

Cluster-based local economic development in the context of RIS3

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Clusters and cluster policy as a main delivery tool in smart specialisation strategies

Making “related variety” work

From clusters of activities to clusters of competences

City-making clusters

On the role of cities in cluster development

Insights from Frankfurt

References

Clusters and cluster policy as a main delivery tool in smart specialisation strategies

Last year the Basque Country celebrated the 25th anniversary of the Basque cluster policy. According to Michael Porter, it was the first region in the world in applying massively the cluster concept as a policy tool ¹. Today, the cluster approach is acknowledged as the most fluent one in modern industrial policy worldwide ², and the arrival of smart specialisation ³ has even emphasized this influence.

As a first assumption, it is important to understand that domains of smart specialisation (S3 domains hereafter) are often different to clusters and cluster initiatives. S3 priority domains used to be broader than clusters. They are more challenge-based (e.g. advanced manufacturing, low-carbon economy, health...) while clusters are mostly configured as value chains or set of a variety of product/markets which are linked along specific value chains. The formers are more oriented to structural change and the cluster's agenda to business growth.

The cluster approach is acknowledged as the most fluent one in modern industrial policy worldwide, and the arrival of smart specialisation has even emphasized this influence

Thus, it can be said that "the full potential of clusters and cluster policies will be reached if the smart specialisation strategies integrate cluster policies into a broader transformation agenda for the entire regional economy, and complement cluster policies with other cross-cutting and

¹ Interestingly, 2015 was also the 25th anniversary of Porter's "The Competitive Advantage of Nations". See Michael Porter video on the Basque cluster policy: <https://www.youtube.com/watch?v=WixpaYCqBUY>

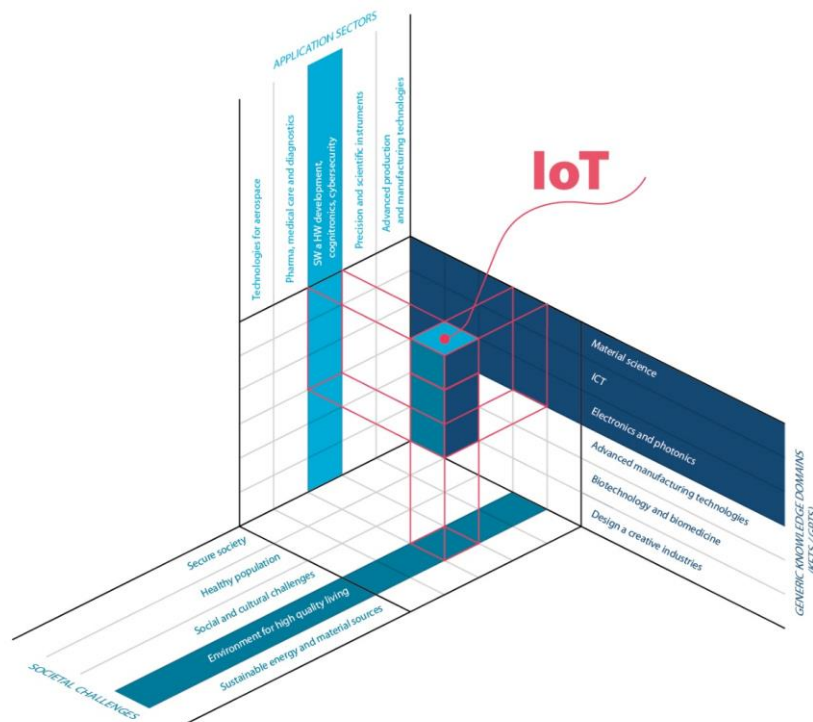
² The 2016 edition of the European Cluster Panorama (Ketels and Protsiv, 2016) provides an updated perspective on clusters and emerging industries across Europe. The report accounts 3000 "strong clusters" in Europe, including Turkey, which account for more than 54 million jobs and 45% of all traded industries.

³ The policy concept of smart specialisation can be understood as a collaborative process aimed to identify where a region is or can be excellent in terms of science, technology and industry, while avoiding duplication and fragmentation of efforts. The origin of the concept comes from the expert group "Knowledge for Growth" that was created by the European Commission in 2008, and headed by Dominique Foray. Smart specialisation has become a very influential concept to promote Europe 2020 long-term strategy and consequently for the current EU Cohesion Policy 2014-2020. RIS3 (Research and Innovation Strategies for Smart Specialisation) is the new generation of regional innovation strategies promoted by the European Commission, which is based on the concept of smart specialisation. For the first time, the European Commission has established that EU Member States and regions must have their RIS3s in place as an ex-ante conditionality to access ERDF funding via Operational Programmes.

To see how smart specialisation and RIS3 apply to the city level: Rivas. M (2016). Connecting RIS3 to the City, a Two-way Bridge. URBACT-InFocus thematic paper.

technology/knowledge-domain-specific activities”⁴. That is why RIS3 is working, or should work, as a booster for cluster policies in Europe. Christian Ketels, president of The Competitiveness Institute, the most important global network of clusters, refers to S3 as “a new policy concept to organize many existing (and a few new) policy tools”⁵. Certainly, cluster policy would be one those existing tools, which are called to play a key role within the new framework.

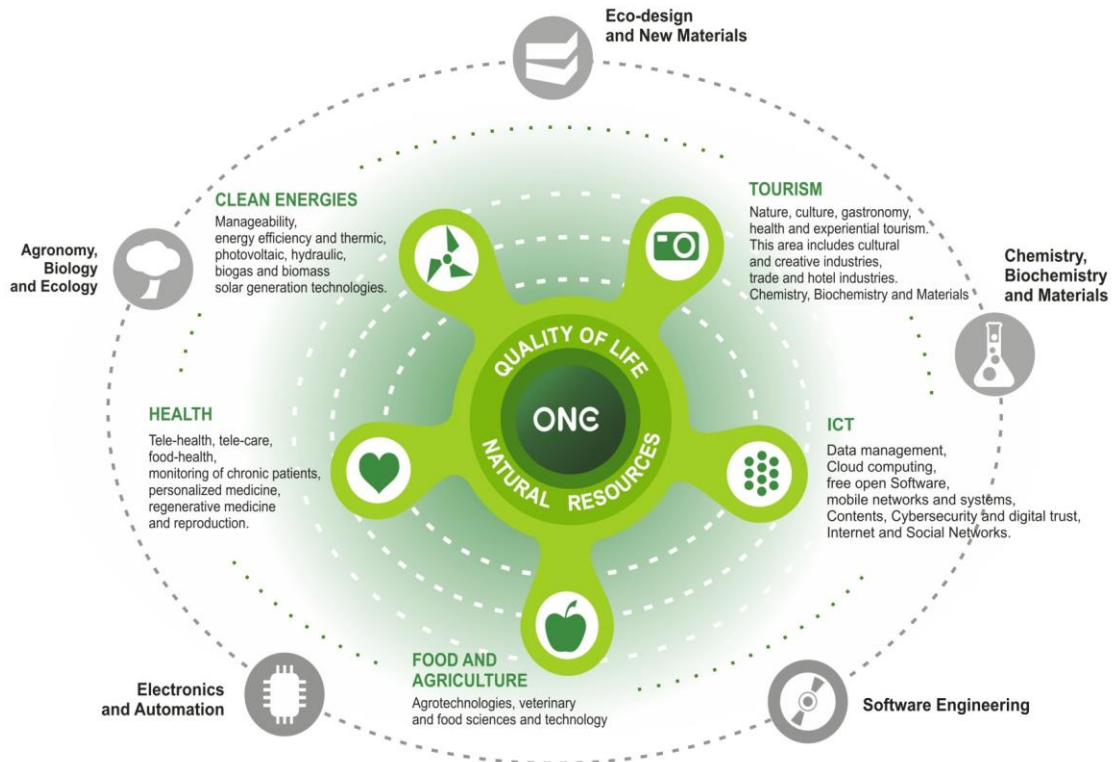
Some examples to illustrate this. Basque RIS3 has prioritized three big themes with high export potential (advanced manufacturing, energy and biosciences/health), alongside a number of niches more oriented to a local demand, such as leisure and culture and urban regeneration. Both types of priorities are at the cross point between what they call areas of opportunity, enabling technologies and business sectors/clusters, like the three sides of a triangle. Such a way of prioritizing is very similar to South Moravia region’s (actually Brno city-region), where the coordinates are called societal challenges, generic knowledge domains and application sectors – see figure below. Therefore, many times clusters are not the result of a S3 type of prioritization, but one of the variables in the prioritization process.



South Moravia Regional Innovation Strategy 2014-2020 (RIS JMK). Representing vertical priorities (IoT-Internet of Things in the drawing) at the cross point between generic knowledge domains (key enabling technologies KETs and general purpose technologies GPTs), societal challenges and application sectors. Source: Petr Chládek, South Moravian Innovation Centre

⁴ European Commission (2013). The role of clusters in smart specialisation strategies. Directorate General for Research and Innovation.

⁵ Presentation at WIRE Conference, Cork, Ireland, 6 June 2013. Ketels chaired the Expert Group on the role of clusters as vehicles for smart specialization in European regions, set up by DG Research & Innovation.



RIS3-Extremadura “One: Organising a New Extremadura”. Representing vertical priorities as a galaxy

Also in Czech Republic, RIS3 priorities in Moravian-Silesian region (Ostrava) are the following: advanced materials, industrial automation, mechatronic applications, regenerative medicine, genomics, bioinformatics, waste processing technologies, intelligent energy solutions, integrated safety systems and supercomputing methods. Nothing about the automotive sector, one of the most significant industries in the region in terms of turnover and employment. However, the Moravian-Silesian automotive cluster will have much to do in moving some of the abovementioned priority research domains forward. Concerning those priorities, clusters can be much helpful to mobilize actors within their own work arenas.

Therefore, “clusters are important both as the building blocks of designing smart specialisation strategies and as a means for implementing these strategies”⁶. As SPRI head of cluster development Juan D. Olabbari described in Frankfurt, cluster organizations are by far the most relevant RIS3 actor in the Basque Country, since they are providing

Cluster policy and cluster initiatives are seen as a key delivery tool, a key facilitator of a broader transformation framework which is S3

⁶ European Commission (2016). Smart Guide to Cluster Policy. Guidebook Series How to support SME Policy from Structural Funds. Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs.

a real capacity to embed this new strategy across sectors. In particular, over there clusters are often appointed as coordinators in priority domains' steering groups and working groups.

Cluster associations (average) profile in the Basque Country

Governance

- General Assembly, representing around 100 cluster members.
- Board (12-15 representatives of firms, science and government), whose President usually comes from the private sector.
- Management: 3-4 staff led by a general manager.

Funding (Source and % of the budget)

- Membership Fees (fixed, variable, mixed) around 30% avg.
- Individual Services (pay per use) around 30% avg.
- Basque Government Programme (annual action plan) 20% avg. (ranging from 10 to 45%).
- Other Public sources (Spain, Europe) around 20% avg.

Activities

- Strategy, Technology Watch and Competitive Intelligence.
- Facilitating Cooperation, Launching Working Groups & Joint R+D+i Projects.
- Direct/Reverse Trade Missions, Trade Shows Joint Participation.
- People & Talent development.
- Others (Quality Certifications, etc.).

Source: Juan D. Olabari, Research Services and Cluster Coordination Manager at SPRI-Basque Country Business Development Agency

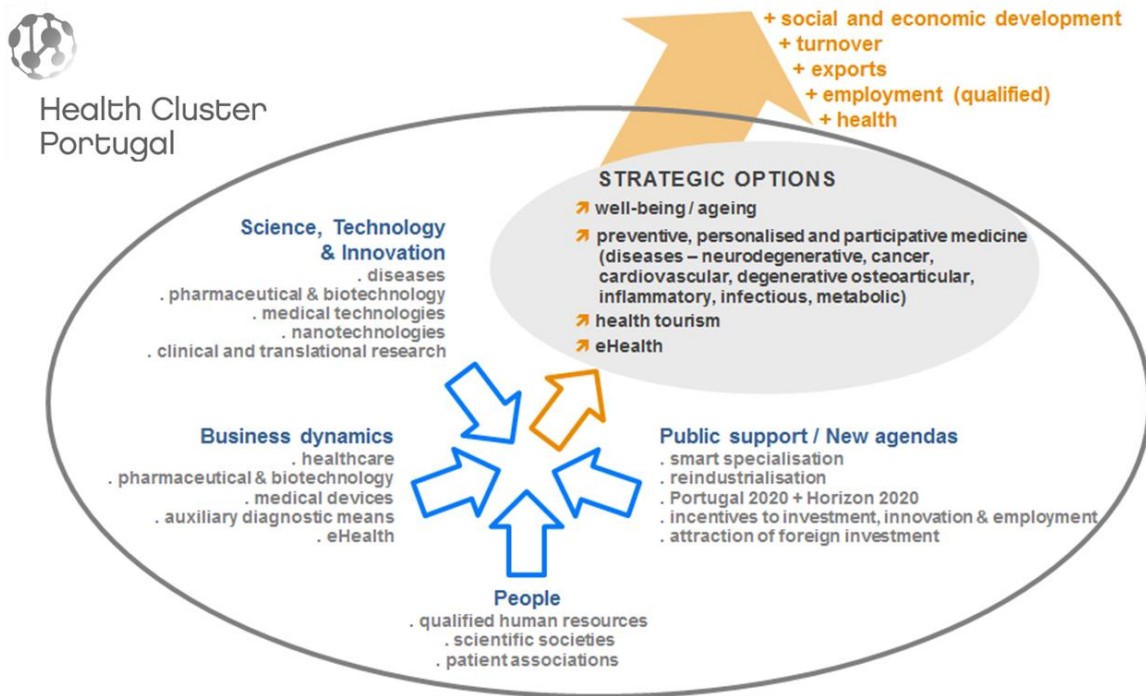
Since 2015, Basque cluster policy is fully in the hands of SPRI, the Agency for Economic and Business Development, and one the main declared goals at this stage is getting a strong alignment with the Basque RIS3 ⁷. To that aim, a number of strategic initiatives are being promoted in order to stimulate a kind of cross-cluster dynamic for a number of priority domains and challenges, such as advanced manufacturing, digital transformation, circular economy, mobility...

In line with this, it is worth highlighting the so-called "Bilbao Alliance for Smart Specialisation in Advanced Services towards the Digital Transformation of the industry (AS-FABRIK), which has

⁷ According to SPRI, main three goals of the current cluster policy in the Basque Country are the following: i) getting stronger clusters organisations, in terms of number of members and member engagement; ii) increasing opportunities for collaboration, by means of wider domains and related diversification; iii) and alignment of clusters and the cluster policy to RIS3 priorities and opportunity niches.

From April 2016 to March 2020 SPRI will be leading the Interreg Europe project [CLUSTERS3](#)-Leveraging Cluster Policies for Successful Implementation of RIS3. Also in the frame of Interreg Europe, Lower Austria's Economic and Business Agency EcoPlus are leading [CLUSTERIX 2.0](#)-New Models of Innovation for Strategic Cluster Partnerships. Both projects might be an opportunity to explore and upgrade also the role of local authorities in both cluster policy and RIS3.

recently been awarded Urban Innovative Action with 4.6 million Euros from ERDF. The purpose is accelerating the digital transformation of the wider urban economy, in particular manufacturing, through a number of experimental initiatives on new education programmes for university students, entrepreneurs and professionals, prototyping and incubation of new business models, as well as dedicated workspaces. Such alliance is promoted by the city of Bilbao, and two Basque cluster organizations are called to play a key role in it, namely: the IT cluster GAIA and the audio-visual cluster EIKEN.



From knowledge to market

Health Cluster Portugal’ strategic agenda well aligned to smart specialisation type of challenges.
Source: Joaquim Cunha, Executive Director at Health Cluster Portugal, 2016

Hence, both the smart specialisation concept and the RIS3 method are working as a booster for cluster-based industrial policies. And not only advanced practitioners like the Basque Country should take advantage of it, but also those contexts where the cluster approach is still poorly assumed.

We mean policy frameworks where business cluster is little more than a buzzword and lacks of a sound work approach behind ⁸. As a result of its booming expansion in the last 15 years, cluster

⁸ A misperformance that usually correlates to the issue of rhetorical prioritization - clearly set down on paper but poorly delivered in practice-, which has been a weakness in not a few regions so far.

has become an overused concept indeed, whose meaning is getting blurred. Today, many say clusters when they justly mean industrial sector, and increasingly dedicated publications and guides on cluster policy are compelled to include in the opening basic statements like this: "clusters cannot be understood as fitting into the narrow sectoral view that most industrial policies have, but should be considered as regional ecosystems of related industries and competences featuring a broad array of inter-industry interdependencies".⁹

Many member states and regions have gone from nothing to everything in a very short time in relation to the role of the cluster concept in industrial policy, which has often led to fragmentation and irrelevance. Hopefully the "smart specialization" approach is pushing to adjust the course and open new horizons in this field.

Making "related variety" work

The S3/RIS3 framework has opened a window of opportunity for cluster policies to be revised and improved. As an overall consideration, cluster initiatives should first reinforce their agendas on innovation. Furthermore, there are two fundamental issues where cluster initiatives can be of great help:

First, to run and keep current processes of entrepreneurial discovery¹⁰ at S3-domain level. By definition, clusters are usually configured as a triple helix type of collaboration platforms to organize market-led agendas on innovation and growth. Hence, it seems they are the right candidate to coordinate and facilitate working groups on specific S3 priority domains.

Secondly, to promote the "related variety" approach. Up to now, the cluster approach has been pretty well acknowledged as a segmentation driver to read regional and urban economies. Smart specialisation puts now the spotlight on the connections among those business clusters, resulting in wide-scope technology & knowledge domains.

"Rather than promoting sectorial specialisation, smart specialisation refers to regional diversification into areas related to current regional strengths"¹¹. Through a co-decision making process (called now in this context "entrepreneurial discovery"), the S3 method aims to pave clear

⁹ European Commission (2016). Smart Guide to Cluster Policy. Guidebook Series How to support SME Policy from Structural Funds. Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs.

¹⁰ Entrepreneurial discovery is the co-production method proposed for the elaboration of RIS3. An interactive, bottom-up and permanent way to prioritize (making smart choices) in innovation and industrial policies by bringing together actors from the triple/quadruple helix, e.g. researchers, firms and entrepreneurs, relevant policy makers, end-users.

¹¹ Asheim, B.T. et al (2015) The Role of Clusters and Public Policy in New Regional Economic Path Development. Centre for Innovation, Research and Competence in the Learning Economy (CIRCLE), Lund University. Papers in Innovation Studies, Paper no. 2015/44.

productive pathways based on the own strengths, but open to new opportunities. The choice of priorities is actually the backbone for a “specialized diversification”, which is the real key concept, since S3 is just a long term guide for growth, shaped in a way to avoid path dependency ¹².

In exploiting such a related diversity ¹³ between different clusters new opportunities and activities can emerge. So, how to promote it? What tools to help firms and other research-driven actors to explore opportunities at the intersection of sectors and technologies?

Usually configured as triple helix type of collaboration platforms to organize market-led agendas on innovation and growth, clusters seem to be the right candidate to coordinate and facilitate working groups on specific S3 priority domains

Crossovers

“A point or place of crossing from one side to the other”, according to the Oxford dictionary. In our context, the digital transformation, mobility, the challenge of a low-carbon society... they are working as cross-sector drivers. Moreover, in a RIS3 framework, the digital issue is usually addressed as a crossover rather than a particular vertical priority itself. Anyhow, it is placed at the heart of most S3 strategies, and in this respect the existing IT clusters are called to play a main role. It is on the industrial policy-makers side to unlock the full potential of IT clusters on this matter.

[GAIA](#) is Basque Country’s cluster of electronic and information technologies. Established in 1983, it is currently made up of 267 companies. As GAIA head for cluster services Cristina Murillo presented at the InFocus workshop in Frankfurt, the IT cluster is absolutely a key actor in the digital transformation agenda of the Basque Country. To that aim, they work in three main directions:

- Turning the Industry 4.0 model ¹⁴ into a well extended reality by means of 4.0 type of technologies and industrial processes.
- Extending the concept of industry 4.0 to services through 4.0 type of solutions.
- Scaling the smart city concept up to the regional level - intelligent territories.

The way GAIA is doing that is basically by promoting intra and intercluster alliances, as well as arranging specific living labs and large-scale demonstrators.

Based in Grenoble, [MINALOGIC](#) is a renowned French Competitiveness Pole on digital technologies. Gathering around 300 firms and entities, cluster members offer solutions to a wide range of

¹² This idea of promoting synergies and linkages between priority sectors and domains was something specifically requested by some of the InFocus partner cities, i.e. “we would like the InFocus project to inspire us to undertake the action leading to integration of the sectors of our local economy” (Bielsko-Biala).

¹³ The own cluster concept is closely associated to the idea of relatedness, in two senses: “related variety” (set of economic activities and sectors linked along the value chain) and “geographical proximity”.

¹⁴ More on this concept herein below.

sectors, from healthcare to construction and transportation. Consequently, its work is key for Auvergne-Rhône-Alpes' digital transformation agenda. In addition, [Digital Grenoble](#) is the local embedment of the country-wide French Tech strategy, which is a major initiative focused on scaling-up and internationalisation of digital-based startups. French Tech-in the Alps is focused on five priority areas:

- #HealthTech.
- #IoT #Manufacturing: Internet of Things, robotics, drones, 3D printing.
- #EdTech #Entertainment: education, cultural and creative industries, gaming.
- #CleanTech #Mobility: environment, energy, transport & mobility, smart city.
- #Sports

Today, there are many ambits (at ministry level, at city level...) organizing task forces or technical secretariats to impulse and manage digital agendas. IT clusters might assume a prominent role as members of those steering groups.

The issue of digital transformation especially matters at city level, and it goes far beyond the smart city concept, including digital-based business models, digital jobs, etc. Most of the nine finalists for the European Capital of Innovation Award in 2016 were involved in digital transformation processes in one way or another, e.g. Berlin –“for performing as an urban living lab where innovative IT solutions can be tested”-, Eindhoven –“for combining digital technology with creativity in its world-leading urban smart lighting strategy”, Vienna –“for its innovation and ICT strategies based on a citizen-centred approach and long-term developments in economy, education, research and technology”.

Intercluster strategies

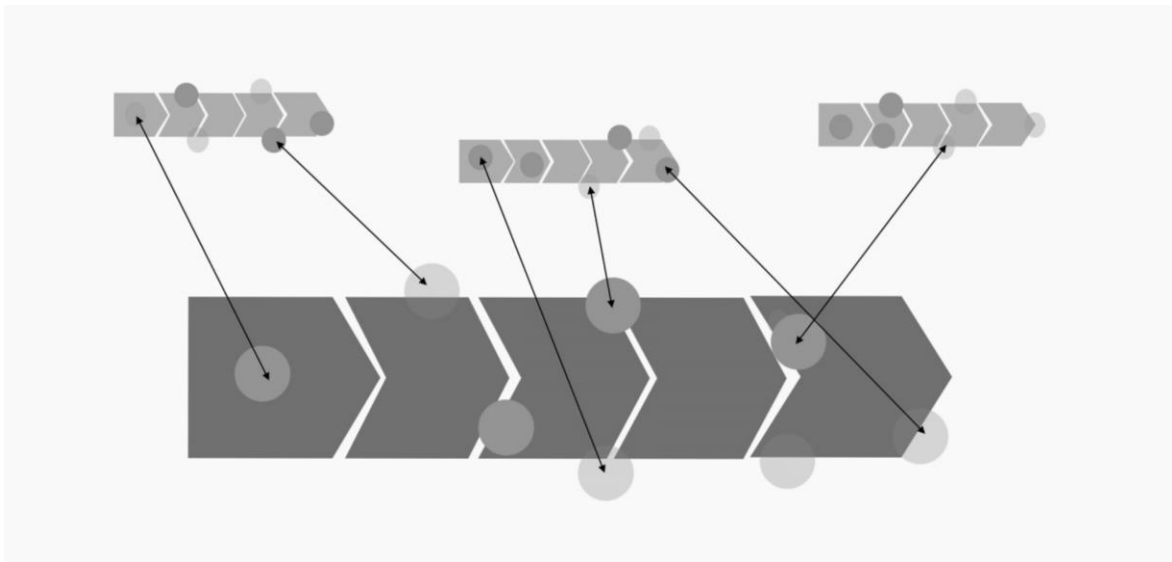
Cluster initiatives and the cluster level “have a key role as bridge builders” (European Commission, 2013). That is why intercluster strategies or cluster-cluster relationships in terms of cooperation and trade are so important nowadays. And they are relevant because of two main reasons:

- For their capacity to organize knowledge & innovation transfer from one cluster/sector to another;
- For improving the cluster's positioning into global value chains.

Headquartered in Toulouse and Bordeaux, [Aerospace Valley](#) is a good example of cluster overcoming administrative barriers, as it gathers 850 members from Nouvelle Aquitaine (formerly Aquitaine, Limousin and Poitou-Charentes) and Occitania (formerly Languedoc-Rosellón and Midi-Pyrenees). On its website, they declares that “historically, Aerospace Valley has developed extensive links with other European aerospace clusters, including taking part in the EACP aerospace cluster network and leading the Clusters Working Group in the NEREUS network. More recently, in line with its global diversification strategy and with its commitment to identify new business markets for its members, Aerospace Valley is forging links and cooperating with EU clusters from other domains, including agriculture, energy and ICT”.

At this point, it is worth noticing that promoting intercluster strategies is a remarkable task of Aquitaine Développement Innovation, also in the framework of RIS3 and SRDE2I - Aquitaine Regional Scheme for Economic Development, Innovation and Internationalisation of Businesses.

Relatedness between clusters/sectors are not limited to technologies and industrial competences, it can also encompass other factors like skills or business intelligence. There can be a role to play by cities and local governments on this. For example, there was a time when Seville (Spain) hosted a highly competitive shipbuilding industry, which nonetheless collapsed after a long decline since Far-East producers, mostly from Korea, entered the market. Instead of slowly fading away, such an industrial skills were to some extent transferred to the aeronautic industry that was undergoing at that time a re-launch in the city.¹⁵



Intercluster strategies. Source: TASO©

Innovation vouchers

The voucher is a demand-side incentive that can easily be focused to purchase specific technologies and services, ranging from digital-based business solutions (IT vouchers) to design-based inputs to upgrade goods and services (creative vouchers). Hence, they have proved to be an efficient tool over the ground to promote “related variety” in the specific directions we would wish at every time. That is, they can be oriented only to purchase specific types of technologies and services and to specific beneficiary sectors.

¹⁵ On skills transferability across economic sectors, see the report produced by the Ostrava-based consulting RPIC-ViP: Karásek, Z. et al (2011). Transferability of skills across economic sectors. Report elaborated by RPIC-ViP for the European Commission. Publications Office of the European Union.

Blending art, science and technology in Berlin

The **Hybrid Plattform** is a project platform of the Berlin University of the Arts and the Technische Universität Berlin in the heart of the Campus Charlottenburg. The approach is making the most of the artistic disciplines and design to enhance technological innovations or even to produce radical innovations. They promotes hybrid encounters, hybrid talks and hybrid projects. Those projects should be socially relevant, transdisciplinary and innovative in method and format. Both universities have appointed a small, fully dedicated team just for bridging and matchmaking between both worlds, technology-science and arts-design. Next step is matching existing hybrid innovative solutions with market needs.

<http://www.hybrid-plattform.org>

Further to this, the **Design Research Lab**, also at the Berlin University of The Arts, works on interdisciplinary design research projects that mediate the gap between technological innovations and people's real needs. With more than twenty researchers, the DRLab explores smart textiles, human computer interaction as well as communities in the digital society. The approach is organized within four different research/work areas: Civic Infrastructures, Social Innovation, Embodied Interaction, Connected Textiles, and News & Events.

<http://www.design-research-lab.org>



Left: hybrid platform. Right: DRLab. Images by M. Rivas

AWS is Austria's state-owned agency for business development. Most likely, they ran the largest innovation voucher scheme in Europe connecting the creative industries to the wider economy. According to Christina Koch, head for creative industries at [AWS](#), "innovation vouchers are a rather non-bureaucratic and flexible instrument to address particular problems/opportunities with low administration costs but strong spill-over effects".

Innovation vouchers have played a role in the last years trying to connect drivers like digital and design to mature industries. And that is relevant, since Smart Specialisation is not only about technology-intensive sectors, it is also about giving new growth potential to existing local productive systems that many times operate in mature industries.¹⁶

Smart Specialisation is not only about technology-intensive sectors, it is also about giving new growth potential to mature industries

Certainly, concepts like cross-innovation, intercluster strategies and sector hybridization were already in place before smart specialisation came up. Nevertheless, what smart specialisation brings for the first time is a single structuring guidance to envision as a whole all the key productive components of a spatial economy (call them clusters, technology domains...). Existing components and those still to shape. It is the kind of transformation agenda we mentioned earlier.

Finally, it is worth noting that putting the idea of "related variety" or "specialized diversification" in practice is not an easy matter at all. Even for advanced practitioners involved in industrial and innovation policy there are much to learn on this issue. Of course, it also requires a facilitating institutional framework, well adapted to the "entrepreneurial approach" that is expected from a S3 framework.¹⁷

From clusters of activities to clusters of competences

Priority sectors and technological domains should be seen as a starting point in the context of smart specialisation strategies not an end in themselves. As a matter of fact, what RIS3 strategies provide is a roadmap to the specialized diversification of a region, making the most of a (short) range of priority technological domains and industrial competences. Those technology/knowledge domains may re-shape existing clusters, promote new emerging ones or they themselves may work as drivers for innovation and growth to a more or less wide range of clusters and value chains.

¹⁶ According to the [S3 Platform](#), over 270 agri-food related RIS3 priorities have been agreed by regions from all over Europe.

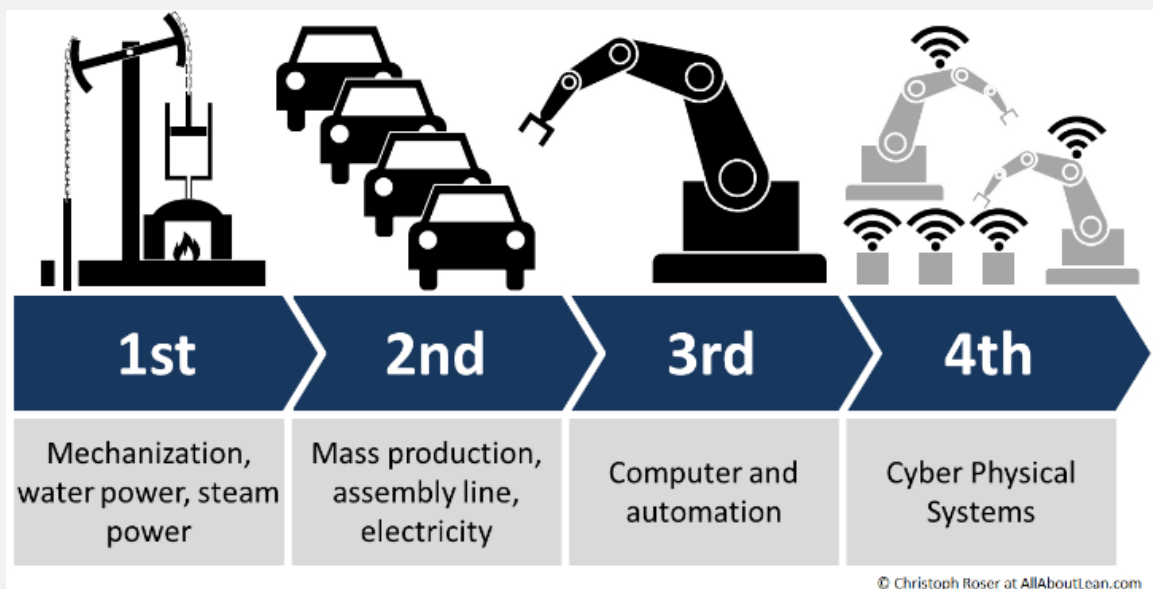
¹⁷ On these framework conditions to fully exploit the potential of S3 at the city level, see Rivas, M. (2016) Connecting RIS3 to the city, a two-way bridge. URBACT-InFocus thematic paper.

For instance, the digital revolution and related concepts like Industry 4.0 or Advanced Manufacturing are broadening more and more the industry-services continuum, as a fertile ground for new emerging activities. In this context, cluster identification is not enough. It is the age of hybridization, and S3/RIS3 should be seen as a pathway to fully activate the potential of a number of core transforming (technological and industrial) competences, expanding them through a variety of sectors and value chains. Under this perspective, S3/RIS3 can be seen as a mapping for cross-sector innovation.

Industry 4.0

The now popular term Industry 4.0 refers to the fourth industrial revolution underway, which is encouraged by the digital transformation of both industrial processes and business models in almost every economic sector. A number of digital-based technologies, at different stages of maturity, are fuelling that transformation, e.g. cloud computing, mobile devices, embedded systems (Internet of Things platforms), location detection technologies, augmented reality/wearables, smart sensors, 3D printing, advanced human-machine interfaces, big data analytics and advanced algorithms, multilevel customer interaction and customer profiling, authentication and fraud detection. Advanced Manufacturing and Industrial Internet are similar terms to Industry 4.0.

Advanced manufacturing is a fairly recurrent priority domain in RIS3 roadmaps across Europe, at a point that Industrial Modernisation is one of the three Thematic Smart Specialisation Platforms created so far, along with Energy and Agri-Food. The aim of the thematic platforms is promoting cross-country partnerships for pilot projects and investments in those priority areas.



See PWC (2016) Industry 4.0: building the digital enterprise. [2016 global industry 4.0 survey](#)

[Silesia Automotive](#) is the cluster initiative of the Katowice Special Economic Zone, whose vision is making the Opole and Silesian Voivodeships a hotspot for the automotive industry in Europe. It basically works as an exchange and cooperation platform between companies and higher education institutions. Significantly, the cluster has been renamed to include a cross-competence, and now it is Silesia Automotive and Advanced Manufacturing Cluster. It shows the willingness to be actively engaged in one of RIS3-Silesia's priority domains (advanced manufacturing).

Anyway, relevant clusters are increasingly defined by a key industrial or technological competence, instead of a sum of linked sectors and industrial branches. The trend now when promoting cluster initiatives is moving, as far as possible, from clusters of activities to clusters of competences. In a way, that's the case of [ProduTech](#), the Porto-based Production Technologies Cluster, which brings together manufacturing technology providers in fields ranging from mechanical engineering to embedded software.

Actually, the concept of competence cluster is already mainstream in Germany for years. Envisioning clusters based on a key and distinctive competence enables linking to other different value chains and product/markets more easily.

S3/RIS3 should be seen as a pathway to fully activate the potential of a number of core transforming (technological & industrial) competences, expanding them through a variety of sectors and value chains

The Bordeaux-based cluster on lasers and photonics is a paradigmatic case of a business system organized around a specific technological competence¹⁸. Branded as [Route des Lasers](#), the cluster (170 members in 2016, of which 120 are companies) offers advanced solutions on innovative optics, lasers and photonics to a variety of industrial sectors, such as aerospace, healthcare, energy, chemistry, electronics and even food industry. In Bordeaux, they have a number of cluster-focused flagship facilities, like the Mégajoule Laser facility, which is the largest industrial laser facility in France, *Cité de la Photonique* business park, the technology transfer platform ALPhaNOV and the in-service training platform PYLA. The cluster even has its own vehicle for real estate development and management, [SEML Route des Lasers](#), targeting worldwide companies working in the optical, photonics and lasers field.

Clusters are increasingly becoming more specialized and therefore more globalized. They tend to focus on a unique industrial/technology competence (or several) and exploit it/them as much as possible across the global markets. This means reaching not only the final consumer, if it were the case, but also to other sectors and value chains in the B2B market. That is why the connection to other clusters and value chains is so important in today's cluster policy.

¹⁸ Photonics is one of the six Key Enabling Technologies for the European industry in the 21st century. KETs have been defined as "those [technologies] that are crucial for the competitiveness and renewal of European manufacturing" (Directorate General for Internal Policies, 2014), namely: micro/nano-electronics, photonics, nanotechnology, biotechnology, advanced materials and advanced manufacturing systems. They have been identified by the European Commission for their potential to boost growth in a broad range of productive activities, including mature industries. See the [KET portal](#) at the EC-DG Growth.

It leads to the fact that, in some way, geographical proximity is losing importance when shaping and giving character to a cluster. Place-based productive systems may easily fill a performance gap from their particular local business environment searching that capacity outside, instead of trying to build it up locally from scratch. As before single companies, clusters also address an international spatial division of the components of their "local" value chain. Core competences will remain at the original environment, but other non-critical pieces could be (or should be) taken from different business systems or *filiales*. Therefore, maybe a cluster will be no longer a perfect combination in (the local) space between a core(s) activity and related industries and services.

Consequently, clusters are becoming more connected than ever through global value chains¹⁹. Orkestra researcher James Wilson acknowledged at the InFocus workshop in Frankfurt that "boundaries between clusters are becoming more porous as new opportunities emerge in the nexus of economic activities, technologies and market opportunities; intercluster collaboration takes on a new importance in this context".

City making clusters

Coming back to the city level, cluster-based readings of the urban/metropolitan economy often have a sort revitalizing effect by themselves. It is a precious opportunity to unveil new emerging activities or simply highlight those activities with a special link to the urban space. A kind of "city making clusters". For example, in the Basque Country, [Surfcity Donostia](#) represents a unique communion between economic activity and the city²⁰. [Bilbao Urban Solutions](#) is a cross-sector business network aims to capitalize the brand Bilbao as a world-class reference in urban transformation and renovation.

We also refer to activities with a significant impact over central urban spaces, from advanced tertiary to a myriad of industries linked to the creative economy. Regarding the advanced tertiary complex, according to the European Cluster Observatory²¹, regions and cities with a strong KIBS sector (Knowledge Intensive Business Services) exhibit higher prosperity and it affects positively

¹⁹ On this issue: Todeva, E and Rakhmatullin, R. (2016) Industry Global Value Chains, Connectivity and Regional Smart Specialisation in Europe. An Overview of Theoretical Approaches and Mapping Methodologies, JRC Science for Policy Report, European Union.

²⁰ In the same way, [Sporaltec](#) is a cluster aims to exploit Grenoble area's unique conditions for outdoor sports like ski, paragliding and climbing.

²¹ Center for Strategy and Competitiveness (2009). Knowledge Intensive Business Services. European Cluster Observatory, Priority Sector Report. Center for Strategy and Competitiveness, Stockholm School of Economics. The report highlighted at that time ten cities with a KIBS sector larger than expected (Zurich, Stockholm, Oxford, London, Brighton, Frankfurt/Main, Berlin, Munich, Stuttgart and Athens), while others had a KIBS cluster smaller than expected and desirable, such as Katowice, Naples, Marseille, Valencia, Antwerpen or Sevilla.

innovation performance. It is a cluster with a strong “urban character” and some cities perform better than others. The emerging FinTech scene would be part of it, which is vibrant in Frankfurt where it is fuelled by several cluster type of platforms. Given its supporting role to directional functions in business, any modern urban economy with an active positioning into the globalisation should host a relevant advanced tertiary sector.

KIBS is one of the six priority clusters in Bilbao, and Bordeaux is making a big bet for its advanced tertiary sector (70,000 jobs, 200 head offices and the 4th services and financial marketplace in France with a specialisation in trading and risk). It includes a new Central Business District as part of [Bordeaux Euratlantique](#), which, by the way, is the largest urban regeneration project now in France.²²

We can also talk about activities connected to future’s urban management. Thus, the progressive digitalization of both urban management and the urban experience is creating continuous business opportunities. New clusters around the smart city concept are emerging now in many cities, from Turin (where Fondazione Torino Wireless is also coordinating a country-wide agenda on smart cities) to Bucharest.

New clusters around the smart city concept are emerging now in many cities, from Turin to Bucharest. They are closely linked to their corresponding smart city projects

Those clusters are closely linked to their corresponding smart city projects. IT cluster [Different Angle](#)’s mission is to “promote and support research, innovation and education in order to develop and implement solutions meant to transform Bucharest into a smart city”. It brings together 14 members, mostly software solution providers and companies specializing in consulting, training, services and IT equipment. Also in Bucharest, and in line to the purpose of smart city clusters, the Go Electric cluster has recently been founded in 2014 by the Polytechnic University of Bucharest to join efforts for developing and implementing the concept of electric mobility in the capital of Romania.

Together with this type of cluster platforms, local authorities certainly have a central role in rolling out smart city visions and roadmaps in their cities: evolving to more open governance, enabling open data environments, piloting, providing IT infrastructures or attracting global firms to cooperate with local SMEs. Moreover, many smart city projects are already being capitalized by RIS3 steering authorities as accelerators for their agendas on digital transformation (Rivas, 2016). Even the European Parliament report on Cohesion Policy and Research and Innovation Strategies for Smart Specialisation, of April 2016, has stressed smart city projects as catalysts for RIS3.

In Malmö, RIS3-Skåne is working to connect many different suppliers of different city technologies (e.g. water cleaning, waste management, heating systems, control systems) to achieve better solutions to common urban issues. In this case, many city districts are involved as a testbeds.

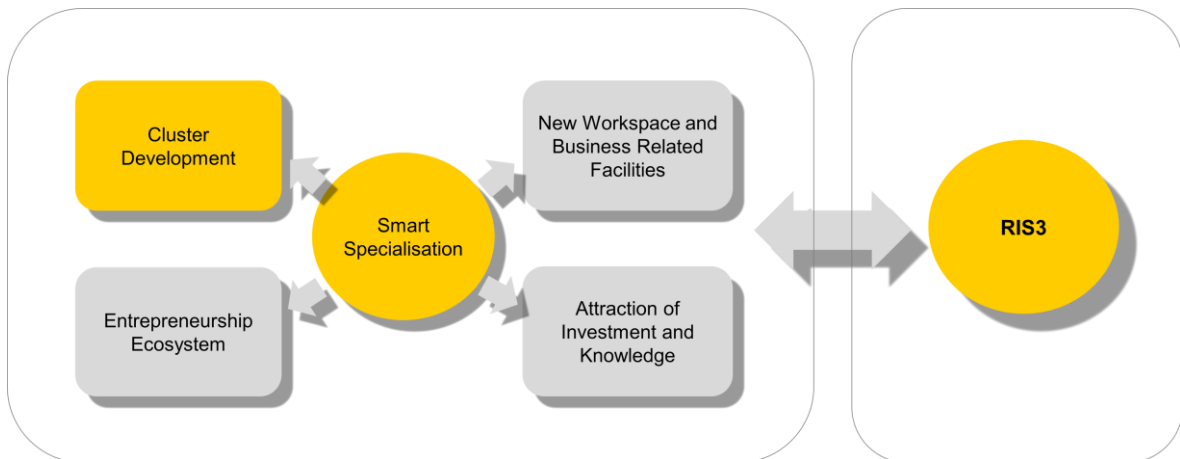
²² The project has been designated Operation of National Interest (OIN).

On the role of cities in cluster development

At this point, how should cities take advantage of this momentum to raise their role in cluster policies, in close collaboration with the regional level? How cities should respond to this, in a way that it can also contribute to RIS3 goals?

Since agglomeration economies (which are at the basis of clustering, at least at early stages) work particularly at local and metropolitan levels, cluster-based local economic development is mainstream, yet cluster policies used to be designed and delivered at national and regional levels. Today, most of the main innovative cities have adopted a more or less accurate cluster-based segmentation of themselves as urban economies, and often an active role supporting to cluster initiatives. For instance, Gothenburg city-region is working with just five clusters -urban future, marine environment and the maritime sector, transport solutions, green chemistry and bio-based products and life science.

In this context, it is clear that better city-to-region articulation is needed. Bordeaux is currently working with a range of clusters that are categorized into three groups: world-class clusters or *pôles de compétitivité* (aerospace and lasers & photonics), clusters of national scale (health and financial & advanced services) and other sectors of excellence like wine, chemistry, boating-sailing and tourism. Nonetheless, it seems that this work at city/metropolitan level should be better connected to the cluster policy at regional level, especially right now once Nouvelle Aquitaine is born as a merger of Aquitaine, Limousin and Poitou-Charentes.



Smart specialisation as a driver to refine the urban agenda on business-led economic development (left) while articulating better to RIS3 at regional level (right). Source: M. Rivas, TASO

With the idea of confronting two outstanding experiences on how city/metropolitan authorities may contribute to cluster development, a policy-maker dialogue was organized between Grenoble and

Porto at the InFocus thematic workshop in Frankfurt. It was a live conversation between Gabriel Voisin-Fradin, who formerly was strongly involved in Grenoble's cluster policy and now works for Grenoble-Alpes metropolitan authority, and Ana Teresa Lehmann, who is a renowned professor at Porto University and now recruited by the Mayor of Porto to head the Invest Porto team. Additionally, in order to get also the view from the cluster practitioner, a panel discussion was arranged with the participation of Health Cluster Portugal, Tech Quartier as one of the animators of Frankfurt's Fintech community, the Bucharest-based IT cluster Different Angle and the Moravian-Silesian Automotive Cluster.

The main question was the distribution of roles between the national/regional administration and the city level. As Ana Teresa Lehman said "we (the Municipality of Porto) are an actor in a multi-actor process". However, there was no clear consensus on the ideal service charter on clusters at the city/metropolitan level within such a multi-actor environment.

According to Grenoble-Alpes Métropole officer Gabriel Voisin-Fradin, while regions are mostly focused on financing, expanding and networking, the role of the city/metropolitan level on cluster policy might be more oriented to impulsion and local stakeholder coordination & animation ²³. Sebastian Schäfer, promoter of Frankfurt Tech Quartier and a serial entrepreneur himself, enthusiastically emphasized the expected role from local governments as key animators.

While regions are mostly focused on financing, expanding and networking, the role of the city/metropolitan level on cluster policy might be more oriented to impulsion and local stakeholder coordination & animation

Gabriel Voisin-Fradin, Grenoble-Alpes Métropole

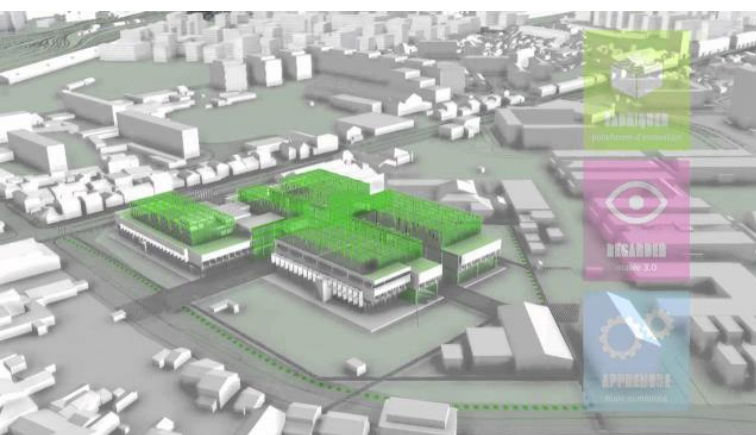
Occasionally, supporting on cluster-focused spaces and business facilities is highly appreciated. That's the case for Bordeaux, which has been greatly involved in cluster development for the last years, in particular throughout financial support to projects and looking after some cluster platforms. In this respect, about 1.5 million Euros have been allocated annually and 4 member staff from the Economic Development Department dedicated to liaisons between organisations and stakeholders. It has led to a more autonomous role of cluster organisations, while Bordeaux Métropole staff now focuses more on cluster-cluster cooperation and cross-sector innovation, i.e. working on smart mobility, digital transformation, big data, IT for health, etc.

In this context, the metropolitan authority has paid special attention to the "physical dimension" of cluster development, resulting in business facilities and tech parks particularly oriented to the different needs from some activity clusters, e.g. [Bordeaux Aéropace](#) (aerospace cluster), Bioparc Bordeaux Métropole (health cluster), Ecoparc (cleantech), Cité de la Photonique (lasers & photonic cluster).

²³ Grenoble metropolitan authority is also full member of some cluster platforms, even member of their steering committees, and co-finance cluster structures and cluster-focused infrastructures (techno-platforms). Some clusters based in Grenoble are usually showcased as benchmarks of the *Poles de Compétitivité* French policy.

The [Cité Numérique](#) (the Digital City) is the most significant work now in progress that is being promoted by Bordeaux Métropole in the field of cluster-focused space provision. As part of Bordeaux Euratlantique urban regeneration project, in a former post office transit building, the Digital City is a good example of new urban workspaces, this time closely linked to the digital economy and in particular to the digital cluster development in the Aquitaine region - Pole Numérique Aquitaine.

Usually, the role of Bordeaux Métropole in this kind of interventions is about land availability, in order to meet the specific industry requirements with regard to location and urbanization works. As well as setting up the relevant independent body for real estate management and animation of the innovation ecosystem, involving as far as possible the own cluster organizations.



New urban, cluster-focused industrial space. Cité Numérique/Bordeaux Digital City project, in a former post office transit building. [Video](#)

The communication dimension of cluster initiatives has always been underlined as fundamental, and having excellent communication skills is therefore key for cluster organizations and initiatives. So, this is another working area where the support from local governments can be much appreciated. It is about joining both cluster branding and city branding efforts. Innovative placebranding can be very helpful for local clusters to get relevant international visibility. And vice-versa, city branding & marketing strategies can find in the international activity of business clusters a great supporting channel.

The strategy of Invest Porto on inward investment attraction relies largely on the success of a number of Porto-based clusters, in terms of business opportunities, innovation and degree of internationalisation. Cluster organisations are a main group of stakeholders for Porto's current city branding & marketing strategy.

Tendensor AB is a Scandinavia well established consultancy who found that the different stages in a cluster life cycle demand specific styles of branding and marketing. Paradoxically, both embryonic

and declining stages in cluster development are coupled by the same communication style, characterized by a focus on primary identification, strong place-based approach and emphasis on shared values – that is, more oriented to collective values of the local business system rather than in specific leading companies. Both stages are where synergies and alignment with place branding & marketing are more necessary. ²⁴

See for instance [BCN Tech City](#). It is a new born cluster on digital economy with a clear outward gaze. Its association with the brand Barcelona is quite strong - "The global aim of Barcelona Tech City is to consolidate and stimulate an emerging sector with a turnover of 6 billion euros and 10,000 workers, contributing to benchmark Barcelona as a reference in the international tech scene".

Insights from Frankfurt

With a population around 5.8 million, Frankfurt Rhine-Main is the third largest metropolitan region in Germany. As is well known, it is a vibrant, world-class business environment, where a number of strong clusters can be easily recognized in sectors like pharma & biotech, finance, logistics and mobility, IT, automotive and creative industries. However, no conventional cluster organizations and initiatives can be easily recognized. Instead, a number of cluster-focused collaborative platforms, of different kind and with different purposes, can be identified. For instance:

- [House of Logistics and Mobility](#), as a platform to promote in-depth cooperation between economy and science in the field of logistics and mobility. Located next door to Frankfurt international airport, it is a combination of advanced research centre, business centre and showroom for innovative products and solutions.
- [House of Finance](#), as a mix of interdisciplinary research and education activities in the area of finance at Goethe University Frankfurt. It aims to be an open cooperation forum for academia, politics, and practitioners from industry and regulation. Also in the financial sector, [Tech Quartier](#) is a main, private sector-driven animator of the Fintech local scene, with a focus on start-up incubation and international connectedness.
- [Digital Hub FrankfurtRheinMain](#). Digital hub is what is closest to a conventional cluster organization. They are rather focused on critical digital infrastructures, a field where Frankfurt is a global reference.
- [Frankfurter Innovationszentrum Biotechnologie \(FiZ\)](#). What apparently is an incubator in the field of biotechnology, the FiZ develops a disruptive cross-sector innovation programme aims to revisit the life sciences in a digital world.

²⁴ On the other hand, when it comes the intermediate stages of consolidation and maturity, clusters require more selective, corporate-oriented and placeless communication style, more supported in specific leading firms and global players rather than in collective values. The connection to place/city branding is not so crucial now. See: Andersson, M. et al (2011) Cluster Branding and Marketing, a Handbook on Cluster Brand Management. Tendensor AB.

- [Industriepark Höchst](#) is a huge chemical and pharmaceutical site, where more than 90 companies are located, from multinational corporations to innovative service providers, accounting for 22.000 jobs. In addition to this main hub, which is much more than just a site, a [House of Pharma](#) was established as a public-private partnership in December 2013.

As Professor Alexander Ebner²⁵, from Goethe University, commented at the meeting with the InFocus partners, what it comes to cluster development in Frankfurt it is a private sector driven affair, with more or less backing from the government and the academia. The role of science and academia is quite significant. That is, University plays a primary role in promoting cluster initiatives, not a subsidiary one.

In this sense, Frankfurt's "House of" model deserves special attention, since its main motivation is promoting a more radically industry-oriented research. They are duly backed by the territorial administrations (usually the State of Hesse and Frankfurt am Main), yet the key role is played by universities and academic institutions which are looking for a more straightforward cooperation with the industry.

Frankfurt's "House of" model deserves special attention, since its main motivation is promoting a more radically industry-oriented research

Such a diversity and somewhat informality regarding cluster initiatives and cluster policy in Frankfurt might be an asset in a context driven by the smart specialization concept. That is to say, this more open panorama can be more easily redirected to a S3 type of roadmap. And that type of roadmap would certainly communicate much better than now what's going on in Frankfurt in terms of innovation dynamics, giving more focus and future direction to the whole. Moreover, the prominent role of both the private sector and the academia fits perfectly the "entrepreneurial discovery" spirit behind the S3 approach.

There is also much to do in terms of multi-level governance. The federal government is the main actor in an explicit cluster policy. They run the *Go-Cluster* programme, as a stimulus to improve cluster management as well as international positioning²⁶. In turn, the State of Hesse is not very influential on the Frankfurt metropolitan area. They steer a RIS3 type of innovation strategy, but no effective step has been taken so far to embed that strategy into the city/metropolitan level. In consequence, as said above, smart specialisation as a policy concept is quite unknown between a high number of relevant actors regarding business, innovation and research. It includes practitioners in cluster development.

Furthermore, the metropolitan region (Frankfurt Rhein Main) has not been able to create a shared sense of place so far, compared to other metro regions in Germany like Ruhr Metropolis and Berlin.

²⁵ In 2013, he coordinated a very complete cluster mapping of Frankfurt Rhine-Main metropolitan region. Ebner, A. and Raschke, F.W. (2013) FrankfurtRheinMain: Clusterstudie. Schumpeter Center for Clusters, Innovation and Public Policy. Goethe-Universität Frankfurt am Main.

²⁶ <http://www.clusterplattform.de>

Though it really works as a single functional urban area, the metro region stretches over three federal states (yet the greater part is in Hesse) and includes other significant urban centres besides Frankfurt am Main like Wiesbaden and Darmstadt. That is being a barrier for strong single strategies on economic development to the whole area. Some decisions have been taken recently. Thus, Frankfurt Economic Development GmbH (with a focus on business development in Frankfurt metropolitan area –Frankfurt am Main) and FrankfurtRheinMain GmbH (focused on inward investment for the whole metro region) share now the same general manager. But there is still an important work to do in alignment and cohesion.



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InFocus

InFocus is a pioneering transnational network aimed at boosting the urban/metropolitan agenda on economic development by means of smart specialisation as overarching approach, while articulating better with RIS3 at regional level. Funded by the URBACT programme and led by the city of Bilbao, InFocus is also joined by Bielsko-Biala, Bordeaux, Bucharest, Frankfurt, Grenoble, Ostrava, Plasencia, Porto and Torino.

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