

Clustering for Competitiveness

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Abstract: Competitiveness is the ability of a company or institution to deliver better value to customers than the competitors. Clusters are systems of interconnection between private and public sector entities (firms, institutions). It usually comprises a group of companies, suppliers, service providers, associated institutions like testing and quality standard institutions, education institutions, vocational training schools, trade companies/distributors/associations in a particular field, linked by externalities and complementarities. In our economy competitiveness depends on productivity. Productivity means how the firms compete on a particular field. Companies can be highly productive in their industrial branch if they use sophisticated technology, production methods, and offer unique products and services. As Porter presented, clusters affect the competition by increasing competitiveness of companies acting in their area.

Keywords: competitiveness, cluster, global competitiveness index, European Cluster Panorama, emerging industries, CEE Cluster Network

Motto:

“National prosperity is created, not inherited.
It does not grow out of a country’s natural endowments, its labour pool,
its interest rates, or its currency’s value, as classical economic insists.
A nation’s competitiveness depends on the capacity of its industry to innovate and upgrade.”

1 Competitiveness

1.1 Definition

The concept of competitiveness has numerous interpretations of its core issues. Definition of competitiveness is vary from ability of nations to provide favourable environment to firms to prosper and develop, economies to achieve GDP providing high level standards to population, maintain sustainable economic growth, ability of regions, companies and institution to safeguard the environment with lowest level of ecology footprint. The box below contains various definitions regarding competitiveness.

DEFINITION OF COMPETITIVENESS

The **Global Competitiveness Report** defines **competitiveness** as the set of institutions, policies and factors that determine the level of productivity of an economy, which in turn sets the level of prosperity that the country can achieve.

Competitiveness is the ability of a nation or a firm to offer products and services that meet the quality standards of the local and world markets at prices that are competitive and provide adequate returns on the resources employed or consumed in producing them.

At the level of the economy, competitiveness refers to the capacity of a nation or region to provide its citizens with a sustained increase in living standards with jobs available for those willing to work.

SEC(2009) 1657 'Commission staff document

Competitiveness of enterprises is a narrower, but closely related concept referring to the ability of firms to sustain and gain in market share through their cost and pricing policy, innovative use of production factors, and updates to product characteristics.

European Commission

http://ec.europa.eu/growth/industry/competitiveness/proofing/index_en.htm

Global competitiveness is The existence of competing organizations that serve international customers. Access to global customers has increased through enhanced communications, improved shipping channels, reduction of barriers, and centralized finance authorities.

BusinessDictionary.com
<http://www.businessdictionary.com/definition/competitiveness.html>

The competitiveness analyses how nations and enterprises manage the totality of their competencies to achieve prosperity or profit.”

World Competitiveness Yearbook

The competitiveness “... analyses the facts and policies that shape the ability of a nation to create and maintain an environment that sustains more value creation for its enterprises and more prosperity for its people.”

Academic definition highlighted by the IMD World Competitive Center

Competitiveness is the ability of a country to facilitate an environment in which enterprises can generate sustainable value.

IMD World Competitive Center

Competitiveness is the ability of a company or institution to deliver better value to customers than the competitors.

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1.2 Global competitiveness index

In recent years, the concept of competitiveness has emerged as a new paradigm in economic development. Competitiveness captures the awareness of both the limitations and challenges posed by global competition, at a time when effective government action is constrained by budgetary constraints and the private sector faces significant barriers to competing in domestic and international markets. The **Global Competitiveness Report** of the **World Economic Forum** defines competitiveness as "*the set of institutions, policies, and factors that determine the level of productivity of a country*".

For more than three decades, the World Economic Forum's annual Global Competitiveness Report has studied and benchmarked the many factors underpinning national competitiveness. From the onset, the goal has been to provide insight and stimulate discussion among all stakeholders about the best strategies and policies to help countries to overcome the obstacles to improving competitiveness. In the current economic context, this work is a critical reminder of the importance of sound structural economic fundamentals for sustained growth. Since 2005, the World Economic Forum has based its competitiveness analysis on the Global Competitiveness Index (GCI), a comprehensive tool that

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measures the microeconomic and macroeconomic foundations of national competitiveness.

The concept of competitiveness includes static and dynamic components. Many factors influence and drive productivity and competitiveness. Investment in physical capital and infrastructure alone is not sufficient today. In more recent years the good governance, macroeconomic stability, education and training, R&D become as important as the capital and infrastructure investment.

The World Economic Forum takes into consideration 12 component – called pillars - while calculates GCI. The Index includes a weighted average of many different components, each measuring a different aspect of competitiveness.

The 12 pillars are organized into three subindexes, each critical to a particular stage of development. These subindexes are the following:

The basic requirements subindex groups those pillars most critical for countries in the factor-driven stage.

- Institutions
- Infrastructure
- Macroeconomic Stability
- Health and Primary Education

The efficiency enhancer's subindex includes those pillars critical for countries in the efficiency-driven stage.

- Higher Education and Training
- Goods Market Efficiency
- Labour Market Efficiency
- Financial Market Sophistication
- Technological Readiness
- Market Size

The **innovation and sophistication factors subindex** includes the pillars critical to countries in the innovation-driven stage.

- Business Sophistication
- Innovation

The components are expressed and presented on a 1-7 scale (higher average score means higher degree of competitiveness).

The three subindexes are shown in Figure 1.

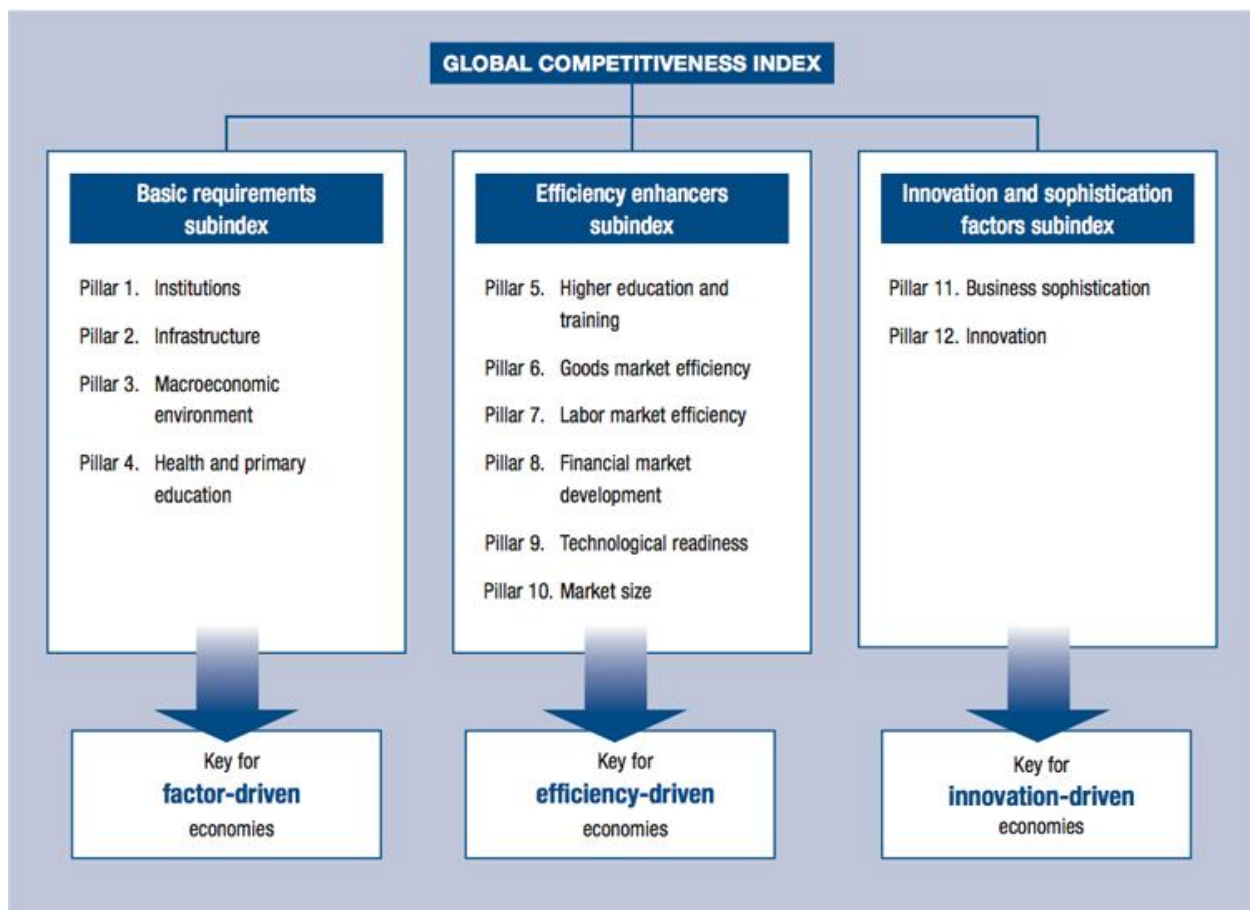


Figure 1

The Global Competitiveness Index framework

Source: World Economic Forum: Methodology – The 12 Pillars of competitiveness
<http://reports.weforum.org/global-competitiveness-report-2014-2015/methodology/>

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RANK	COUNTRY	SCORE	PREVIOUS RANK
1	SWITZERLAND	5.76	1
2	SINGAPORE	5.68	2
3	UNITED STATES	5.61	3
4	GERMANY	5.53	5
5	NETHERLANDS	5.50	8
6	JAPAN	5.47	6
7	HONG KONG	5.46	7
8	FINLAND	5.45	4
9	SWEDEN	5.43	10
10	UNITED KINGDOM	5.43	9

Table 1
The top 10 economies in the year of 2015

Source: The Global Competitiveness Report 2015-2016. Rank out of 140 countries [1]

RANK	COUNTRY	SCORE	PREVIOUS RANK
30	ESTONIA	4.74	29
31	CZECH REPUBLIK	4.69	37
36	LITHUANIA	4.55	41
41	POLAND	4.49	43
43	RUSSIA	4.44	53
44	LATVIA	4.45	42
53	ROMANIA	4.32	59
54	BULGARIA	4.32	54
59	SLOVENIA	4.28	70
60	MACEDONIA, FYR	4.28	63
63	HUNGARY	4.25	60
67	SLOVAKIA	4.22	69
77	CROATIA	4.07	77
93	ALBANIA	3.93	87
94	SERBIA	3.89	94

Table 2.
15 economies in CEU & SEE in year of 2015

Source: The Global Competitiveness Report 2015-2016. Rank out of 140 countries [2]

The ranking in absolute term does not reflect the total picture of a country. The world's three most competitive economies - Switzerland, Singapore, and the United States - score well in the vast majority of these indicators. Switzerland leads the ranking in GCI for the seventh consecutive year. According to the 2015 World Economic Forum „Switzerland leads the innovation pillar, thanks to its world-class research institutions (1st), high spending on research and development (R&D) by companies (1st), and strong cooperation between the academic world and the private sector (3rd). But many other factors contribute to Switzerland's innovation ecosystem, including the level of business sophistication (1st) and the country's capacity to nurture and attract talent. Switzerland boasts an excellent

education system at all levels and is a pioneer of the dual education system. The labour market is highly efficient (1st), with high levels of collaboration between labour and employers (1st) and balancing employee protection with flexibility and business needs. Swiss public institutions are among the most effective and transparent in the world (6th), and competitiveness is further buttressed by excellent infrastructure and connectivity (6th) and highly developed financial markets (10th). Last but not least, Switzerland's macroeconomic environment is among the most stable worldwide (6th) at a time when many developed countries continue to struggle in this area."

It is remarkable, that Russia improved its ranking by eight steps preceding majority of the CEE countries. In spite of the EU economic sanction against Russia the country improves on some market efficiency aspects, such as the regulatory business environment and domestic competition (96th), reflecting the government's efforts to improve domestic conditions for doing business. Import tariffs have been significantly reduced as an effect of Russia's accession to the World Trade Organization in 2012.

From the new EU countries the Baltic countries are doing better than other CEE. Estonia (30th) takes the lead followed by Lithuania (36th). Poland (41st) and Romania (53rd) takes the second position in the region improving their position by two respectively six position.

1.3 Europe 2020 Competitiveness Index

In early 2000s, Europe faced a moment of transformation. The crises slowed down the economic and social progress attracting structural weaknesses in Europe's economy. Parallel with this the globalisation has been intensified and Europe was forced to take decision and take up the gauntlet with global challenges. In 2010, the European Commission proposed the Europe 2020 strategy, which sets out the vision for Europe's social market economy for the 21st century. [3]

According to this strategy, EU has to be transformed into a „small, sustainable and inclusive economy, delivering high levels of employment, productivity and social cohesion."

At the heart of the competitiveness is the level of productivity of an economy. Only competitive economies could provide high living standards. At the same time these economies have to be sustainable, that means meeting the needs of the present generation and safeguard the resources for the future generation.

The World Economic Forum has been studying the Europe's competitiveness, the Lisbon strategy and its failures, and cooperated to the European Commission in elaboration of „The Europe 2020 Competitiveness Report on Building a More Competitive Europe" [4]

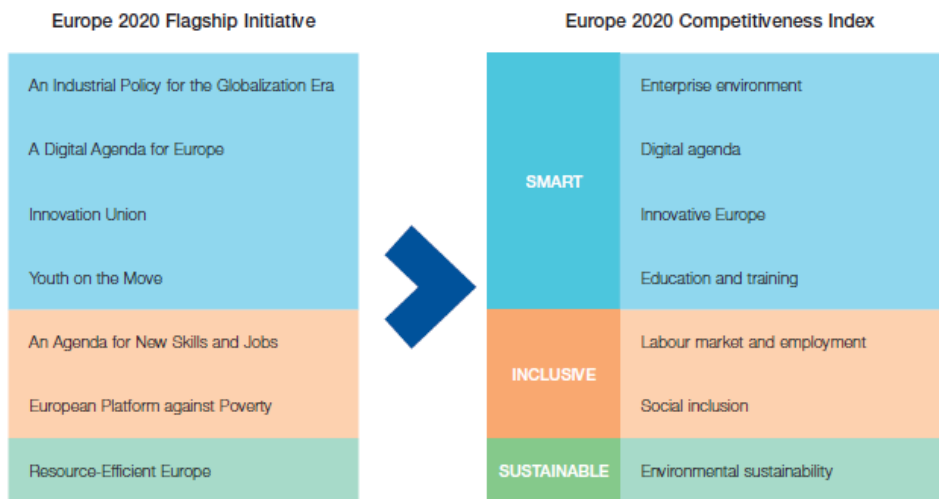


Figure 2
The Europe Competitiveness Index framework

Source: World Economic Forum, 2014.

The Europe Competitiveness Index (see Figure 2.) composed seven pillars: enterprise environment, digital agenda, innovative Europe, education and training, labour market and employment, social inclusion and environmental sustainability. Each pillar has the same weight in the overall index score. [5]

The seven pillars are organized across three sub-indexes:

- Smart growth: composed of the enterprise environment, digital agenda, innovative Europe, as well as education and training pillars;
- Inclusive growth: composed of the labour market and employment, and social inclusion pillars; and
- Sustainable growth: composed only of the environmental sustainability pillar.

Comparing the performance of the EU Member States, a significant gap exists between the so called „innovative rich” and „innovative poor” economies. Important national and regional disparities exist in creating an enabling entrepreneurial and innovative environment in Europe, with advanced Northern and North-Western European countries and the lagging CEE and SEE countries. Highly competitive markets, well-developed clusters and sustainable entrepreneurial environment in one-side, while continuously changing legislation

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and high taxes on the other side shows the difficulties in catching up to the leaders. The competitiveness divide requires differentiated strategies for national economic development programmes.

COUNTRY	RANK (out of 28)	Score (1-7)	RANK in 2012 (out of 27)
Finland	1	5.70	2
Sweden	2	5.55	1
Netherlands	3	5.41	4
Denmark	4	5.32	3
Germany	5	5.28	6
Austria	6	5.16	5
United Kingdom	7	5.13	7
Luxemburg	8	5.07	8
Belgium	9	4.93	9
France	10	4.81	10
Ireland	11	4.75	12
Estonia	12	4.74	11
Spain	13	4.47	15
Malta	14	4.44	18
Portugal	15	4.44	14
Slovenia	16	4.43	13
Lithuania	17	4.38	20
Czech Republic	18	4.33	16
Latvia	19	4.32	19
Cyprus	20	4.22	17
Italy	21	4.05	21
Poland	22	3.97	23
Slovak Republic	23	3.91	22

Croatia	24	3.87	n.a.
Hungary	25	3.83	24
Greece	26	3.79	25
Bulgaria	27	3.75	27
Romania	28	3.65	26
EU28 average		4.56	

Table 3
Ranking and Score of EU Member States in 2012 and 2014

Source: Findings from the Europe 2020 Competitiveness Report 2014 Edition

Remark: (i) The bold letters show the new EU member States; (ii) n.a. means not available

Analysing the competitive divide a special attention should be devoted to disparities in the field of training and education. In the old EU countries, like Finland, Ireland, Germany and the Netherlands the populations do well in education and training; this is not the case in SEE and CEE. In the Nordic EU Member States more than 80% of the youth following the secondary school are engaged in tertiary education – mainly in industrial schools, only 65% of the young people in doing the same in CEE. The German vocational system is an outstanding one in this comparison. The quality of education and the ability of the education in providing the necessary skills to find gainful employment is crucial in competitiveness of a nation.

The innovation and the creative thinking is another important pillar of a national competitiveness. In this regards, the regional disparities are even higher as compared with education, ranging from 2.88 in Romania (in the 28th rank) to 6.06 in Finland (in the 1st rank). This finding reflected also in the Programme for International Student Assessment (PISA) benchmarking, an assessment including 34 OECD countries and 31 partner countries, representing 80% of the world economy.

2 Clusters for competitiveness

2.1 Definition of clusters

The cluster-based approach is a new way of organizing and dividing the economy. **There is no real adequate definition on what a cluster is.** The two famous examples of cluster are the US Silicon Valley with high-tech electronics and the Italian Emilia Romagna industrial district specialised in light industry (textile, shoes, machine tools etc.). Both clusters differ in nature, orientation, markets, and members.

A cluster is a system of interconnection between private and public sector entities (firms, institutions). It usually comprises a group of companies, suppliers, service providers, associated institutions like testing and quality standard institutions, education institutions, vocational training schools, trade companies/distributors/associations in a particular field, linked by externalities and complementarities. Often include financial institutions and various government entities.

Industrial cluster is an agglomeration of companies, suppliers, service providers, and associated institutions in a particular field.

Looking at the cluster literature and carrying out discussion with practitioners clusters have the following main characteristic marks:

- **Geographically concentration of the interconnected firms. These entities** are linked by externalities and complementarities of different types and are usually located near each other. Although location remains fundamental for clusters, its role today is different from a generation ago. An example would be a country's auto industry, with its manufacturers and all their supporting services, such as parts and equipment suppliers, transportation companies, retail distributors, educational institutions and R&D firms, public relations and advertising agencies, etc.
- **Critical mass of members both resources as well as competences.** Members of the clusters need to have considerable capabilities to achieve the overall goal and resounding success.
- **There is a need and capability to have existing interaction and cooperation among the firms.**

In our economy competitiveness depends on productivity. Productivity means how the firms compete on particular fields. Companies can be highly productive in

their industrial branch if they use sophisticated technology, production methods, and offer unique products and services.

According to **Michael Porter** clusters affect competition in three ways: [6]

- 1 First, by increasing the competitiveness of companies based in the area;
- 2 Second, by driving the direction and pace of innovation, which underpins future productivity growth and
- 3 Third, by stimulating the formation of new businesses, which expands and strengthen the cluster itself.

Being part of a cluster companies could operate more productive in obtaining information, learning and obtaining technology, in accession to sourcing inputs. This includes the following options:

- Better access to employees and suppliers;
- Access to specialized information;
- Creation of complementarities;
- Access to institutions and public goods;
- Better motivation and measurement.

CLUSTERS DO NOT BORN OVERNIGHT. THEY CAN DEVELOP SLOWLY
OVER TIME!

2.2 The World Bank Export Competitiveness Initiative

The World Bank Group's Export Competitiveness Initiative aims to develop synergies among practitioners working on economic growth, trade and private sector development, has underscored several

Of the above issues. It draws on a myriad of policy tools and approaches. Economic policy, customs and logistics, and direct enterprise support. The policy agenda that typically emerges from a competitiveness analysis relates to three core areas, and collectively they offer a platform on which necessary policy dialogues can be developed:

- *Macro fundamentals* (e.g., economic biases due to tariff and nontariff trade barriers, real exchange rate misalignment, tax distortions, overall fiscal health of the economy)

- *Hard and soft infrastructure* (e.g., infrastructure, customs and trade logistics, the costs of doing business)
- *Supply-side measures* (e.g., technology creation and adaptation, product standards and certification, export promotion, human resource development)

The figure below is a model of an agribusiness cluster. The entities of the cluster geographically are near to each other and their activities are interlinked, those the cluster members enjoy economic benefit and synergies. Such benefits include access to specified human resources, marketing tools, suppliers and subcontractors, R&D resources, quality and testing services. It creates both national and international economic power with strong competitiveness in all markets. Clusters can foster commercialization of new products, start-ups and spinoff companies.

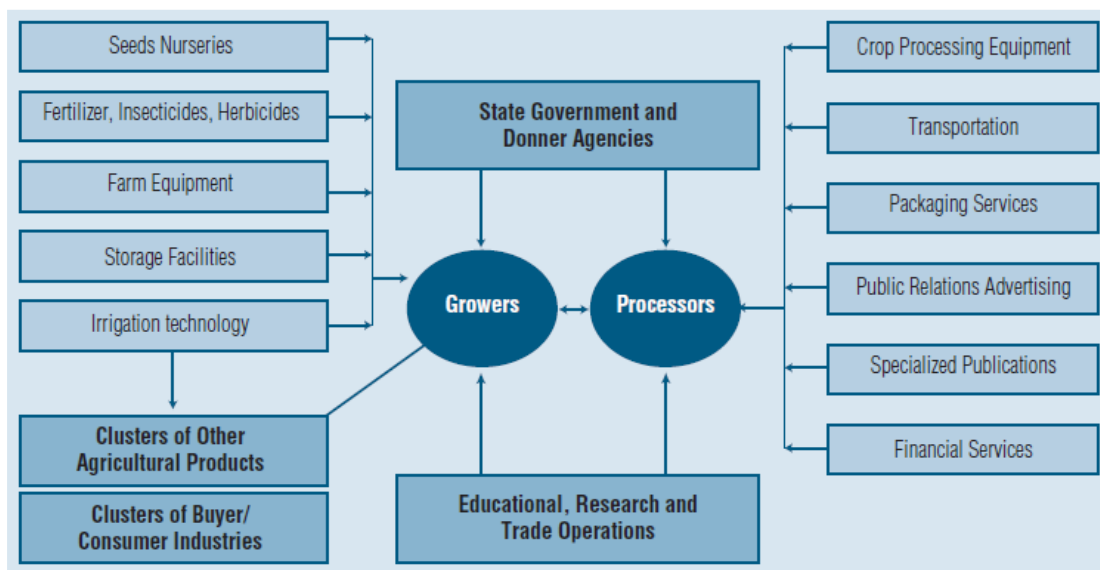


Figure 2
 Model of an agribusiness cluster
 Source: World Bank, 2009

2.3 European cluster panorama

With scarce natural and energy resources and ambitious social and environmental goals, EU companies cannot compete on low price and low quality products. They must turn to innovation, productivity, resource-efficiency and high value-added to

compete in global markets. Europe's comparative advantage in the world economy will continue to lie in high value-added goods and services, the effective management of value chains and access to markets throughout the world. Thus, innovation and technological advancement will remain the main source of competitiveness for EU industry. For this reason, further efforts are needed to achieve the Europe 2020 target of spending 3% of GDP on research and development (R&D). [7]

The European Commission has launched a range of initiatives to foster innovation and growth, and to strengthen the underlying competitiveness of the European economy. A key area of interest is the development of emerging industries and their role in driving economic dynamism. One of the new driving forces in entrepreneurship development is the cluster policy. SMEs working together could be more innovative, create more jobs and register more international trademarks and patents than they would alone. The EU Cluster Portal 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.

Clusters today operate basically in regional markets. 38% of European jobs are based in such regional strongholds and SME participation in clusters leads to more innovation and growth.

There are about 2000 statistical clusters in Europe, of which 150 are considered to be world-class in terms of employment, size, focus and specialisation.

Why the EU elaborated a cluster policy? The 2014 Communication on "For a European Industrial Renaissance" [8] highlighted clusters as being able to facilitate cross-sectoral and cross-border collaboration, helping SMEs to grow and internationalise. The Commission is launching several initiatives under **COSME** and **Horizon 2020** to support SME innovation and growth through clusters.

COSME is the EU programme for the Competitiveness of Enterprises and SMEs, running from 2014 to 2020, with a budget of €2.3billion. COSME will support SMEs in the following areas:

- Facilitating access to finance
- Supporting internationalisation and access to markets
- Creating an environment favourable to competitiveness
- Encouraging an entrepreneurial culture [9]

COSME promotes the development of world class clusters in the EU, fostering cluster excellence and internationalisation with an emphasis on cross-sectoral cooperation, notably in support of emerging industries. The programme also aims

at accelerating the digitalisation of the business community and promoting e-skills and e-leadership.

Horizon 2020 is the biggest EU Research and Innovation Programme ever with nearly €80 billion of funding available over 7 years (2014 to 2020). [10]

One of the key areas of interest is the **development of emerging industries** and their role in driving economic dynamism. Emerging industries can be understood as “the establishment of an entirely new industrial value chain, or the radical reconfiguration of an existing one, driven by a disruptive idea (or convergence of ideas), leading to turning these ideas/opportunities into new products/services with higher added value”. Therefore, emerging industries can but must not always be completely “new” industrial sectors.

2.3.1 Cluster in emerging industries

The EU Cluster policy includes elaboration of The Cluster Policy Guide, **design and plan** cluster policy support initiatives, **establishment of an European Cluster Observatory**, **design** model demonstrator regions pilot projects,, elaboration of a cluster stress test tool.

The European Commission has launched a range of initiatives to foster innovation and growth, and to strengthen the underlying competitiveness of the European economy. A **key area of interest is the development of emerging industries** and their role in driving economic transformations and growth.

Emerging industries can be understood as the establishment of an entirely new industrial value chain, or the radical reconfiguration of an existing one, driven by a disruptive idea (or convergence of ideas), leading to turning these ideas/opportunities into new products/services with higher added value.

Therefore, emerging industries can but must not always be “completely new industrial sectors”. They are new combinations of narrowly defined activities that can also comprise existing industrial sectors that are evolving into emerging industries in response to new technologies, market demands, and value chain configurations. [11]

The following fields were selected as **Emerging industries**:

- **Advanced Packaging** is an increasingly important input to many other activities, from food processing to automotive supply chains.
- **Biopharmaceuticals** form the scientific basis of the Life Science industries and employ some of the most educated and productive employees.
- **Blue Growth Industries** has been the focus of European policy in the last several years and is an area where interesting new islands of activity might emerge.
- **Creative Industries** is the key sector in future European economy and has been growing faster than any emerging industry in the past two decades.
- **Digital Industries** cover the key parts of the ICT economy: computer hardware, software, ecommerce and wireless services.
- **Environmental Industries** cut through all sectors of the economy as the need for more sustainable operations is realised increasingly more and thus have a high growth potential
- **Experience Industries** cover creation and consumption of “experiences” and are composed of millions of SMEs at the intersection of arts and business.
- **Logistical Services** are a key service sector in the modern economy and are among the leaders in job creation.
- **Medical Devices** are another core part of the Life Sciences industry and are also connected to large and growing employment in local health care services.
- **Mobility Technologies** are a core part of the European manufacturing industry and despite suffering during the recent crisis they are a clear focus for Europe’s strategy to re-industrialize.

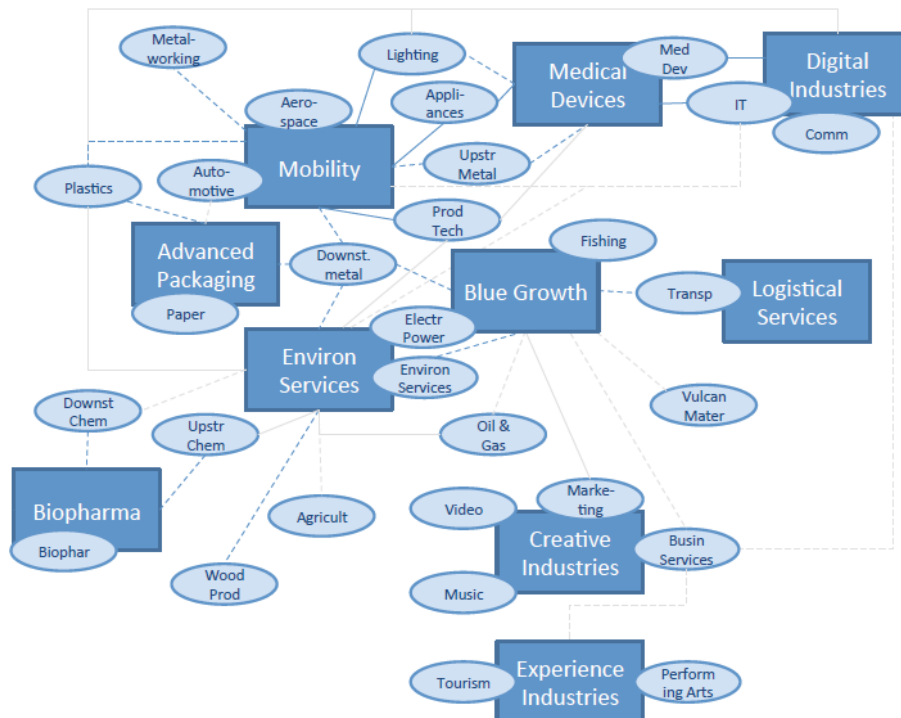


Figure 3

Linkages between clusters and emerging industries

Source: *European Cluster Panorama, 2014* [12]

2.4 European clusters excellence

In 2006, the European Commission launched a project on **Central and Eastern European Cluster and Network Area** [13]. It focuses on linking the eleven partner regions/countries whose innovation policies focus on cluster and network policy. The main objective is to find coherences in the different regional cluster policy implementation methodologies and to shape a common policy in by defining common strategic issues, strategies and programmes. The project aims for a coherent development of innovation and cluster policies in the strongest sectors of each regional economy at three levels: policy; administrative; and regional development agencies and cluster initiatives.

In 2007, the CEE Cluster Agreement was signed and later an operative Cluster Action Plan [14] was elaborated. The CEE-Cluster Network project involved eleven neighbouring cluster regions in Central and Eastern Europe who are keen to mobilise and support national and regional innovation policy actors to carry out

and design co-operation activities together with other competent public authorities.

4 Conclusion

On 8-9 October 2015, the Organization of the Black Sea Economics Cooperation – BSEC -Permanent International Secretariat and the Konrad Adenauer Foundation in Turkey organized a Workshop on „SME Clustering: How to Find the Right Business Partners / Improving the Business Environment for SMEs” in Crete (Hellenic Republic). As host, two prominent Greek institutions: PRAXI/FORTH and Centre for Technological Research of Crete made presentation of the national best practices and future programmes. The program of the Workshop and selection of candidates making national presentation from the BSEC countries was made by the Scientific Director of the ERENET Network.

At the end of the Workshop, conclusions and recommendations were formulated, which is the most important tangible output of the event. These conclusions and recommendations were submitted to the BSEC Working Group on SMEs and following the discussions, they were submitted to the BSEC Committee of Senior Officials and the BSEC Council of Ministers of Foreign Affairs. Finally they were forwarded to relevant National Ministries and other national authorities. The main finding we formulate is following:

- The concept of competitiveness has numerous interpretations of its core issues. It competitiveness includes static and dynamic components. Many factors influence and drive productivity and competitiveness. Investment in physical capital and infrastructure alone is not sufficient today. In more recent years the good governance, macroeconomic stability, education and training, R&D become as important as the capital and infrastructure investment.
- Innovation, talent development and institutional strength continue to play a defining role in determining world’s most competitive economies. The Global Competitiveness Index calculated by the World Economic Forum present the current achievement of the countries during the last few years.
- Entrepreneurship activities, SMEs and cluster development are three important “ingredients” of the economy.
- The cluster-based approach is a new way of organizing and dividing the economy. Clusters are important economic policy tools, which can help

enterprises, particularly SMEs, to stay competitive in an increasing global competition. The clusters have a significant potential for technology transfer, dissemination of innovations, resource sharing, marketing, market expansion, which makes them useful instrument for enterprise development.

- Successful clusters are characterised by the following three main pillars:
 - (i) Geographically concentration of the interconnected firms.
 - (ii) The number of participating partners must reach the critical mass both in resources as well in competences; and
 - (iii) There is a need and capability to have existing interaction and cooperation among the firms.
- Clusters play an important role in regional development, because they contribute to improvement of competitiveness of participating firms, creates job and promote marketing of the local products and services.
- Key elements necessary to foster the development of dynamic and fast growing SMEs and clusters should base on
 - A favourable tax environment;
 - A sound and stable macroeconomic environment;
 - A favourable legal environment based on a strict application of the rule of law and right of contracts;
 - Large and easy access to financing;
 - Few bureaucratic interference allowing easy entry and exit in the market
- National Policies must follow priorities such as: creating a favourable business environment for growth and innovation, diffusion of the knowledge, enlargement of the innovation support, mission oriented strategies, upgrading human resources, access to skills and competencies, abilities to learn, promotion of organizational change, technological change, productivity and competitiveness.
- To increase economic competitiveness, the development of the innovation infrastructure and the dissemination methods of research results for industrial and commercial applications shall be encouraged

- Cluster initiative should be part of the national economic development programme. Countries need short and long term strategies, policies must encourage the main drivers of innovation.

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