

CLUSTERS

Definition and context

The term *business cluster*, also known as an *industry cluster*, *competitive cluster*, or *Porterian cluster*, was introduced and popularized by Michael Porter in *The Competitive Advantage of Nations* (1990). Cluster organisations are public-private partnerships. Three terms can be distinguished:

- **Clusters** are geographic agglomerations of companies, suppliers, service providers, and associated institutions in a particular field, linked by externalities and complementarities of various types.
- **Cluster initiatives** are organised efforts taken by actors in a cluster to increase the cluster's growth and competitiveness.
- **Cluster programmes** are organised efforts taken by government to increase the growth and competitiveness of clusters in its constituency.

We can identify seven innovation gaps where cluster organisations could play potential roles as bridge builders:

- The research gap, limiting interaction between firms and research organisations
- The education gap, limiting interaction between firms and education organisations
- The capital gap, limiting interaction between firms and education organisations
- The government gap, limiting interaction between firms and public bodies
- The firm-to-firm gap, limiting interaction among firms
- The cross-cluster gap, limiting connections between firms in one cluster and another
- The global market gap, limiting connections between cluster firms and global markets

Governments need to find a new way to engage the triple helix actors in dialogue and action to strengthen competitiveness, and clusters are among the platforms for such joint efforts. On the other hand, governments need to increase the effectiveness of their own policies in areas from regional development and investment attraction to skill development and innovation, which might be achieved by aligning policy efforts with clusters' needs.

Implementation

Various observatories have been set up worldwide to monitor the deployment and performance of clusters, among which:

- The EU Cluster Portal¹ provides tools and information on key European initiatives, actions and events for clusters and their SMEs with the aim of creating more world-class clusters across the EU. The EU Cluster Portal complements the Smart Specialisation Platform² that assists regional and national policy-makers to develop, implement and review their Research and Innovation Strategies for Smart Specialisation (RIS3) such as through guidance documents and tools to identify regions with similar policy priorities.
- The European Cluster Observatory³ is a single access point for statistical information, analysis and mapping of clusters and cluster policy in Europe. It aims to promote the development of world-class clusters in Europe, with a view to fostering competitiveness and entrepreneurship in emerging industries and facilitating SMEs' access to clusters and internationalisation activities through clusters. The ultimate objective is to help Member States and regions in designing smart specialisation and cluster strategies to assist companies

¹ Available at: http://ec.europa.eu/growth/smes/cluster/index_en.htm

² Available at <http://s3platform.jrc.ec.europa.eu/home>

³ Cf. <http://ec.europa.eu/growth/smes/cluster/observatory>, which is part of the EU Cluster Portal

in developing new, globally competitive advantages in emerging industries through clusters, and to strengthen the role of cluster policies for the rejuvenation of Europe's industry as part of the Europe 2020 Strategy.

- A separate Cluster Collaboration Platform⁴ offers a range of tools to cluster managers throughout Europe, including cluster mapping, EU partnerships, matchmaking events and international cooperation.
- *Cluster-Excellence.eu*⁵ aims to identify and set up a meaningful set of quality indicators and peer-assessment procedures for cluster management. The intention is to develop training materials and set up an approach for quality labelling of cluster management, in order to help cluster managers achieve high levels of excellence in their duties and to succeed in the peer-assessments.
- *TCI Network*⁶ is a global network of organizations and practitioners reaching out to 9,000 practitioners from development agencies, government departments, cluster organizations, academic institutions, companies and multilateral organizations in over 110 countries. Among its services, it produces a database on cluster initiatives and a Cluster Initiative Green Book analysing data from 356 cluster organizations in 50 countries world-wide, primarily in OECD countries.

In 2008, the first structured survey of regional and national cluster programmes in Europe was conducted under the Europe INNOVA scheme (European Commission 2008)⁷. More than 69 national and 88 regional programmes in 26 out of the 31 European countries had been surveyed at that time. The majority of the countries had one or two national programmes in place. However, cluster policy at that time was only at an early stage in many countries. Clusters at that time did not play an important role as framework for national policy related to innovation and technology, regional economic development and entrepreneurship as well as to SMEs.

The following pan-European survey on national and regional cluster programmes was initiated in 2011 and published in 2012⁸. Common to all programmes at that time was their rationale of increasing the competitiveness of the national or regional economy through the facilitation of collaboration between companies and research stakeholders. Most of the programmes had a national perspective, while a few focussed on the promotion of regional systems of innovation. Among the key findings:

- Most cluster programmes were ranked high on the government's agenda.
- Coordination with other funding programmes showed room for improvement.
- Internationalisation of clusters was considered to be important, but the relevance varied between the different programmes.
- Monitoring and evaluation was important but difficult.
- Cluster policy has become more important with the EU enlargement.
- The European Regional Development Fund (ERDF) had led to good linkages between innovation support programmes and cluster programmes.

A third, most recent study⁹, covering 16 national and 5 regional cluster programmes, was conducted under the European Cluster Observatory in 2015. As the economic and innovation-related framework

⁴ Cf. <http://ec.europa.eu/growth/smes/cluster/observatory/>

⁵ Cf. www.cluster-excellence.eu

⁶ Cf. <http://www.tci-network.org/>

⁷ European Commission (2008). "Cluster Policy in Europe – A brief survey of cluster programmes in 31 European countries". Oxford Research, 2008. Available at:

<http://www.clusterobservatory.eu/system/modules/com.gridnine.opencms.modules.eco/providers/getpdf.jsp?uid=100146>

⁸ The Danish Ministry of Science Innovation and Higher Education, VDI/VDE-IT (2012) "Clusters are individuals". Available at: <http://www.cluster-analysis.org/downloads/ClustersareIndividualsVolumeIIAnnex.pdf>

⁹ Available at: <http://ec.europa.eu/DocsRoom/documents/12925>

conditions have significantly changed over the recent past, the focus of cluster policy and related programmes have also developed further. Nowadays, increased importance is given to Emerging Industries, the new nature of innovation, the need of cross-sectoral cooperation, and the increasing convergences of technologies. During the last years, many regions have developed their Smart Specialisation Strategies to guide innovation-related investments under the European Structural and Investment Fund (ESIF). The current cluster support schemes reflect these regional strategies. Compared to previous surveys fewer countries have dedicated cluster policies or programmes in place. This does not mean that the importance of clusters has decreased. Instead, these countries use clusters as a mean to implement their regional development strategies, and they do not provide dedicated support or funding of cluster initiatives at national level.

Possible synergies

Clusters can benefit from funding synergies between H2020 and ESIF. Among the specific ways of H2020/ESIF funding synergies channelled for clusters¹⁰, we can mention:

- Upstream sequential funding¹¹ for improvement of social capital as assistance for building networks, clusters and consortia, under ERDF investment priority 1a.
- Downstream sequential combination whereby H2020 (or FP) project results are used or further developed with subsequent ESIF investments to improve the innovation eco-system in a territory that facilitates follow-up to successful RDI activities in order to bring them either higher up on the technology readiness level scale (closer to commercialisation), for instance regarding technology parks, clusters, partnerships between research, education and business, LivingLabs, demonstrators, etc.

In addition, the work programme of COSME– the Programme for the Competitiveness of Enterprises and SMEs - invites applicants for cluster support "*to explore the potential for synergies with the relevant Managing Authorities in charge of the ESIF in their territory*"¹². The COSME Cluster Internationalisation Programme for SMEs is aiming to promote the pan-European Strategic Cluster Partnerships to lead international cluster cooperation in new areas. The action will seek synergies with the inter-regional activities for cluster cooperation funded under the European Territorial Cooperation Regulation (INTERREG) and ESIF, e.g. in the context of smart specialisation strategies and the cluster animated projects for new industrial value chains in the "Innovation in SMEs" H2020 Work Programme. To this end, applicants are asked to demonstrate how their approach has the potential to act as a catalyst by contributing to and/or leveraging other activities supported under H2020 and European regional funds.

The "Vanguard Initiative for New Growth through Smart Specialisation"¹³ gathers 21 regions, and seeks to embed the smart specialisation agenda within relevant EU policy frameworks through various axes. One of them is to upgrade regional partnerships and clusters with global potential, which are identified in smart specialisation strategies, to European world-class clusters that can compete

¹⁰ European Commission, 2014: "Enabling synergies between European Structural and Investment Funds, Horizon 2020 and other research, innovation and competitiveness-related Union programmes - Guidance for policy-makers and implementing bodies" available at:

http://ec.europa.eu/regional_policy/sources/docgener/guides/synergy/synergies_en.pdf

¹¹ Upstream sequential funding (ESIF followed by H2020), starting with ESIF funding for various purposes such as capacity building in physical capital (construction or improvement of research infrastructures, purchasing equipment (high potential for innovation procurement PCP –PPI), including IT equipment and connections, data storage capacities, etc.), innovation infrastructures (LivingLabs, FabLabs, Design factories, etc.) and social capital, is a potential "stepping stone" for stronger involvement in R&I activities.

¹² COSME WP, available at:

¹³ <http://www.s3vanguardinitiative.eu/>

globally. Vanguard Initiative regions are committed to internationalising their cluster initiatives in cross-border and interregional networked European clusters and partnerships. Among the EU funding instruments foreseen as facilitators, there are Horizon 2020 (Clusters projects for new industrial value chains), COSME (Clusters Go international, European Strategic Cluster Partnerships), and INTERREG. In their 2014 programme¹⁴ the political leaders of these 21 regions called for:

- Facilitating access to combined funding for co-investment projects, taking advantage of better synergies between regional, national and European instruments to support this interregional collaboration; and
- Exploring solutions to leverage public-private investments through European Investment Bank/European Investment Fund, in particular to support demonstration and piloting of new value chains in European industry clusters.

Although clusters are only one among various instruments involved in it, another illustration is the Bio-Based Industries Joint Undertaking (BBI), a public-private partnership established between the European Commission and the Bio-based Industries Consortium (BIC). BBI aims to bring together all relevant stakeholders to establish innovative Bio-Based Industries as a competitive sector in Europe, ranging from primary production, large industry, SMEs, clusters, trade associations, academia, RTOs to end-users. The BBI is responsible for the implementation of open calls for proposals for Research and Innovation Actions and Innovation Actions, as well as coordination and support actions, in line with the H2020 rules for participation with an overall budget of €3.70 billion. The EU will contribute €975 million from the H2020 programme budget. The industrial partners will commit €2.73 billion. This gives an exceptional leverage factor: for around €1 of public money spent, industry will spend €2.73. Member States will be closely associated to the BBI and are expected to actively promote the deployment of developed technologies, amongst others through ESIF. A Practical Guide on BBI/H2020 and ESIF synergies was released in November 2014¹⁵, to realise synergies and coordinate regional, national and European strategies and related funding to stimulate innovation towards the bio-based economy. This Guide describes the features, frameworks and preconditions to foster an optimal combination of both BBI/H2020 and ESIF funding.

Some of the cluster observatories mentioned in the previous section can also be instrumental for synergies with ESIF: Regional Managing Authorities can identify the smart specialisation intentions of other Member States and regions via the S3Platform¹⁶, their sectorial and cross-sectorial regional industrial strength via the European Cluster Observatory and cluster organisations and other SME intermediaries active in or interested in the building of European Strategic Cluster Partnerships via the European Cluster Collaboration Platform.

The Regions of Knowledge (ROK) initiative could also constitute a good opportunity to explore synergies with ESIF. ROK was first introduced in 2003 as a pilot action of the European Parliament and due to the great interest it raised was continued under FP7. The programme supported transnational cooperation between research driven regional clusters, constituting a good opportunity for mutual learning, transfer of good practices, mentoring to less developed regions and establish joint action plans. The programme also reinforced the creation of new regional and local clusters, improving the generation of research and innovation ecosystems with relevant stakeholders from research organisations, regional and local authorities, universities and companies.

The ROK programme specifically stated the important potential for synergies with Structural funds and the expected mobilization of additional European, national or regional funds to further develop

¹⁴ http://s3vanguardinitiative.eu/sites/default/files/contact/image/milan_declaration.pdf

¹⁵ http://biconsortium.eu/sites/biconsortium.eu/files/publications/Guidelines_BBI_H2020.pdf

¹⁶ <http://s3platform.jrc.ec.europa.eu>

the European Research Area and overcoming the fragmentation of research efforts across Europe¹⁷. In addition, the 2010 work programme funded the setting up of an Expert Group on synergies between the Framework Programme, the Structural Funds and the Competitiveness and Innovation Programme¹⁸ that explored the different ways in which synergies between European programmes could be exploited to better support research and innovation.

However, although synergies with other European funds, and especially Structural funds, were sought by the programme, the assessment of the impact of the ROK programme over the period 2007-2009 showed very few cases of combination of funding¹⁹.

Nevertheless, the results achieved in ROK projects, the ecosystems among stakeholders, coordinated projects and joint action plans that were generated could constitute a good opportunity to promote synergies with ESIF. In this regard, the final evaluation report of the Regions of Knowledge programme over 2007 to 2013, showed that the 38% of project coordinators had interest in the sustainability of the project activities and 29% did not know, due mainly to uncertainty of alternative funding. Therefore, there is a clear potential for synergies with ESIF to exploit the results of ROK projects and give continuity to the activities started, achieving a greater impact at European level.

The programme *Spreading Excellence and Widening participation* under H2020 has become the successor of ROK. The *teaming* initiative of the programme is looking for the creation or upgrading of research and innovation centre facilities. The business plan that needs to be developed as a first phase should demonstrate the potential of these centres to generate regional clusters²⁰ bringing together key stakeholders of the region.

The programme has explicitly identified the need of establishing synergies with ESIF. *Teaming* projects should show the alignment with their regional Smart Specialisation Strategy priorities to ensure the coherence with the broader regional research and innovation strategy. The funding of the programme does not cover the construction of the infrastructure or investment on large equipment costs, which are envisaged to be covered by ESIF²¹.

¹⁷ http://ec.europa.eu/research/participants/data/ref/fp7/88410/q_wp_200801_en.pdf

¹⁸ http://ec.europa.eu/research/participants/data/ref/fp7/88926/q_wp_201001_en.pdf

¹⁹ http://ec.europa.eu/research/regions/pdf/publications/regions_of_knowledge-final%20evaluation_report.pdf

²⁰ http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-sewp_en.pdf

²¹ http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/main/h2020-wp1415-sewp_en.pdf