

## **“SLOVENIA – NATIONAL REPORT”**

### **Project Clustrat, WP 6**

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**Za:**

SPIRIT Slovenija, javna agencija

Dimičeva 13

1000 Ljubljana

*Ljubljana, September 2014*

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## 1 BACKGROUND

The CLUSTRAT project aims to provide policy framework to support the development of emerging industries by enhancing the innovation capacity and competitiveness of the clusters in the Central Europe area. The aim is thus to develop policies that enable existing clusters in established or emerging branches and technologies to exploit new markets. To achieve this, Key Enabling Technologies (KET) and Emerging Industries (EI) have to be cross-linked with the established and traditional technologies / industries. CLUSTRAT builds on the idea that clusters can play an important role to facilitate innovations and contribute to development of industrial sectors to exploit today's emerging markets. They are also ready to take the next step and get ready for future innovation.

CLUSTRAT partners have initiated a systematic policy dialog at regional, national and transnational level. Experts workshops for in-depth assessment of the potentials related to emerging industries and cross-cutting issues in the Central Europe regions have been implemented. Regional and cross-cluster / interregional pilot actions have been implemented in order to test cross-cluster collaboration and other ways of cross fertilization between traditional and emerging industries clusters and to test the proposed strategy elements in practice. Pilot Actions have been evaluated on the basis of Template for Pilot Action Evaluation and present the basis for the development of Joint Action Plan for particular area of emerging industry. The National chapter related to the Join Action plan was drafted to provide policy recommendations for national level.

## 2 INTRODUCTION

The new cluster concept developed under the CLUSTRAT scheme is of a high importance for Slovenia as it provides key elements needed to support the development of emerging industries. The experiences and lessons learned from CLUSTRAT could serve Slovenian policy makers as a guide in the formation and design of effective policy mix and to catch up with the developments on cluster policy in Central Europe and beyond.

The gaps in Slovenia in regard of development of new industries have been identified not so much in the technology areas but rather with innovation support that would effectively facilitate commercialization of new knowledge in terms of new products, services, new firms and value chains. The limitation in scope derives partly from policy tendency to see innovation as investment in science, rather than entrepreneurship, from too much focus on invention rather than on wide commercial application and also from inconsistency and incoherency of industrial, research and innovation policies. The lack of strategies and implementation plans with specific and clearly prioritized actions make it more difficult to create an environment in which clusters can thrive. The pending Smart Specialization Strategy is expected to address these challenges.

Promotion of clustering, cooperation between academia and industry, has been high of agenda in Slovenia since last 15 years but were implemented through different policy programs and measures. Constant changing of program focus and implementing measures is seen as the main weakness, which resulted in less favorable results. Direct support for clusters was only offered for the period of four years (2000-2004), which did not allow all initiatives to achieve the level of sustainability. Only 5 of 29 clusters supported during this period are still operating. Instead, new groups and forms of cooperation were further

developed (Centers of excellence and Competence Centers). They mainly invested in key enabling technologies and competences needed to apply new technologies, development of new products and markets but action which can bring innovations to market by partnering with the private sector, including VCs to help them start new companies and established enterprises to jointly develop and commercialize new ideas, was missing. As clustering program before, program to support CE and CC was limited to only 4 years.

One notable impact of above-mentioned issues is that **cluster dynamic was hampered**. Clusters and networks created are in many cases sectorial oriented, **dominated by large firms, they are limited to existing value chains and their leaders. Stronger involvement of SMEs, creative and business services and hence an entrepreneurial focus is missing**. Operation linkages between clusters with CE, CC were not developed in scale necessary for commercialization of their knowledge. Consequently, inter-firm and institutional networks, which facilitate the availability of economic and non-economic resources for firm creation and entrepreneurial dynamism, practically do not exist. Consequently, **the involvement of Slovenian clusters, industry and SMEs in global networks and value chains is weak**. There is a **gap in predictable leadership and competences of cluster organizations to play a key role to facilitate the creation of new value chains** in required speed for the transition between the emerging market / technology needs and the related solutions in terms of product / services. Network effect in term of a large and fluid community of technologists, entrepreneurs and VCs who share ideas as they move from company to company - as founders, employees, managers, board members or investors, is only emerging.

Slovenian Smart Specialization Strategy revealed 5 priority action areas, namely: Industries 4.0., Smart Cities, Smart Homes, Smart use of resources, and Health. This implies better capitalization on all forms of creativity, capitalizing on the ICT and other multifunctional technologies, focus on transformative power of innovation and exploration of global knowledge. The development concept is based on mastering the underlying digital technologies and those KETs where Slovenia possesses knowledge and critical mass for global success, and then turning them into practical applications. In this concept the role of KETs is mainly no longer found in creating the technologies, but in their applications and transformational impact on industry and companies, in particular those industries that use KETs extensively and wisely. Some of the greatest opportunities for innovation, productivity, job creation and economic growth can now be found **as KETs shall be applied to problems in the marketplace and society at large**. For Slovenia this includes sustainable energy, mobility, construction, resource efficiency, food and environment. The process could be driven by Key enabling actors (for example Centers of Excellence, Competence Centers) but there is a strong need to assure that innovations come from those with expertise in industrial applications and processes, who then reach into the pool of emerging technologies to transform the products, services and means of production in their particular industry. This is an excellent opportunity for Slovenian clusters to develop a position in emerging industries rather than remain in traditional and declining ones. **The coordination and mainstreaming of actions** of Slovenian KETs, clusters and other forms of cooperation between academia and industry becomes the main issue when implementing the Smart specialization strategy.

**The challenges that Slovenian policy makers are facing in this matter relate to how to revitalize the cluster policy, to best support development of emerging industries.** More specifically, it calls on Slovenian policy makers to lead the development by supporting an active role of cluster organizations, as they can act as drivers of value chain transformation and facilitators of development of new emerging ones.

### 3 POLICY RECOMMENDATIONS

Policy recommendations take into account the New Cluster Concept, which encompasses key enabling actors, cluster organizations, smart specialization and trans regional cooperation and emerging industry. All of them are of critical importance for Slovenia to better exploit the potential of emerging industries using the comprehensive cluster policy approach. Key policy measures, recommended for Slovenian policy makers are structured in four groups, namely:

1. Improving frameworks conditions for clusters in emerging industries
2. Enhancing entrepreneurship and SMEs involvement in emerging industries through cluster initiatives
3. Enabling cluster organizations to develop and provide new business support services needed for emerging industries and promote cluster excellence development
4. Improving policy dialog among clusters and policy makers

Brief descriptions of each group of policy measure, with only a few proposals of activities, are presented below. This should serve as a base for the creation of comprehensive Slovenian cluster policy, which should be prepared in a wide dialog among private and public stakeholders and policy makers in Slovenia in the near future.

#### 1. IMPROVING FRAMEWORK CONDITIONS FOR CLUSTERS IN EMERGING INDUSTRIES

There is a need to consolidate initiatives and policy measures and adapt them to the most crucial need of emerging industries - **need for cross linkages across sectors/clusters/regions and ministries.**

Therefore **strengthening coordination and cross regional and international cooperation** is one of the most important policy measures for the efficient development of emerging industries in the country.

##### A. Strengthening coordination and cross regional and international cooperation by:

- a. **Introducing an Open space collaboration platforms.** Activities shall focus on establishment of an open space platform in the field of Smart Specialization Strategy. The goal is to promote cross-sectorial spillovers that foster the development of emerging industries and to provide opportunities for mutual, national and international learning for developing new cluster concepts and new collaboration models needed to exploit these emerging industries in a best possible way.
- b. **Further vertical integration of existing KEAs** in Slovenia, which are operating in the related technological fields in order to assure synergies and speed up of development of new value chains in emerging industries.
- c. **Technology bridges** with selecting regions to provide complementary and synergies within the fields defined in Smart Specialization Strategy. Technology bridges provide framework to foster clusters and KEAs internationalization activities, provide framework to promote cross-sectorial, cross clusters, cross technologies activities needed to address sociality challenges, support movements of students, experts, engineers and entrepreneurs across borders.

## B. Developing new support mechanisms and financial schemes to support cross linkages

Government should increase support for new cross-sector linkages driven by clusters and cluster organizations by:

- a. **Developing a new clustering program.** Action includes mapping of value chains, clusters, KEAs and linkages among them, which shall indicate those actors that have the capacity and ambitions to be an active player in the Smart Specialization Strategy implementation. The program shall make use of those actors that encompass different actions and useful tools for companies, especially the emerging industries. They shall play a critical role in increasing the number of SMEs and enlarging the regional scope of initiatives and driving the development of plans and business models in respective fields of Actions. Further, their role is also foreseen in developing competences by initiating proactively the development of training schemes for their members, should identify the future needs of the industry and should develop new skills for new jobs in the future. Moreover, they should develop cross-cluster, cross-sectorial, trans-regional awareness building.
- b. **Introducing of new financial schemes** for supporting the cross linkages, cooperation and vertical integration within new value chains. Financing should not be based on a single project but on a value chain approach. Cluster organizations, as neutral intermediaries, could receive financing to create an open environment where entrepreneurs participate. New kinds of contracts should be designed to make it possible to fund a cluster/ network of companies. Private-public partnerships should be encouraged for financing clusters in emerging industries, especially when the cluster is already developed.
- c. **Setting up cluster agency** to support development of emerging industries in Slovenia, to provide continuation of CLUSTRAT within Danube region strategy and to pave the way to active role of Slovenian clusters, industry, SMEs in CEE, EU and global networks.

## 2. ENHANCING ENTREPRENEURSHIP AND SMES INVOLVEMENT IN EMERGING INDUSTRIES THROUGH CLUSTER INITIATIVES

Emerging industries are in many cases solutions for societal challenges. Innovations are disruptive and by transformative power they are transforming existing value chains and shaping new ones with the increased speed of change. They emerge in the interface between branches and knowledge areas. The new value chains are much more needs driven than sector driven. Entrepreneurship plays a crucial role, since it is critical for the creation of value through the discovery of business opportunities, risk management and mobilization of knowledge and other resources. Entrepreneurship is therefore a driving force behind emerging industries and of economic restructuring away from the production of old products and services with low value added, obsolete technology, obsolete organizational capabilities. It is a driving force of innovation, a vehicle of new value chain creation and a vehicle of restructuring of the traditional one.

### A. Entrepreneurial education to ensure the development of new value chains

In order to ensure that the new value chains in emerging industries benefit from the best human resources and skills, the entrepreneurial and innovation culture at all levels in the society is needed. Entrepreneurial education should be encouraged, especially for young people, as well as specific programs aimed at supporting company spin-offs and developing specific knowledge.

## B. Clusters to boost entrepreneurship

Cluster networks are essential factor of embeddedness of local entrepreneurship. They are important links for new start-ups in finding the necessary resources for starting a business at their early growth stage, as they contribute to the development of a solid regional innovation system, and environment fostering entrepreneurial growth within the cluster. They increase the perception of opportunities; they facilitate the transfer of necessary resources to entrepreneurs to exploit these opportunities, encouraged by the role models within the cluster. Therefore the government shall create an environment for the cluster networks that will allow them to promote the entrepreneurship, needed in emerging industries.

### 3. ENABLING CLUSTER ORGANIZATIONS TO DEVELOP AND PROVIDE NEW BUSINESS SUPPORT SERVICES NEEDED FOR EMERGING INDUSTRIES AND SUPPORT CLUSTER MANAGEMENT EXCELLENCE

#### A. Support cluster organization by development of new business services for their members

Clusters have to play a major role as change agents in the development of new value chains in emerging industries. They should develop a strategic vision on the process and be able of positioning of the process at international level. In this perspective, cluster organizations should be able to work with open innovation in an international perspective. Cluster organizations should identify specific open innovation initiatives and be supportive of the process. They should focus on facilitating the emergence of strategic initiatives responding to the strategic challenges of the clusters. The government should support cluster organizations by building their capacity and capability to provide the business support services for their members, especially for SMEs.

#### B. Support Cluster Management Excellence

New kinds of excellence of cluster managers and excellence of clusters need to be developed and promoted. Managers at cluster level have to be excellent in creating new international linkages that provide added value to the companies. The following actions are considered to professionalize the management of clusters in emerging industries. Due to the national context the cluster management excellence includes also Centers of Excellence, Competence centers.

- a. **Mapping and evaluation of cluster organizations** to establish operational linkages with KEAs and to renovate strategies to make them active in the filed of emerging industries.
- b. **Establish cluster-labeling schemes.** This can be implemented in order to help the cluster organizations meet new competence and new cluster excellence standard/rules. The methodology of the European Cluster Excellence Initiative should be used as a basis for further development. Methodology offers benchmarking with peers across Europe and

shall bring obligatory, long time missing, international aspect in drivers of innovation in Slovenia.

- c. **Design tailor made coaching in developing new international linkages** to help the cluster organization achieve the new cluster excellence standard/rules. Cluster managers shall be enabled to offer new business services for their members, which are adapted to the need of emerging Industries.

#### 4. Improving policy dialog among clusters and policy makers

Cluster organizations play an important role for implementation of policies. Cluster organization, as well as KEAs, shall be motivated to work closer with regional policy makers or actors of the Triple Helix in order to better support them in implementing Smart Specialization strategy.

Often they are more interested in receiving funding rather than really supporting policy makers in realizing policy goals. Thus, it is recommended to better involve cluster organizations and KEAs in implementing strategies. This also means that they shall be involved already during the policy making process.

## 4 FURTHER INFORMATION

- <http://www.spiritslovenia.si/>
- <http://www.mgrt.gov.si/>
- <http://www.podjetniski-portal.si/>

#### For Advanced Materials:

- [http://www.semto.si/upload/13256664484f041090d5f4a\\_Obvestilo\\_7.pdf](http://www.semto.si/upload/13256664484f041090d5f4a_Obvestilo_7.pdf)
- [http://fl.uni-mb.si/lab-emb/?page\\_id=20](http://fl.uni-mb.si/lab-emb/?page_id=20)
- <http://www.elektroniki.si/novi/forum/download.php?id=12360&sid=71fa3c53362e6d241dcd58e3ddca7522>
- <http://www.namat.si/>
- <http://www.imamidejo.si/dogodki/2012-03-13-Posvet-Napredni-materiali-in-nanotehnologije>

#### For Ambient Assisted Living and Zero Energy Buildings:

- <http://www.projekt-gt.si/pametna-hisa/>
- <http://www.kcstv.si/medijsko-sredisce/vabilo-k-obisku-doma-na-dlani-na-sejmu-dom-v-ljubljani/>
- [http://www.kcstv.si/medijsko-sredisce/vabilo-k-obisku-doma-na-dlani-na-sejmu-dom-v-ljubljani/"www.netichome.com"](http://www.kcstv.si/medijsko-sredisce/vabilo-k-obisku-doma-na-dlani-na-sejmu-dom-v-ljubljani/)
- [http://www.kcstv.si/wp-content/uploads/2014/01/2-ns22\\_goap\\_e-storitev\\_SI.pdf](http://www.kcstv.si/wp-content/uploads/2014/01/2-ns22_goap_e-storitev_SI.pdf)
- <http://www.kcstv.si/tipresitve/vodenje-inteligentnih-objektov-sosesk-in-mest/>
- <http://www.tvp.si/index.php?id=184>
- <http://www.deloindom.si/energjska-ucinkovitost/dnevi-odprtih-vrat-ta-vikend-na-ogled-pasivne-skoraj-nicenergjske-hise>

## 5 CLUSTRAT (INTERNAL) ANALYSIS

- desk research and interviews from mapping process (WP4) and
- conclusions from all three national policy dialogues (WP3)

## 6 OFFICIAL SOURCES

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- Dr. Kotnik P. (Januar 2013): Analiza sektorjev in RR dejavnosti za namen identifikacije področij pametne specializacije ([http://www.podjetniski-portal.si/resources/files/doc/Analiza\\_Clustrat\\_Kotnik.pdf](http://www.podjetniski-portal.si/resources/files/doc/Analiza_Clustrat_Kotnik.pdf))
- Slovenska industrijska politika (December 2012) ([http://www.mgrrt.gov.si/nc/si/medijsko\\_sredisce/novica/article//8924/](http://www.mgrrt.gov.si/nc/si/medijsko_sredisce/novica/article//8924/))
- ARRS (2012): Poročilo o delu za leto 2011 (<http://www.arrs.gov.si/sl/finan/letpor/11/inc/ARRSporocilo2011.pdf>)
- OECD (April 2013): OECD Economic surveys – Slovenia ([http://www.oecd.org/eco/surveys/Overview\\_Slovenia.pdf](http://www.oecd.org/eco/surveys/Overview_Slovenia.pdf))
- National reform programme 2013-2014 (May 2013) ([http://www.mf.gov.si/fileadmin/mf.gov.si/pageuploads/docs/Razvojni\\_dokumenti/20130510\\_NRP\\_2013\\_ENG.pdf](http://www.mf.gov.si/fileadmin/mf.gov.si/pageuploads/docs/Razvojni_dokumenti/20130510_NRP_2013_ENG.pdf))
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- SURS (Julij 2013): website information (<http://www.stat.si/eng/index.asp>)
- European Commission (2013): European Innovation Scoreboard
- IMAD (2013): Spring forecast of economic trends ([http://www.umar.gov.si/fileadmin/user\\_upload/publikacije/aanaliza/aspomladanska2013/a\\_PNGG\\_13.pdf](http://www.umar.gov.si/fileadmin/user_upload/publikacije/aanaliza/aspomladanska2013/a_PNGG_13.pdf))
- Slovenian intellectual property office (SIPO) (2012): Annual report 2011 ([http://www.uil-sipo.si/fileadmin/upload\\_folder/URSIL-SIPO\\_LP-AR\\_2011.pdf](http://www.uil-sipo.si/fileadmin/upload_folder/URSIL-SIPO_LP-AR_2011.pdf))