CLUSTRAT – Boosting innovation through a new cluster concept in support of emerging issues and cross-sectorial themes

Work Package 5 – Strategy development for new cluster concepts

5.1 – Joint strategy draft

The core strategic elements

Discussion Paper

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CLUSTRAT

This document – drawn up by the responsible partner of WP5 – proposes a preliminary draft of the strategic framework of CluStrat as a basis for discussion among the partners in the Transnational Policy Dialogue of Katowice.

The entire document has been drawn up with reference to the three CluStrat's founding concepts, i.e. clusters, emerging industries and cross-cutting issues. The connection between the three concepts has already been clearly outlined in the CluStrat documents. The clusters, whether traditional sector clusters or high technology clusters, do not constitute a pre-condition for the development of the emerging industries. Rather, the emerging industries offer the clusters with an opportunity for future development and competitive evolution. In other words, the clusters can actively participate in the emergence of these new industries, which in turn 'are a reaction to challenges of society' (Doc 2, p. 3)[1]. Involving the clusters in emerging industries represents the main objective of CluStrat, and the cross-cutting issues are strategic leverages for the achievement of this goal.

Some of the core strategic elements included in the document are simply taken or derive from the path already covered by CluStrat, others emerge as possible responses to questions to be addressed and used for debate among the partners, while others arise from the need to specify the strategic significance of the cross-cutting issues, which are (Doc 3)[2]:

- knowledge and technology transfer,

- internationalisation, and

- gender and innovation including diversity.

Some passages of the document highlight the existence of information needs not met by the information framework available until now, comprising three summary reports produced in WP4[3] in addition to the information acquired as specific strategy input for the 2nd Transnational Policy Dialogue through the scheme drawn up by Steinbeis-Europa-Zentrum. The additional information that needs to be acquired will be useful and essential to develop the joint strategy and identify proposals for pilot actions.

1. Clusters and cross-cluster cooperation

Active ageing, sustainable economy and sustainable mobility are the industries identified by CluStrat as 'emerging'. However, none of these can be defined as an industry in the strict sense of the word, or even as a specific technology. On the other hand, industries (in the strict sense) or technologies are the normal references for the

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[1] Doc 2: Püchner P., Discussion Paper on Emerging Industries, 2nd Draft, Steinbeis-Europa-Zentrum, December 2011.

[2] Doc 3: Report on the 1st Transnational Policy Dialogue, Steinbeis-Europa-Zentrum, January 2012.

[3] Doc 4: Summary Report Including an Analysis of Existing Data on Emerging Industry Sectors and Cross-cutting Technologies and Services, Openfield – GAPP, October 2012; Doc 5: Summary Report with an Analysis of Qualitative Studies for Emerging Industries and Cross-cutting Technologies and Services, Openfield – GAPP, February 2013; Doc 6: Summary Report and Analysis of the Qualitative Research Pertaining to the Cross-sector Issues in the Economy, Particularly in the Respect of Gender Innovation Diversity, Internationalisation, Knowledge and Technology Transfer, EU-Consult – GAPP, March 2013.

definition of clusters. In this section we aim to link the concept of clusters with that of emerging industries within the context of CluStrat, to then use this as a basis to formulate a number of initial strategic propositions (elements).

Both scholars and policy makers have acknowledged the importance, in the case of clusters, of providing the economies of many European countries with a competitive advantage, at least until recently. And European Union documents and programmes have always acknowledged the importance of clusters. In line with this approach, the first words of the CluStrat project summary are: 'Clusters are known to enhance innovation in businesses and are thus an accepted part of the innovation framework' (Doc 1, p. 4)[4].

On the other hand, the clusters we refer to are not able to face the challenges of even a single emerging industry alone. None of them, even the most advanced in terms of technology, business relations and research infrastructures, are able to do this. In fact, as underlined by the project summary of CluStrat, the emerging industries such as active ageing or sustainable development 'cannot be served without combining a variety of technologies, services and traditional sectors' (Doc 1, p. 4).

The starting point thus needs to be based on existing clusters, which are geographical concentrations of interconnected businesses and institutions in a specialized field[5] to aid the combination of complementary specialisations according to the emerging industries themselves.

In this way, CluStrat can offer an important framework to experiment one of the key concepts of the Europe 2020 policy framework, i.e. that of smart specialisation[6]. Indeed clusters represent a fundamental resource to design and implement smart specialisation strategies. More precisely, to ensure that this resource can be effectively used in the prospect of smart specialisation, the policy makers have to bring three types of action onto the field: using cluster mapping to identify regional competences and assets; support clusters to meet the objectives of smart specialisation; strengthen local and international cluster cooperation, in particular for addressing emerging industries[7]. A project moving in the same direction is TACTICS (within the PRO INNO Europe), acronym for Transnational Alliance of Clusters Towards Improved Cooperation Support. TACTICS, as in the case of CluStrat, involves initiatives of cross-cluster cooperation oriented to addressing emerging industries[8].

The strategic links between specialized clusters and emerging industries are obtained through cross-cluster cooperation. Given the intrinsically complex nature of the emerging industries, where key enabling technologies such as nanotechnology or advanced materials support new methods of producing and consuming goods and

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[4] Doc1: Application Form of the CluStrat Project.
[5] Porter, M.E. (1998), Clusters and the new economics of competition, *Harvard Business Review*, 76(6): 77–90.

[6] Council Conclusions on Innovation Union for Europe, 3049th Competitiveness Council Meeting, Brussels, 26 November 2010.
[7] European Commission, Guide to Research and Innovation Strategies for Smart Specialization (RIS 3), May 2012.
[8] TACTICS, Using Clusters to Address Emerging Industries and Services. Working Paper, October 2012.

services (Doc 2), this cooperation must also involve clusters specialized in advanced technologies and traditional clusters. The interaction of high-tech clusters and traditional clusters should therefore represent the central aim of each pilot project.

One of the cross-cutting issues identified by CluStrat is knowledge and technology transfer (Doc 3). However, when looking at the strategies for smart specialisation of clusters and cooperation between clusters from a cognitive perspective, the cross-cutting issue that really counts is much more far-reaching than simple transfer, assuming more a form of knowledge co-production. Under this profile, the actors (businesses and institutions) that develop a pilot project should thus create a community space, interacting with one another to share experiences and knowledge and to develop new knowledge and innovation. With regard to this, a reference model could potentially be the Knowledge and Innovation Communities (KICs) established under the European Institute of Research and Innovation (EIT)[9].

The reasoning behind this section highlights a further need for information, regarding the existence, in each of the CluStrat regions, of clusters classed within the range of sectors and technologies covered by the emerging industries, their main characteristics, and the presence of policies supporting these clusters on a regional (or national) scale.

Some elements may arise in the course of the presentations envisaged in the 2nd Transnational Policy Dialogue.

For each identified cluster (maximum three) the following information should be acquired:

- *the general nature of the cluster – whether high-tech cluster or traditional cluster, as well as the industrial (manufacturing) districts – and relative specialisation;*

- *the geographical context (regional or sub-regional);*

- *the presence or lack of a cluster management organisation, and its relative name;*

- *the insertion of the cluster in the mapping process of the European Cluster Collaboration Platform[10];*

- *a summary of the reasons why the cluster is a good candidate for experimenting the strategic path outlined by CluStrat, as part of a pilot project;*

- *the presence, on a regional (or national) level, of policies used/usable by the cluster, in particular regarding technological transfer, processes of innovation, networking and the internationalisation of businesses.*

2. Expanding the strategic framework

As outlined in the above section, the strategic framework is based on two key concepts of smart specialisation and cross-cluster cooperation, using existing clusters as a reference. These make up a rather heterogeneous setting, but for the purposes of CluStrat the most important distinction is that between traditional clusters and high-tech or key enabling technology clusters, as mentioned above. The first are normally within a quite limited territory (sub-regional clusters) and their specialisation is as a

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[9] http://eit.europa.eu/kics/
[10] http://www.clustercollaboration.eu/

manufacturing industry: the most emblematic example in the regions involved in the CluStrat project is represented by the numerous industrial districts of small to medium firms present in the Veneto region and in Friuli-Venezia Giulia. The second cluster types normally extend to the regional level, featuring specialisation in a particular advanced technology and the concurrence of large businesses and institutions engaged in producing and diffusing knowledge: for example, the region of Baden-Württemberg is described as a regional innovation system formed by clusters in this second category[11].

We now move on to expand the analytical and strategic horizons in four directions, all fully in line with the aims of the CluStrat project. More specifically this involves:

- taking into account not only existing clusters but also newly formed clusters;

- considering the participation of organizations which, even if not part of a cluster, still offer the competences relevant for the development of the cross-cluster cooperation initiatives;

- consideration that the cross-cluster cooperation initiatives may constitute the embryo for the formation of European clusters;

- thinking not only of the supply side but also of the demand side of emerging industries.

New clusters? As mentioned previously, the Guide to Research and Innovation Strategies for Smart Specialization, drawn up by a group of experts for the European Commission, assigns an important role to clusters. In particular, this document states: 'The use of clusters for smart specialisation may imply important political decisions regarding the development of new cluster initiatives or the use of existing ones. New cluster initiatives can be launched, provided that they are crucial for implementing the regional governments' visions and that will therefore be strongly supported in the future. Otherwise, new cluster initiatives should be avoided. Fragmentation and proliferation of cluster initiatives often leads to dispersion of forces and financial resources as well as to less cooperation and fewer synergies between them' (p. 67). With the aim of adhering to these guidelines, it is suggested that CluStrat provides the stimulus not so much for the creation of brand new clusters, but rather the formation of regional clusters stemming from existing sub-regional clusters, and potentially from businesses and 'isolated' institutions located in the territory of this region. These regional clustering projects have an important strategic meaning for CluStrat, as the regions involved increase their capacity to actively participate in cross-cluster (transnational) cooperation initiatives, in view of the emerging industries selected by Clustrat. If a certain regional clustering project meets this condition, it may become partner of a pilot project.

With this in mind, it would be necessary to know which CluStrat regions are involved in regional clustering projects that remain in line with the aims of CluStrat.

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[11] Cooke P. and Morgan K. (1994), The Regional Innovation System in Baden-Württemberg, *International Journal of Technology Management*, 9(3-4): 394-429.

To clarify the point on regional clustering with reference to a specific emerging industry, we propose an example from the Veneto region. Veneto has plenty of manufacturers that produce durable goods for the home; part of them are located in industrial districts: two furniture-makers districts (respectively in the province of Verona and in the province of Treviso) and the so-called 'Inox Valley' in the province of Treviso, which specialises in the production of home appliances. A relevant part of these businesses are devoting a great deal of attention and efforts to improving the environmental sustainability of their processes and products. These businesses and districts could be arranged in a regional cluster dedicated to sustainable living, which in turn can participate in initiatives for transnational cooperation dedicated to sustainable development and active ageing. A regional law currently discussed at the Veneto Regional Council encourages the formation of regional innovation clusters such as those described above.

Key enabling actors. If it is true to say 'no business is an island'[12], it is also true that not all businesses or institutional actors are in clusters. This basic truth means that we need to check for the existence of actors who can play significant roles in the cross-cluster cooperation to be promoted by CluStrat, by virtue of the knowledge and skills they possess, even if not currently operating in a particular cluster. These actors should be involved in the pilot projects in relation to their specific areas of competence. Here we are thinking above all of research infrastructures and excellence centres specialised in one of the key enabling technologies associated with the emerging industries. The key enabling technologies identified by CluStrat are the same ones that the European Commission selected in its 2009 Communication 'Preparing for Our Future: Developing a Common Strategy for Key Enabling Technologies in the EU':

- nanotechnology,
- micro-nanoelectronics,
- advanced materials,
- photonics,
- industrial biotechnology, and
- advanced manufacturing systems.

In consideration of the issues arising from the presentations of partners during the TPD in Katowice further details may be requested on the presence, in regions participating in CluStrat, of organisations with the characteristics described (who could be referred to as 'key enabling actors'), regardless of their location in a cluster.

Towards European clusters? The experiences of cross-cluster and transnational cooperation activated in CluStrat pilots may also constitute the embryo for the formation of clusters on a European scale, or of meta-clusters, to use a concept introduced in another project of the European Regional Development Fund, i.e.

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[12] Håkansson H. and Snehota I. (1989), No business is an island: the network concept of business strategy, *Scandinavian Journal of Management*, 5(3): 187-200.

Alps4Eu[13], where a meta-cluster is defined as 'a trans-regional network of cluster initiatives, which focus on the same or complementary specific technological field or sector. A meta-cluster consists of at least three cluster initiatives in three different regions'. In the case of CluStrat, the factor that would hold together the clusters of a meta-cluster is an emerging industry or a narrower segment of an emerging industry.

Following the route indicated, two levels are clearly identified in the definition of the strategies focussing on clusters, and of the public policies, in particular:

- the European Union level, where the measures aimed at boosting cross-cluster cooperation and the formation of smart meta-clusters (transnational clustering) are to be adopted;

- the regional level, where the regional government bodies should make use of the existing tools (if any) or prepare new ones to boost smart specialisation of existing clusters and the formation of smart regional clusters (regional clustering).

The prospect of meta-clusters also leads us to consider the cross-cutting issue of internationalisation in its entirety. On the one hand, internationalisation is an essential leverage just because cross-cluster cooperation is transnational and therefore has foundations in enterprises and institutions that are able to interact on a transnational scale. On the other hand, the development of meta-clusters should strengthen the competitive position of Europe and its regions in the emerging industries, on a global scale.

The supply side and the demand side of emerging industries. In one of the founding texts of CluStrat emerging industries are defined as those sectors 'which are most likely to come in the near future or are even already seen to develop. Those emerging sectors or industries are a reaction to challenges of society. The trend in society is visible, but the industrial and service sectors have not yet exploited it. Thus, it needs to emerge to exploit the market opportunities already visible. This means there is a clear potential seen for new products and services, and policy looks for instruments to actively strengthen the existing potential to play a major part in those emerging industries' (Doc 2, p. 3). This definition leads to the acknowledgement that the emerging industries are frontiers of innovation, featuring high levels of complexity due to the range of problems and needs to be dealt with. Within this scenario and also bearing mind the specific nature of the emerging industries of Clustrat – i.e. active ageing, sustainable economy and sustainable mobility – an important factor is the set-up of contexts (territories) for experimentation and experience in which the innovative competences of producers of goods, services and technologies, the 'voice' and the behaviour of users and consumers, and the functions of the policy makers in those territories may converge and cooperate.

We maintain that integrating the perspective of the supply side with that of the demand side will constitute a highly qualifying element of CluStrat. In concrete, this means conceiving the transnational cooperation to be developed in the pilot projects so that the two perspectives co-exist and may interact with one another. This may also lead to

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[13] Alps4Eu is co-financed by European Territorial Cooperation Programme 'Alpine Space' 2007-2013 and coordinated by the Piedmont Region – Directorate of Industry and Productive Activities.

the involvement in a given pilot of one region (or part of the latter) not because it is a host to clusters deemed appropriate for this specific pilot on the basis of specialized products, services or technologies, but because it represents an especially suitable territory under the profile of demand, i.e. a context in which clusters' producers (from other regions), local users and local policy makers can interact and work together on the innovative frontier of an emerging industry.

This integrated perspective has interesting implications, regarding at least two cross-cutting issues. With regard to the knowledge issue, if the pilots are to represent the opportunity to create knowledge communities – as hypothesised above – then the insertion of demand subjects expands the community and empowers the cognitive processes developed within. Finally, as regards diversity (in a wide sense, even beyond the – still important – gender issue), it becomes a strategic leverage for CluStrat to the extent that its potential value is recognised and used in the pilot projects under two aspects:

a. diversity of people is a resource for both the enterprises and institutions that are involved in the various emerging industries (supply side), a resource that is widely neglected, as we can ascertain from the last summary report produced in WP4 (Doc 6);

b. knowledge of diversity of consumers and users and their involvement stimulate the design of innovative solutions in every emerging industry and increase the probability that these solutions are achieved successfully (demand side).