic areas of RIS3 has been associated to categories such as* Research and Innovation Capacities; and Business Areas (1) & Target Market (2); The color-coding stands for respective category referred as per Online S3 Platform (01.2017); Data specifics: **Highlands & Islands based on NUTS UKM Scotland; Hajdú-Bihar based on NUTS HU Hungary; ***Non-referred categories: Public administration, security and defence; Wholesale and related trade;

Graph 16 Governance mode- distribution across partner regions



Graph 17 RIS3 funding sources



Graph 18 Activities of cluster associations in the RIS3 implementation



Explanatory notations

Cluster policy	In this document this term is used in a broad sense, including any policy/programme supporting collaboration across companies and other sector/activity specific institutions (such as research centres, university, state departments, etc.) through instruments such as cluster associations (or collaborative networks) or similar forms of collaboration among businesses in a cluster context.
Cluster policy instrument	In this document this term is used to refer to the activities developed within the framework of cluster policy. There are 3 predominant types of instruments: 1) cluster associations; 2) project based support; and 3) multitude of specific cooperation, network, and business-related services.
Agglomeration	In this document this term is used to refer to the accumulation of sector/industry resources and actors in a specific geographic area.
Cluster (natural)	In this document this term is used to refer to naturally-formed agglomerations of sector/industry resources and actors in a specific geographic area, creating critical mass and showing signs of cooperation and competition between these resources/actors.
Cluster actor	In this document this term is used to refer to all types of organizations related to a specific cluster; namely businesses (from SMEs to large corporations), research institutions, universities, government, business associations, etc.
Cluster associations (or collaborative network)	In this document this term is used to refer to formal and informal association and also other forms of cluster initiatives, collaborative networks, industrial sector groupings, etc. built-up of different cluster actors (see above). In the text the term cluster association is mostly used.
Cluster member	In this document this term refers to the cluster actors, which are formally connected/ belongs (as e.g. via formal membership) to a cluster associations.
Cluster manager	In this document this term is used to refer to a physical person in charge of managing/coordinating a cluster managing organization or cluster association.
RIS3 strategic areas	In this document this term refers to the priorities or areas of development that are identified and explored (in a multiple character) within regional/national research and innovation strategies for smart specialization (RIS3).
Umbrella (or framework) policy approach	In this document this term refers to territorial strategies or programmes, which address a broad spectrum of economic areas, e.g. from industry, via innovation to education, rather than only addressing one specific issue, such as e.g. clusters, trade relations or infrastructure development.

References

- Andersson, T., Serger, S. S., Sörvik, J., & Hansson, E. W. (2004). *Iked -International Organisation for Knowledge Economy and Enterprise Development Iked International Organisation for Knowledge Economy and Enterprise Development the Cluster Policies Whitebook*. Retrieved from www.iked.org
- Aranguren, M. J., & Wilson, J. R. (2013). What can experience with clusters teach us about fostering regional smart specialisation? *Ekonomiaz*, (83), 126–145.
- European Commission. (2013). *The role of clusters in specialisation smart*. Brussels. Retrieved from https://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/clusters_smart_spec2013.pdf
- European Commission. (2016). *Smart Guide to Cluster Policy*.
- Foray, D. (2013). The economic fundamentals of smart specialisation. *Ekonomiaz*, 83(2).
- Foray, D. (2015). *Smart Specialization. Opportunities and challenges for regional innovation policy*. (C. Susan M., Ed.) (Regional S). London/ New York: Routledge.
- Konstantynova, Anastasiia; Wilson, J. R. (2014). *Comparing Cluster Policies: An Analytical Framework - Orkestra Instituto Vasco de Competitividad* (Orkestra Working Paper No. 2014-R01). Retrieved from <http://www.orkestra.deusto.es/es/investigacion/publicaciones/orkestra-working-papers/330-comparing-cluster-policies-analytical-framework>
- Martin, R., & Sunley, P. (2003). Deconstructing clusters: chaotic concept or policy panacea? *Journal of Economic Geography*, 3(1), 5–35. <http://doi.org/10.1093/jeg/3.1.5>
- Sörvik, J., & Kleibrink, A. (2015). Mapping Innovation Priorities and Specialisation Patterns in Europe, (8).
- Tödting, F., & Tripl, M. (2005). One size fits all? Towards a differentiated policy approach with respect to regional innovation systems. *Research Policy*, 34, 1203–1219.