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Cluster Development Guide – North Macedonia

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Cluster Development Guide for the Republic of North Macedonia

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Contents

Cluster concept

Although clustered and clustered experts can not assess the number of cluster initiatives in the world, it is quite certain that the cluster approach is present in almost all regions and countries where regional economic development initiatives are undertaken.

The cluster approach is one of the approaches to which the greatest attention is paid in terms of economic development in terms of utilization of resources in the most appropriate way. Cluster initiatives are increasingly focused on intangible wealth rather than on physical infrastructure. They mostly refer to breaking conventional wisdom and encouraging strategic change through collaborative projects that contain economies of scale and are often shared by groups of companies in implementing solutions and analyzing strategic challenges (Bancic I., 2018).

Clusters are informal groups of independent companies and relevant institutions of the state administration and education system, which together work together in order to enhance the competitiveness of their business. They connect enterprises from all levels of the value chain, and are attracted by those from the secondary services, such as consultants, financial institutions, marketing agencies, freight forwarders. The theoretical framework for clusters, as well as the practical examples presented in the paper, indicate that clusters have a key influence on improving the innovation and competitiveness of companies in the business, forming the necessary skills and knowledge in the workforce, rapidly disseminating information among firms for new technologies, markets and other opportunities, as well as the development of a stimulating business environment in the country.

It is important to emphasize that the clusters are informal and unstructured, and with their organization and implementation of the planned activities rely on the institutions for cooperation, such as trade associations and chambers, research institutes and others. Successful clusters are characterized by a high level of mutual trust between members and joint collaboration to achieve a common vision. Clusters influence the improvement of the competitiveness of the national economies through the promotion of innovation, with the aim of increasing productivity in the direction of better performance on the world markets. In pursuit of sustainable economic development, nations are promoting their competitiveness by creating favorable conditions for the development of the private sector. It includes activities for improving the business environment, creating a stimulating legal framework, increasing the efficiency of administration and the legal system, building transport, energy and communication infrastructure,

eliminating corruption and building an education system that meets the requirements for educated staff. But the individual performance of the companies is, in fact, the main driver of national competitiveness. Firms in developing countries, such as North Macedonia, must apply a sophisticated business strategy that seeks to increase added value, expand up the value chain, to direct marketing and target market specialized segments. They must also invest in advanced technologies and educate and motivate staff that will lead to increased innovation and efficiency in operations. The existence of effective clusters with a large flow of information greatly influences the individual sophistication of companies, the microeconomic environment and the attraction of foreign direct investment, which significantly contributes to the promotion of national competitiveness. Clusters take initiatives for research, networking, information exchange, lobbying for policy change, mutual business cooperation, adapting the education system and generating the necessary skills and knowledge, stimulating innovation and introducing new technologies and expanding the cluster with the growth of the existing and forming new firms (Arsovska M., 2010).

The notion of cluster and cluster association became particularly popular in the mid-nineties.

Clusters are geographical groups of interconnected firms and institutions in a specific area that produce a related product and service group. Clusters cover a range of related industries and other entities that are important for their competitiveness. They contain suppliers of specialized input factors, such as raw materials, machines, services and infrastructure. Clusters often extend vertically to distribution channels and end-users, and horizontally to complementary products manufacturers, or companies from related industries that link the required skills to the workforce, technology or similar input factors. Finally, many clusters contain government and other institutions, such as universities, research centers, technical education institutions and professional associations offering specialized training, education, information, analysis, and technical support.

Operational methodology for cluster management

An important feature of the leading market economies is the introduction of various forms of inter-organizational cooperation, which complements and in some cases replaces the hierarchical forms of running special and public institutions. Ties are established both inside the enterprise and among enterprises, for example: between the company and its suppliers, competitors or buyers. It can also be used to connect the enterprise to a public institution or to a link between public institutions (Becattini F., Rullani E., 2016).

The involvement of a particular enterprise in the regional environment is becoming more and more important due to the growing globalization of economic processes, reflected in the reduced importance of national borders. In order to effectively

compete in markets with their final products, enterprises need to be connected with other enterprises in the commodity markets, which contributes to increasing the mobility of the realized funds, which are the result of the past investments of the enterprise. Connectivity and inter-enterprise networks are an important source of innovation, and especially for small and medium-sized enterprises, where cooperation with other enterprises and organizations allows them access to specific expert knowledge, risk sharing and costs. The OECD data show that innovations are constantly more dependent on cooperation between enterprises and non-company institutions. The level of research and development carried out by educational and government institutions, and financed by the economic sector, grew in the OECD countries. In 2018 the economic sector financed on average 6.1% of research higher education and 4.1% of research government institutions, and enterprises with concluded cooperation agreements with higher education institutions or government institutions employed about 10% of all employees (Best M., 2019).

With globalization, the importance of international strategic connections of a different kind is also growing: joint production, market, research and development agreements, joint sales and distribution networks and the like. In the 2010s, the number of international strategic connections and mergers and acquisitions grew much higher - according to world standards, the value of things increased five times. From 2010 to 2019 international strategic bridges accounted for more than 60% of all connections in the OECD countries, and in smaller countries, for example in Luxembourg, Belgium, Iceland and Austria, even over 90% of all connections(Beter J., 2019). As for the limited commercial space within their state borders, it is even understandable. While the participation of strategic linkages in traditional areas, such as production, sales, research and development has diminished, the share of strategic linkages in the area of business services has risen sharply.

The Republic of North Macedonia is far behind in terms of scientific and technological progress in relation to the developed countries in the world. The research development activity, which was raised at the level of priority in the eighties, was marginalized in the transition period. The allocations for scientific research fell to a level of 0.18% of GDP, well below the OECD countries, where it exceeded 2%. But it is important to emphasize that the number of research staff represents a solid potential. The low linkage of research and development and the science sector to the business sector is one of the key problems for acquiring new knowledge, raising the innovative level and adopting new technologies.

In the Republic of North Macedonia, an emphasis should be placed on the functional linking of the research and development work with the innovation needs of the companies. At the same time, it is necessary to increase the number of research development centers in companies.

By linking and concluding strategic alliances, enterprises preserve and strengthen the competitive position of the market, and in some cases, the company, by taking

over another company, increases its market power and acquires additional economic rent.

Excellence in cluster management

In recent years, a comprehensive and intense debate has been conducted over the development of business networks and clusters and their importance to regional competitiveness. Emphasis is placed on various aspects, such as the establishment and further development of an effective network structure, the areas of management action, internal communication processes, or public funding components, and support by policy makers in the business frame. The focus is still on the specific measurement capabilities of support for the benefit of the network or clusters included in it for so-called network services. The question arises about what is specific for cluster or network services. Practice shows that the success of a network or cluster depends, inter alia, on theperformance and especially the added value in network / cluster management offered to interested partners. Enterprises are particularly typically active in networks and clusters if they are separated from intensive collaboration, these target groups can profit from a clearly communicated value-added. This becomes especially important if the access to the network / cluster costs money. In that case, the costs of the association should be appropriate (equalized) with multiple support and bid measures.

Network service management can be seen as a very important network / cluster tool, as the ability to generate the required added value that is desired by members. In this regard, one must distinguish between classical services on the one hand and new high-innovation services on the other. Classical services are well known and they should be offered by the cluster management if they are interested in cluster members. These services are usually of the type of workshops, organized trips and meetings, magazines, publications, etc. A successful manager needs to know well what kind of services his or her members are interested in and for whom there is no interest. Successful networks and clusters should be characterized by the fact that, besides the standard ones, they offer a range of interesting innovative services. The idea is to offer services that will be in accordance with the needs and they will be successfully implemented. Such a service, which would be highly appreciated by members, will result in the creation of closer links in the network itself (Audretsch D., 2018).

But how should these innovative network services look? What should be taken into account when developing the offer of such services or which topics in the network are appropriate to offer such services? It can be said that there is no standard applicable solution, which services are primarily tailored to practical needs and they largely depend on the network structure and the needs of the network. However, there are several aspects that should be taken into account when developing and implementing and answering multiple networks and clusters. They are: personal services (marketing professionals,recruiting staff), basic and advanced trainings

(related to promoting young talents, talents and technical competences, key qualifications), financing innovation and startups, i.e. fast-growing companies (venture capital, sponsorship, patent law, management seminars), public relations (prerequisites for public relations among members of the network, development of market analyzes, financial instruments, finding domestic and international partners for cooperation).

Moving from a networking to a business integrator

Cluster development today is seen as one of the most important drivers in support of innovation and competitiveness among companies. As a consequence, regions and countries around the world focus on strengthening and increasing the competitive potential of their clusters. Numerous instruments are used to strengthen and develop clusters. This includes, inter alia, networking and sharing experiences among stakeholders within the cluster, joint branding, skills upgrading and attracting talents and direct foreign investment. Since all these measures are particularly important and needed in the early phase of cluster development, they need to be supplemented with more strategic tools for developing the innovative potential of clusters in the long term (Bostjan A., et al 2012).

Cluster facilitator, cluster manager and cluster organization, they all play a vital role in the transformation and revitalization of clusters. These should work as agents for change, highlighting the needs of change and promoting innovative alliances for collaboration among the involved parties (partners) in the cluster. They need to accumulate deep knowledge about the clustering and the challenges of globalization, before which clusters are straightened. They also need the ability to work and apply data and facts as input to their strategic work and have the ability to "build bridges" towards other clusters - at regional, national and international level - which over time can promote new cooperation and innovative alliances among cluster companies.

Development of cluster strategy and value chain analysis

Managing clustered organizations goes the same way as managing organizations. This involves mediation and facilitation (facilitation) of the relations between the numerous organizations - members of the cluster. Each cluster member has its own agenda and a key challenge for the cluster manager is that all of these agendas are contained in the shared agenda of the cluster in common goals and collective activities that the conflict of interest is overcome and that the relevant organizations see it clearly enough the added value of their participation in cluster activities.

Consequently, the cluster manager deserves specific attention to himself.

First of all, it is necessary to define the vision, the mission of management, to develop a strategy to achieve the vision through the mission, using the tools contained in the strategy, to define goals, key performance indicators, and key uncertainties (challenges). It then switches to designing the activities, the communication platform, the monitoring and evaluation system, and contracts with stakeholders.

The development of the cluster strategy refers to the long-term action plan in the function of realization of the cluster's vision. The cluster strategy usually covers the following six elements (Audretsch D., 2019):

• Direction: where the cluster wants to reach the long-term

• District: what are the key activities the cluster should focus on

• Competitive advantage: what are the key clusters of clusters as they could best be used

• Resources: which resources (eg skills, finances, relationships, technical competences, facilitators, facilitators) are needed to realize the vision of the cluster

• Ambient: what external factors influence the development of the cluster (eg political, economic, legal aspects)

• Interested parties (involved) - what are the values and expectations of the key stakeholders in the cluster and how they can affect the development of the cluster

The value chain describes a whole spectrum of activities that need to be developed in the process of shaping the product, production and research, to the ultimate use by buyers. In each of the aforementioned parts of the chain there is a whole spectrum of activities that specifically or together build on another chain of values.

The competitive advantage of the enterprise is reflected by how the individual enterprise performs the given activity. We divide these activities into the sale of the product, procurement of material, research, sales activities, and human resources management, financial and other activities, which are performed for achieving performance results.

The value achieved by the enterprise is expressed through the number of customers who are willing to pay for the product or service the enterprise produces. The company has a competitive advantage if the given activities perform better or cheaper than the competition. This is achieved by adopting new procedures, new products or introducing new technologies.

Activities carried out in the enterprise are not independent. They are interconnected and dependent. These connections occur when the performance of one activity affects the price and quality of the other performed activity.

Porter groups the activities of the company to the main and auxiliary. The primary activities are all those that directly value the buyer. The competitive advantage of the enterprise stems from many activities carried out in the enterprise. These are activities that are carried out in relation to the shaping of the product, its production, research, physical distribution, sales activities and the like. By analysing

a particular value chain, we determine how these activities make a value and determine their costs. From the development of these activities and the economy of the enterprise, it depends on the relative costs in terms of competition (Bertini S., 2013).

Development of innovative tools and innovations in the business network

Innovation is the key to increasing the competitiveness and growth of firms. It has a central role in addressing today's most pressing social challenges, such as climate change, secure energy, resource efficiency, and demographic change.

Innovation is the process of creating or promoting a product, process, or value-added generation institution. This includes technological innovation, but also those that focus on new management / marketing techniques, the adoption of new supply chains or logistics channels, and enhanced communications and media approaches. Innovation can and must occur in every segment of society, not just in the field of technology, even though technology is striving to lead innovation in other fields as well.

Greater commitment and enhancement of innovation is contained in the document:

"Europe 2020 Strategy". Priorities in the Strategy are (Bancic I., 2018):

- Smart growth (development of a knowledge-based economy and innovation)
- Sustainable growth (promoting an economy based on the use of efficient energy sources, a green and more competitive economy)
- Encouraging an economy with a high employment rate (it will generate economic social and territorial cohesion).

Many of the existing clusters are more groups of companies than innovative systems. Businesses are located together, but there is limited interaction between components that are parts of a single cluster and limited interactions between organizations that involve cluster components.

Social groups lack the social capital (investments in building personal relationships) leading to a lack of trust. As a result, we have a cluster that does not work well and where we have limited circulation of tacit approval and limited development of highly specialized competencies.

Over-crowded with publicly funded agencies that have different agendas in supporting core and firm support can also limit the depth of the core competencies of clusters.

What are the characteristics of an innovative cluster?

An innovative high-performance cluster should have (Belak J., 2018):

• Extensive compliance across the constraints and capabilities cluster

• Concurrent cooperation and competition among firms: a culture of cooperation through a competition

• Ability for collaborative engagement

• Desire and ability to move quickly from strategy to action

• Narrow regulation (categorization / positioning) between the four cluster elements.

How can we move from troost and disorder to an innovative cluster?

The basic commitment should be the approach to fostering competitiveness to eliminate the isolation of individual stakeholders in the cluster and their integration into an integrated holistic (comprehensive) system through (Baum J. R., et al 2019):

• Venture efforts to develop multiplied links in and between cluster components.

• Encouraging the development of links outside the cluster

• Supporting the creation of full government support for the core of the cluster and for companies

• Ensure broad acceptance of the cluster strategy and early actions with guidance from the private sector.

To train facilitators (facilitators / coordinators) who will provide the necessary neutrality to hold together all the stakeholders in the clusters and set up an agenda in advance.

Communicating and branding the cluster

Branding is associated with the discovery and communication of the meaning of businesses and what companies deliver to their customers (consumers). Branding the cluster and / or organization itself is a powerful tool. The branding of the cluster depends on the level of its development, i.e. from his maturity.

Successful implementation of a strategy involving innovative clusters depends on the use of a methodology designed to generate results. A methodology that is consistent with international best practices and its application has been tested in emerging markets worldwide, includes (Beaudry C., Breshi S., 2019):

• Cluster development - typically, an innovative cluster includes the public and private sector, as well as representatives from the academic sector, the media and relevant organizations (eg non-governmental organizations). Innovative clusters are typically free-flowing / free flowing entities that are assisted by a cluster manager but are not focused on a hierarchical structure.

• Training for cluster members - cluster members should be trained on cluster methodologies, structure, decision-making and other aspects of governance.

• Strategy development - the development of an innovation strategy must include members of the public, private, academic sector, and civil society. Until a cohesive strategy is developed, other elements of the methodology can not be implemented.The strategy should include focus on the target sectors where innovation can make the country competitive and compulsorily prosperous. The strategy needs to be constantly refined, which means it's always fresh and innovative.

• Development of a work plan - the work plan should consist of specific activities that are focused on the target areas within the strategy. Monitoring and evaluation plan should be related to the work plan.

• Implementation of activities - the activities contained in the work plan should be initiated and implemented in a timeframe.

• Developing a brand - through internal and external marketing activities, the cluster should build a brand, both internally and externally. It should become the most visible mechanism for achieving prosperity in each of the targeted sectors.

• Evaluating the results - comparing cluster achievements with its targeted impacts should be defined (Becattini F., Rullani E., 2016):

a) the validity of the strategy;

b) any discrepancy that has not been recorded during the preparation of the strategy;

c) how many innovations are integrated into the cluster; and

d) which modifications to the strategy should be made to conquer "the momentum" and utilize the innovative approach.

Recommendations for a successful cluster structure with the participation of North Macedonia enterprises

Cluster is an English term, which means a cluster. The very term cluster denotes a process that involves collecting things into a group, that is, in the form of a cluster, which in economic terms means the unity of state, business or other entities that aspire to achieve common goals.

We need to treat the development and shaping of business clusters, ie clusters, as a long-term process, which can not be prescribed and implemented with the daily economic policy. In the development of clusters, the spontaneous reactions of entrepreneurs vary greatly in terms of the environment, culture, tradition, supportive environment and economic dimensions. Business Grapes Development Policy must first of all be based on encouraging entrepreneurship and offering support for achievementcompetitive advantages on the world market.

Encouraging entrepreneurship as the basis for the development of bunches must be based on (Belak J., 2018):

- establishing low formal obstacles for new enterprises,
- Market access assistance (infrastructure, export assistance, access to financial resources),
- access to new knowledge at local level,
- exercising trust in the local environment.

Adequate industrial policy, which spontaneously promotes the creation and development of grapes, is one of the factors. Business clusters, ie clusters in the local environment, are also developed due to other specific circumstances15, such as simple access to raw materials, climate conditions, proximity to the market, coincidence (income of an entrepreneur, enterprises with special knowledge and requirements) or establishing development facilities.

The process of shaping bunches requires the involvement of the whole local environment (enterprises, public administration, supportive environment), which implies direct communication between people and the consent of all involved in key issues.

The following experiences in the shaping and action of the bunches are (Bertini S., 2013):

- Successful cooperation between the companies in the bunch requires the interdependence of the participants,
- cooperation is built on mutual trust, which takes a lot of time,
- Grapes, which are shaped in an informal form, have a greater possibility of further survival,
- if the need for formalization is shown, it is better to form an association first, and later, if necessary, and a company,
- if the local environment supports the shaping of bunches, this leverage should be longer than three years,
- Grapes that are not shaped spontaneously in order to exploit business conditions are less likely to survive for a longer time,
- Linked enterprises must be economically strong if they do not receive external financial resources to finance costs in the upcoming period.

The research carried out by UNIDO through various business-forming bunches in 11 countries, points to the significance of some activities in the process of grooming the enterprises.

Defining indicators for measuring the success of cluster associations

On the global map of businesses, the dominance of geographically concentrated groups of companies and related and related businesses is in constant growth. These groups are called industrial clusters, clusters of knowledge, or simply clusters.

Interactions between companies, educational institutions and the public sector contribute to creating new jobs, higher wages and profits.

The effects are the result of clusters that are perceived as the founders of innovation and competitiveness.

Many international studies present results that identify clusters that have a positive impact on innovation and economic growth. In the light of this knowledge, many countries and regions accept the concept of clustering and the work of cluster development through initiatives, programs or specific cluster innovation policies. At the European level, the European Commission has overtaken the role of addressing information and networking for the needs of its member states and facilitates the building of knowledge on the subject.

In response to the diverse requirements for a broader basis of data clustering policy formulation, the European Commission - Directorate General - Enterprises and Industry proposed a work area focused on measuring the economic impact of cluster policies. The work area includes a number of activities: identifying experts, holding workshops for presenting a variety of good practice examples and describing examples of good practice using a common framework.

The elaboration of a conceptually based and easily repeatable set of indicators for assessing (measuring) the current state and the future look for the development of clusters is a significant help for policy-makers and clerical advocates. There are many methods and techniques for analyzing clusters in the literature, but there is no standardized approach, so there are many challenges in adapting the approaches to analysing the emergence of new and existing clusters, especially in high technology sectors (Best M., 2019).

The first conclusion is that knowledge about clusters is still highly fragmented, very descriptive, often qualitative and unconvincing in many points.

If clusters are fostered through public policies and private sector initiatives, there is a need for a systematic understanding of the factors that contribute to the creation and development of clusters and factors that will affect the success or fall of clusters and cluster policies. The quantitative indicators of both are present and relate to the level of cluster development and are a necessary condition for their understanding. Much of the analysis and developments related to policy development relate to a different way of quantitative measurements that operate in a wide variety of conceptual and spatial scales.

The elaboration of a conceptually based and easily repeatable set of indicators for measuring the current state and future research on the development of clusters is a significant help for policymakers and clerical advocates working in this field.

Indicators for clusters

Cluster analyses enable precise and effective policies and management of interventions. The understanding of cluster internal work - components, structure,

processes, routines and development directions - is critical to the support of successful clusters. Another very important issue that deserves our attention is collecting and selecting data / indicators. Science, statistics, clustering mapping, qualitative interviews with cluster actors and targeted research have to some extent limitations (Best M., 2019):

• Official statistics - Many statistics are relevant for cluster analysis (eg investment in research and development, innovation, human resources, patents, costs for new technologies), but these indicators are not sufficient for them because the basic structure and processes that are extremely important to understand the existence and the action of clusters. For example, the supply chain and advanced market links, partnership, knowledge sharing, social capital and local sources of applied knowledge are not reflected in these measurements. Moreover, statistics on science, technology and innovation (NTI) are structured. Also, statistics are often unavailable at the regional level of geographical disaggregation for small clusters.

• Mapping Clusters - Often indexes based on STI statistics are used to map existing clusters. For example, the location quotient (the employment rate in the regional industry relative to total employment in industry at the national level) is commonly used to compare regional economies with other locations. A coefficient larger than the unit shows a high degree of specialization in activities that involve the cluster compared to other activities.

A more sophisticated version of the location coefficient is represented in the cluster mapping technique of the Porteer Institute for Strategies and Competitiveness at the Harvard Business School. The project used information on the number of employees and wages to four digits of the national classification of activities (NCAs), plus data on corporate patent patches to identify key clusters in the region using the correlation of industry employees across different geographic areas. A different approach has been used by Bergman and Feser, including input-output tables to develop a template for the value chain of trading partners within regional cluster identification economies.

However, all these approaches share the sectoral definition and the limitation of the geographical disaggregation of their fundamental STIs statistics, making their application problematic for small clusters in areas with new technologies.

• Interviews - Many analysts note that clusters can be studied using expert judgment, self-identification or other qualitative research techniques, including detailed interviews with extensive cross-sectoral participation or ethnographic reports on dynamic clusters by leading experts. The application of these techniques can provide a rich insight into how clusters work. Often this technique has been used to undertake a detailed study of a particular cluster, but a recent series of comparative cross-clusters studies have been developed, such as the US Portrait Competitiveness Council and the Innovation System for a Network of Researchers. However, they rely on opinions, not generating quantitative results and being intensively researched.

• Research for firms and innovative actors - Research techniques are often applied in cluster analysis to generate a set of ordered clustered data dynamics. The use of research methods as opposed to the use of official STI statistics mentioned above implies that the collected data are often not comprehensive, i.e. they are from a sample, not from the whole population. Also, the lack of standardization in designing research implies that the results can not be easily compared with studies conducted by other researchers. However, the acceptable design of the research implies that cluster analysis does not depend on existing generic sources of statistics or categories - stakeholders can be specifically targeted and collected data can be tailored to specific areas of interest in cluster analysis.

Identification and analysis of opportunities for development of clusters with participation of enterprises from North Macedonia and the partner countries of the project

Various methods used in the formulation of clusters, ie business clusters, can be found in expert literature. Most methods have certain common characteristics and the described stages in the development of the berry are easily noticed at a certain level. Falkner finds that the process of forming a partnership should be carried out in three areas - establishing conditions for cooperation, determining the type of connection and determining the connection procedure.

Some authors have limited the development of the bunch to 3 to 5 phases, and for practical use are more suitable those in which the design and development of local business clusters are described and presented in several phases (Beter J., 2019). Porter divided the development of the batch forming process into several phases, which very well describe the procedure of shaping a business cluster. Those phases are (Bostjan A., et al, 2012):

• The design of the bunch begins with the identification of a larger enterprise and institution or concentration of enterprises of the same activity,
• The next step is an overview of enterprises and institutions that are in the same value chain up and down (buyers, suppliers),
• a further step is the exploration of horizontal connections in order to identify complementary activities and enterprises,
• When the carrier activity and the enterprises in the bunch are determined, it must be asked which institutions and institutions serve the bunch with special knowledge, technologies or information,
• The last step in shaping is the request of a government or state institution that significantly affects the members of the bunch.
In most cases, shaping and managing bunches is a process that requires much, the development phases are different, since they depend on the enterprises

involved in the cultivation, the set goals, the environment (the environment) in which the grapes develop, there is also a decent role for management of the grape.

Types of clusters

According to system theory, clusters, or clusters, are among the living open systems. The development of live open systems applies certain laws, which we easily transfer to the development of local business clusters.

For open systems, the following are important (Bostljan A., Vasudevan R., 2018):

- changes in the environment cause a need for adjustment,
- changes in the system occur first of all on individual parts of the system (individuals, departments, enterprises), which gradually change the whole system,
- the structure of the system also changes in the change process,
- The old structure opposes the new structure through all stages of the reshaping process.

On these significances, the description of the development of business clusters has been built, which has three phases. In the first phase, which is known as the stage of shaping, there are:

- internal reorganization and adjustment of enterprises,
- improvement of the supportive environment,
- improving the dialogue between the private and the public sector.

a) Promotion of cluster shaping, ie, the cluster

The cluster can also be modeled among entrepreneurs who do not know one another or have no common business experience. The main element in the development of the connection is the establishment of mutual trust through the learning process that is managed and improved by an external coordinator, which, in turn, must be specially trained. The process of full mutual learning emerges as an empirical process. Entrepreneurs in the confidence-building process shape and play specific roles, evaluate and evaluate the participants on the basis of the results achieved and eventually divide the roles on the basis of the analysis made. The process also shows the willingness and ability for each participant to collaborate. The process is graded so that the aggregate hours executed on larger orders are consistent with the increased trust among the members of the group.

b) Internal reorganization and adjustment of enterprises

Encouraging and shaping the common competitive advantages of the bunch drives enterprises to adapt to internal organization and procedures of common requirements and standards. The adjustment is conditioned by the specialization of individual enterprises within the grapes, primarily in the area of quality, production deadlines and the amount of costs agreed upon within the grape19. The

coordinator must also include in the process of adjustment the local support environment, which with the available instruments facilitates the transformation of enterprises.

c) Improvement of the supporting environment

The UNIDO program includes two types of supporting institutions: institutions directly implementing the project and institutions relying on the performance of the grubbing-up program. In the first group, first of all, are organizations, institutions, associations responsible for the preparation of a national horticulture strategy, identifying potential sectors or regions, promoting linking policy, establishing coordinators and managing financial resources to encourage grapes (Bostljan A., Vasudevan R., 2018).

In the initial phase of shaping a strategy of grapes and establishing bunches, the two forms of supporting institutions act together, and later, specialization and division of responsibilities are necessary. The role of the coordinator at that time is to provide the grapes with the necessary degree of absorption of support services offered by external enterprises.

d) Improving the dialogue between the private and the public sector

One of the primary purposes of the hacking strategy and linking of enterprises is the shaping and dissemination of the dialogue between private and clusters are associated enterprises that complement each other (complementary), and form connections that allow action in the end-period. At that stage, the bunch is like a system that is in conflict with the environment and is dependent on it. The companies share a common vision and are targeted. Connections are weak, they are shaped on a project basis, however, opportunities for long-term connections are sought.

In the second phase, known as the normative phase, the bonds are shaped and the ties are strengthened, mutual trust is built. At this stage companies that do not meet the conditions for long-term cooperation come out.

In the first part after the initial success, enterprises are seeking new solutions to achieve the goals. Examples of partner suppliers are on the suppliers or manufacturing side, which complement the value chain in the bunch, however, relations between enterprises do not overlap, so all attention is focused on achieving the goals. The grapevine initiates the pursuit of optimization and efficiency within its own chain of values across: standardization, specialization, centralization, concentration, and synchronization. There are aspirations to formalize relationships, by increasing the scope of action inside the bunch, so the system becomes less elastic and efficient.

In the second part, the attention of enterprises in the grapes is directed towards solving internal efficiency, and less on the market and production. The existing network is easily divided into smaller parts (by areas: logistics, production, development), which are, inter alia, hierarchically connected. New rules of behavior

are shaped, there is a danger of increased administration, which can easily lead to crisis.

In the third phase, ie. in the integration phase, new connections must be shaped, leadership must be directed to listening to the voice of the advocates, counseling and motivation, to seek new conditions and solutions.

Targeting towards relationships means a focus on establishing relationships withnew enterprises in new areas (Iztok A., 2015).

In the last phase, the grape is like a system integrated into the environment, with which it collaborates in seeking opportunities and establishing new connections. There are differences in the grapes, so that some companies do not have to follow the changes and because of that they are out of the system. In the last part of the third phase, the grapes must be reshaped, set new goals and forms (forms) of cooperation. Otherwise, it ceases to act because enterprises do not see the advantages of joint action.

Engines in the clustering process

Although the development of information and communication technologies and the release of the flows of products, capital, people, knowledge and technology have established the key conditions for dispersed economic activity and thus for approximation of the stages of development of individual economies, empirical data show that until convergence in the income between developed and underdeveloped countries did not come.

Thus, there are differences in income and productivity have not decreased. Since 1800, to this day, income inequality has grown, despite the improvement of the mobility of goods, capital and technology (Arsovska M., 2010). The reason for the discrepancies are the growing differences in the efficiency of the economic activity, which, in turn, do not result from the disabled access of the poor countries to new technologies, but from the different efficiency of their use and the slow conquest of technologies. The significance of the spread of technologies beyond the borders of states is underlined, which states that it is decisive to reduce employee income differences. As he determines, on technology proliferation is significantly affected by distance, although at the same time technological knowledge is becoming more and more global. Among the reasons for less localization of knowledge is the more intensive international exchange, the increased volume of international investments, as well as the development of new communication and information technologies.

Globalization, despite the more intense linkages between states and societies, does not necessarily require an equal distribution of activities that create wealth in the world. Their deployment depends on the national and regional characteristics associated with providing the key factors of the competitive advantages.

Components that determine the schedule of economic activities act in two directions. Among those leading to more dispersal, that is, globalization, for example, include the savings that enable production near the target markets, as well as the differences in real wages in different locations.

By contrast, the greater significance of the knowledge economy, which is characteristic of the prevalence of complex products and services with a growing investment in knowledge, speaks in favour of the concentration of economic activity at certain locations. It is (from the aspect of economic geography) with the aim of reducing transport costs, achieving economies of scale, adaptability and efficiency, arising from the availability of workforce, from the point of view of progress, however, touches and creating new knowledge.

The significance of the knowledge, that is, the intellectual capital, discussed in the second chapter, decisively influences the activities ofmultinational societies. They direct their investments to locations in different countries or regions precisely to use the country's own specific sources, opportunities and experiences. First of all, in the activities that require a large investment of knowledge and which are characterized by rapid technological changes, we see an aspiration for the establishment of subsidiaries, ie subsidiaries of multinational companies in smaller geographical areas, most often near the existing local (domestic) enterprises, with which they often work closely together.

Just like for smaller enterprises and for multinational companies, proximity to other enterprises is an advantage, and it can also be concluded that the existence of a cluster of companies for a particular location represents a significant contribution to its attractiveness to potential investors.

Geographic competition is one of the more important features of the expansion of economic activities in developing countries. While some economies (for example, the so-called Asian tigers) experienced rapid economic development, the industrial development of others did not affect at all. Venables as a key determinant of the advantage of the geographical location cites facilitated interaction with other economic entities - with customers, suppliers, and even with sources of information and technologies. Similarly, Hamel warns of the role of suppliers, business partners and coalitions in terms of the ability of the innovation company to respond to rapid technological advancement and the accompanying market demands (Audretsch D., 2018).

The dynamic significance of competition based on innovations and requirements of strategic differences, in determining the significance of locations in the contemporary economy also emphasizes Porter. Due to the wider offer of productive factors from different locations, more efficient markets and falling factor production intensity, competition is constantly and more based on the connection with customers, suppliers and various institutions. It is these links that contribute both to productivity and efficiency, and to innovation. Productivity and efficiency, by which enterprises (foreign and domestic) at a particular location perform their activities, are, on the other hand, the basis for the economic success of a particular location. Porter sets the influence of the location on the competition in a model of

four interconnected elements, graphically depicted as a diamond. They include relationships in production factors (their efficiency, quality, specialization), demand relations (buyers of final and intermediate products can boost enterprise innovation), enterprises in the backers (suppliers) and related activities, as well as intense competition for others enterprises in a particular location, because it is precisely this that should encourage the appropriate forms of investment and upgrading activities.

The knowledge and skills needed in the production and innovation process can often not be simply coded and transmitted. Often complex, even undeciphered or more difficult descriptive skills are needed that can be obtained only with immediate experience, by repeating individual activities or by observing the individual or group level. These skills are set in a specific geographical area, which has its own history and social relationships with more or less powerful local identity.

The presence of businesses, suppliers and institutions at a certain location creates a potential for creating economic value, but notprovides its true realization. The theory of business clusters deals primarily with the impact of the geographical proximity of economically-linked enterprises and institutions at a specific location on competitiveness. Due to the proximity of enterprises and institutions, some kind of community is formed in which the number and intensity of interactions grows. They in successful bunches grow into lasting relationships between individuals, enterprises and institutions, and mutual relations, in turn, can significantly affect productivity and innovation (Audretsch D., 2019).

Innovation in products and processes is based on new ideas, and the creation of new ideas is a societal process that is important and interpersonal. From that aspect, geographical proximity significantly influences the innovation of individuals. It enables individuals to interact at the social, political and economic level, and hence the development of the collective identity, which opens possibilities for permanent cooperation of organizations (enterprises and institutions) in the industrial environment.

Existing instruments and mechanisms for establishment of cluster organizations in North Macedonia

Cluster policy is an area that dynamically evolves, where the clarity of conceptual discussion is not always in keeping with the efforts in practice.

While there is a growing consensus on the role of clusters in modern economics, discussion of the working theory of cluster policies has yet to be developed.

The absence of consensus on the usefulness of cluster policies to a large extent is a consequence of the confusion, which, in fact, applies cluster policy. If cluster policy is understood as a means of artificial change of the nature of economic geography, then there are many conceptual and practical arguments against its use.

If, however, cluster policy is seen as a way to move existing agglomerations as a platform for collaboration to increase cluster dynamics and as a more effective channel for delivering economic policies, then it has great potential (Bancic I., 2018).

Whether the cluster policy can meet these potentials or not, it is only a matter of debate that too often a parallel discussion of different research traditions that lack communication is often conducted. It also depends on the way cluster policies are implemented in practice. Each cluster approach involving specific industry measures and focused on increasing collaboration within the industry is at risk of becoming a scaffold for interventions that will reduce competitiveness rather than permit competitiveness to a higher level of productivity. In order to avoid this fate, cluster policies should be accompanied by robust institutions and a market-based ambiance that strives for competition.

Industrial policy and competitiveness

The success and economic growth of individual regional and national economies is based on the success and growth of enterprises in that economy. Innovative dynamic enterprises are the driving force of progress and technological development and represent the part of the economy that rethink scientific discoveries and innovations in products and services with usable value and, consequently, in profit. The actions of the state and its politicians in ensuring the general well-being in conditions of modern competition is aimed at providing conditions in the business environment that enable the company to achieve satisfactory adaptability, innovation and efficiency.

Among the traditional policy instruments that governments can improve in the international competitiveness of the economy include ways of harmonizing foreign trade policy, antimonopoly policy and the actual targeting of cash in specific enterprises and sectors. With the transition from price competition to product competition, as well as rising globalization, traditional protectionist policies have lost their significance, while active industrial policy, in turn, is aimed at the development of incentives for the economy, the development of information and communication networks and the improvement of the competitive position of enterprises on international markets.

The role of industrial policy was also an important issue in the transition countries when moving from a central plan to a market economy. Among the many politicians and economic experts, in the initial stages of transition, the prevailing opinion was that the restructuring of the real sector, which would have been reflected in higher economic growth and international competitiveness, would have spurred macroeconomic stabilization, the incentive of income and market competitiveness. Therefore, in the first period in these countries prevailed neoliberal approach, which supports the passive role of the state on the micron. It limits this to the creation of legislation for the protection of property and market exchange,

while the economic development leaves it completely in the domain of enterprises and their ability to exploit market conditions. Later, most post-socialist states took over the approach of mending the incomplete market activity, which is based on the neoclassical understanding of industrial policy. It is an instrument for securing (increasing) international competitiveness with antimonopoly policy, regulation and liberalization of trade. Corrective measures of the state would improve the technical and allocative efficiency, and hence, the restructuring of the real sector (Baum J. R., et al, 2019).

Contrary to the static approach to removing market failures, the strategic approach to industrial policy is proactive, aimed at increasing production efficiency, fostering institutional change and creating an environment that enables businesses to respond to market conditions in a timely manner. The approach starts from the knowledge that the allocation of resources depends on the strategic systems of management and networking and underlines the need for public-private partnerships in shaping the strategic directions of industrial policy.

In addition to the outdated infrastructure and production facilities, the key problem of the transition countries was the lack of managerial, technological and organizational knowledge, which limited the restructuring of the real sector. Proactive industrial policy measures and programs precisely therefore encourage the entry of key knowledge in the economy until it is only able to create such knowledge. Strategically targeted and dynamic industrial policy must enable enterprises to facilitate access to specific knowledge that is the basis for successful response to market challenges. Key areas of action include programs to increase competitiveness, encourage entrepreneurship and the competitiveness of small and medium-sized enterprises, foster co-operation and connectivity, support for reducing inefficiencies of enterprises and businesses, trade policy, which will make it easier for enterprises access to foreign markets, and protection of competition.Economic growth depends on the sources of the economy and the efficiency with which these sources are used.

Experiences in implementing cluster policies in the EU and the region

Regarding the development of grapefruit policies, it is important to know that policies are rooted or not in different public documents. The question is whether policy documents are published nationally, public and / or official studies, for example, white books where the grape growing approach is part of the innovation policy. The conducted mapping showed that two-thirds of the countries have published policy documents at the national level, while one-third do not have it. In later groups, about half the countries emphasize the national low-grade grape varieties. Additionally, the group consists of the smallest countries, for example, Malta and Luxembourg.

In 2006 the federal government of Germany began to develop a comprehensive high-tech strategy with the involvement of all ministers. The federal government's hacking strategy is part of this approach. The ranking of the grubbing-up strategy stretched from measures with a broad-based, modular, regional-specific or technologically-specific approach, all aimed at fostering the financing of the strongest, most productive clusters of leaders. This can be appreciated as a new stage in the federal government hacking policy (Beaudry C., Breshi S., 2019).

The Basque Competitiveness Program was initiated by the Sector for Industry, Trade and Tourism and the Transport Sector in 1991. Since then there have been various Basque competitiveness programs, but long-term goals are still being pursued. Today the program is called the Basque Social Competitiveness and Innovation Program.

For the realization of this program were established business association of bunches. The group of grapes associations, together with companies, universities, training centers, technology centers and public actors (municipalities, parliament, sectors of the Basque government) worked asfacilitators in the direction of enhancing competitiveness through cooperation. In other words, they organized all their activities to achieve this goal.

The relations between the regional government and the business clusters associations are regulated by a cooperation agreement between the Industry Sector and each Business Cluster Association. In addition, there is an arrangement defining the financial support of each association. In order to receive financial support, each cluster presents an annual plan and a strategic plan for a period of 3-4 years.

The program consists of nine priority bunches: home tools, machine tools, value added steel, shipbuilding, aeronautics, paper, automotive parts, tourism and food. A workgroup associated with each cluster defines priorities for advancement and proposes specific actions. The following activities were undertaken through the programs (Becattini F., Rullani E., 2016):

- strategic thinking;
- building consensus;
- creation of formal committees;
- designing action plans, mainly in the field of technology;
- internationalization and
- quality management.

Mapping Cluster Initiatives in the Republic of North Macedonia

In trying to create an optimum model of bunting in North Macedonia, we will first begin by mapping existing and potential business clusters. Examination and tracing of industry dependence is used as a first step in modelling the bunches. For this purpose, the use of input-output tables is used. They show the magnitude and

direction of interdependence by separate branches or enterprises, with the magnitude indicating the possible existence of a business cluster.

The same is handled at the level of individual enterprises in the analysis of debt-trust relations based on the supply of goods and services. If strongly related businesses and businesses are discovered, then it can be calculated the factor of interdependence. It can be a factor of dependence on the bunch in relation to an industry and a factor of dependence on an industry from a cluster, and finally as an index of interdependence between two clusters. Based on this approach, and following the links between enterprises, certain activities (products / services) are noted, which, according to the concentration in separate statistical areas, could serve as potential business clusters for upward intervention (Belak J., 2018).

Below is a matrix region / products as a model for grapes in North Macedonia on a macronutrient basis.

The basic objective of mapping companies in accordance with the geographical concentration has the function to identify the industries in the eight regions in the Republic of North Macedonia (according to NACE-357), which could be the so-called. "Leading industries" in the regions. Experience shows that these industries are the main content of the business bunches.

Improving the cluster infrastructure through policies

Cluster policy is an area that is dynamically developing and where the clarity of conceptual discussion is not always in keeping with the efforts in practice. Any approach that requires a more prominent role in the policy debate also requires the ability to demonstrate a significant quantitative impact on economic outcomes. In order for the cluster policy to pass this time, it is necessary to seek a wider agenda, including a portfolio of clusters and using clusters as a tool for broader economic competitiveness promotion, as is practice in many regions. Each policy or approach wants to show relevance in the context of a specific location. For cluster policy, this creates a requirement for both conditions, an economic setting that should exist and the economic challenges that the site should have. Cluster policy is not always the most important response, but it is often a matter for governments to keep an eye on.

Clusters are increasingly recognized as important instruments for fostering innovation, competitiveness and regional economic growth. Co-operation between EU member states envisions efforts for internationalization that will accelerate the development of world-class clusters in Europe to use clusters as lever drivers of these processes. While cluster policies are the responsibility of each of the EU members, it is necessary to achieve synergy in managing this phenomenon. Clusters can not be created, but need to be developed according to the needs of the market. Clusters should be innovative, which includes more effective policies, as well as the need to increase the professionalism of cluster organizations, promote

the integration of SMEs into clusters, and promote co-operation between cluster organizations (Bertini S., 2013).

Further progress in the debate on cluster policies should be guided by more data. While clusters now have an increased volume of quantitative data for many regions that provides a new wave of empirical research, cluster policies, there is nothing to compare. The assessment of the impact that exists exists for each individual case separately and seeks to focus on the promotion of specific program policies, rather than the fundamental testing of cluster policies as a concept. This is the beginning, but it needs to be monitored.

EU institutions to support clustering

Clustering as an instrument for increasing the competitiveness of companies proved to be a very successful tool. 38% of EU employees work in industries that are regionally concentrated in clusters. Studies show that clustered companies achieve a higher level of productivity and innovation and that clusters are an environment where new firms exhibit a higher degree of survival and growth.

Permanent recovery from the global economic crisis of the European Union requires achievement of progress based on competitiveness and realization of the plans outlined in the European Strategy 2020. Clusters can be an important factor in the design and implementation of the Strategy.

At the European level, there are the following structures in the function of implementing the measures and activities of the Strategy (Best M., 2019):

- European Cluster Policy Group
- European Cluster Alliance
- A European Cluster Excellence Initiative
- European Cluster Observatory
- Cluster partnership - a platform for collaboration

The European Cluster Policy Group (ECPG) is required to develop policies and recommendations for a new phase of cluster efforts throughout Europe, based on the significant experiences gained in recent years. The ECPG's recommendations are based on three main principles and eight action proposals. The three principles explain the role of cluster programs in the overall mix of policies and the nature of cluster programs. The eight action proposals translate these general principles into more specific suggestions for specific new action policies.

The European Cluster Policy Group (ECPG) was set up by a decision of the European Commission on October 22, 2008, as one of the main elements for finding opportunities for strengthening the quality of cluster programs across Europe. The group of 20 independent experts was in charge "to advance understanding of

modern policies that are responsible for creating clusters of cluster excellence and to make recommendations for better designing cluster policies in the Union."

The group has experts with varying experience (members of universities, community and government officials) and gets additional impulses from external experts.

In the last 18 months, the ECPG group has held four meetings. At the request of the Commission, the group focuses on the following activities (Best M., 2019):

• Support for international cooperation between clusters

• The role of clusters in the development of emerging industries / services

• Efforts to increase the feasibility of cluster policies and cluster organizations and

• Ways to create better synergy between community tools with cluster dimensions.

The three principles ensure that policy makers in the EU define specific action policies. ECPG fully recommends eight actions as a significant step towards implementing the future steps of EU cluster policies.

Principle A: Cluster programs should be leverage with strong effects for strengthening the framework conditions.

Principle B: Public support for cluster programs should be based on cluster capabilities and the desire to advance in the field of global competitiveness.

Principle C: Clustering programs should be delivered in an integrated framework with a clear definition of the roles and responsibilities for the Commission and the EU Member States.

The eight actions are the following (Best M. H, 2019):

1. Defining competitiveness as a priority for EU funding

2. Increase the cluster-related framework conditions

3. Checking the profiles of the current recipients of EU funds and at the level of Member States

4. Encourage better cluster programs at the EU level and at Member State level

5. Guidelines for EU funds for clusters to create a unified set of administrative procedures

6. Promotion of coordination of cluster programs through DGs (DGs)

7. Institutionalization of the supply of a cluster database with knowledge

8. Increasing the European platform for cluster cooperation.

Evaluation of cluster policies and programs in the Republic of North Macedonia

The countries implementing the policies for stimulating entrepreneurship use different tools / instruments. In the first phase, it is necessary to identify the existing or potential business clusters in the region, their strengths and weaknesses. Identification is performed by collecting statistical information, which allows a comparison between the regions and bunches. Collective information is used to create grapevine support policies.

The establishment of a dialogue between the private and the public sector is carried out through various forms of organization (public institutions, conferences, boards, forums, gatherings). Enterprises through these forms of dialogue influence the decision-making and policy of the state. The state encourages the connection of enterprises by supporting the introduction of technical management for change, which leads to improvement of the position of the enterprises on the market.

The most relevant policy of the Government of the Republic of North Macedonia regarding clusters is announced in the document of the Ministry of Economy, under the name Industrial Policy of the Republic of North Macedonia for the period 2009-2020. This document states that: proactive industrial policy will encourage the orientation of our economy towards products and services with higher added value and based on knowledge, innovation and collaboration (Beter J., 2019).

The future of the North Macedonia economy is reflected in the development of the capabilities for applied research, and the cooperation in clusters and business networks is listed as one of the five detected areas of intervention that will accelerate the development of the North Macedonia economy in the period until 2020.

As specific measures to be implemented in the area of cluster support and connectivity, the following are listed (Bostjan A., et al, 2012):

• Further develop awareness of the benefits of clustering

• Support analysis of clusters and business relationships and development based on specific action plans

• Supporting the processes of linking the value chain

• Networks of research and development centres and their relationship with industry Expected results of the intervention in this area are:

1. Implementation of clustering measures and networking will contribute to improving the understanding of the positive effects of clustering and networking for the North Macedonia industry

2. Government support for clustering and networking will emerge through a public-private dialogue that will be useful for the public and private sectors to better overcome the challenges of cooperation

3. The implementation of policy measures (supported by the Government, as well as other donors, EU programs and funds) will contribute to the creation of clusters as a basis for their further development of clusters based on innovation.

For the implementation of a successful industrial policy, a consensus is needed at the national level and an interdisciplinary approach, that is, joint management of development policies at two levels, such as:

1. at the level of Ministers (Competitiveness Committee) and

2. at the level of an inter-ministerial expert working group - a body for dialogue and joint development of a harmonized industrial policy.

National Research Centre (SIC)

The National Research Centre should play a key role in the growth of clusters. In order to support the government's vision of innovation, commercialization and economic development, the SIC should develop technology-based cluster initiatives to support the growth of new clusters. The NIC articulates four goals for these initiatives (Bostljan A., Vasudevan R., 2018):

• Creating a global competitive research and technological base for developing clusters at the level of interest communities

• Support community leadership, champions and knowledge-based strategies

• Working with stakeholders to put in place financing and new investments in the cluster community

• Stimulating the emergence of new firms, jobs, exports and growth in investment.

Through a community-based approach, the NIC and their partners encourage related clusters of innovative firms, supported by strong research programs and technology service assistance. NIC research institutes and networks are important drivers, keeping local interests together in groups of innovative companies around a common area of technology. These unique clusters based on technologies are focused on linking local and regional strengths with national and global economic opportunities. The ability to measure the evolution of these clusters is vital for planning the continuing activities of the SIC.

Life cycle of clusters and indicators

Due to the fact that they are dynamic systems, the clusters have their own life development path, which can be accommodated in a four-stage life cycle:

Latent phase: The region has a number of firms and other actors who are beginning to co-operate around the main / central activity and realize common opportunities

through their relationships. Indicators for latent clusters would include a small number of firms, low internal awareness and external recognition of cluster activities, as well as several connections between stakeholders.

Developing: New actors in the same or related activities appear or are attracted to the region, new connections have been developed. Formal and informal co-operation institutes can emerge as a "label" (like Silicon Valley) and joint promotional activities for the region. Indicators for developing clusters would include development links, internal awareness of regional strength and other actors, as well as high innovation.

Establishing: A critical mass has been achieved. Relationships outside the cluster are strengthened. There is an internal dynamics of creating new firms through start-ups / new businesses, joint venture / joint venture and spin-offs / fast-growing. Indicators for established clusters would involve many firms (more of which would be spin-offs to other organizations, external recognition of cluster advantages, active connections, and high innovation (Iztok A., 2015).

Transformation: Clusters change in their markets, technologies and processes. In the function of survival, clusters must avoid stagnation and decay. The transformation can be through changes in products and methods or in new clusters focused on other activities. Depending on the state of the transformation, the indicators can be mixed.

The need for concerns of players in the cluster will be different from the degree of cluster development, and cluster policies can also evolve.

Legal requirements for the creation of a cluster in North Macedonia

The recommendations to the Ministry of Economy and the expert bodies, which were discussed and arisen from the Round Table organized by the Ministry during 2018, are as follows (Arsovska M., 2010):

- In order to emphasize the importance and importance of clustering, to develop a national strategy for the development of cluster association.

- To conduct detailed mapping of the industry, to locate all entities that have predisposition to form a cluster and to develop a program to support those initiatives - industries that comply with the National Strategy for Economic Development.

- Prepare a curriculum for education intended for the production of professional profiles - cluster managers who will gain quality knowledge and skills for being able to engage in cluster processes as moderators and leaders of sustainable cluster associations.

- To organize additional analyzes of the needs for relevant trainings in the cluster associations themselves based on their specific needs and to establish a budget for supporting initiatives for strengthening the internal cluster capacities, but on the basis of previously fulfilled criteria and a proven clear development strategy .

Key conclusions for defining the process and the accreditation body were (Audretsch D., 2018):

- An unreserved consensus that it is necessary to establish an expert body for setting criteria and evaluating applications for registering - identifying and supporting cluster initiatives.

- The body should be composed of proven experts and be independent, which would work under a special rules of procedure and discretion, whose decisions will be accepted and respected both by existing and future (candidates for) clusters, and by the relevant ministries and other state institutions and agencies. Within the Ministry of Economy it is necessary to open a process for establishing this body and to define all aspects of its work:

o Number of members / up to 5 members to ensure flow and efficiency in operations.

o Criteria for selection and re-election / proven and independent experts in their area capable of assessing, making sound decisions and reasoning their views. To be elected for a term of at least 2 years with the right to re-election.

o Method of work / to be established under the auspices of the Ministry of Economy, to meet at least 2 times a year and, if necessary, if a particular cluster initiative appears (or to work on two yearly open calls for collecting applications for cluster initiatives).

o Criteria and application form / on the basis of the proposed and accepted criteria, to prepare an application and to provide ways for accurate provision of other relevant data from the competent institutions (Statistical Office, Customs, National Bank of the Republic of North Macedonia, Public Revenue Office etc.)

o Evaluation system / body to build unique scales of values and uniform criteria for evaluation of cluster initiatives that will emerge from generally set indicators - aligned with the national industrial policy, but which will be adapted in the direction of accepting a greater number of initiatives.

o Make decisions / decisions of the body to be valid and have the status of finality, and within it, either be adopted with consensus or provided with a 2/3 majority.

o Reward and others. / in order to ensure their impartiality and objectivity, to provide funding to the body through a special fund in the Ministry of Economy and partly through the registration of potential cluster initiatives.

- A public presentation of the functional tasks of the body for accreditation of cluster initiatives should be carried out, and preparatory trainings for presentation

of the criteria and ways for their achievement for all existing or future cluster associations should be organized.

- The accreditation process should be implemented for all existing clusters, whereby a National Register of accredited recognized accredited clusters that meet the set criteria will be built, but this process should be evaluated every year by implementing the indicators for measuring their performance (to monitor and evaluate development) as a reaccreditation process.

- Consider the importance of forming a body that will accept cluster initiatives, needs and will be a representative of common cluster interests, such as Cluster Federation or Cluster National Association (NKA), or if National Competitiveness Council is rebooted , The Council to be an accelerator of cluster development.

- The establishment of the NKA is necessary in order to ensure coordinated and sustainable development of cluster initiatives in the Republic of North Macedonia based on information,knowledge and concentration of expertise, advocacy of clusters in front of the Government, focus on recommendations and policies of the EC.

- NKA - creates a long-term and competent platform for the development of cluster initiatives in the Republic of North Macedonia and an active interaction for their internationalization.

Evaluation of cluster policies and programs in the Republic of North Macedonia

The Ministry of Economy since 2009 has been developing annual Programs for support and development of the cluster association in the Republic of North Macedonia.

The first Program for Support and Development of Cluster Association in the Republic of North Macedonia was adopted in 2009 with a total amount of funds from 2.200.00 denars. The Program supported the following activities (Audretsch D., 2019):

- Creating a catalogue-map and cluster web site

- Training for advancement of management

- Regional networking and networking with cluster associations in the region and the EU

- Organizing the Second International Cluster Conference on the topic: "Sustainable Clustering - Principles and Successful Examples".

In the Program for 2010, in the amount of 2,500,000 MKD, the following activities were covered:

- Preparation of a Guide for Clusters (a guide is printed in North Macedonia and in Albanian)

- Organizing seminars for raising awareness about clustering

- Support for projects from cluster associations.

The 2018 Cluster Associations Support Program, in the amount of 3.000.000 denars, includes:

- Organizing clustering seminars

- Support for projects from cluster associations

- Upgrading the capacities of the employees in the institutions to support clustering

- Organizing a round table on the topic: Indicators for a successful cluster

- Defining conditions and body for accreditation of cluster associations.

In the future, it is planned to support activities aimed at supporting projects of cluster associations, which will enable the promotion of cluster connectivity and economies of scale. The joint approach of small and medium enterprises through clusters will enable reduction of costs for strategic planning, marketing, training and entry into foreign markets. In order to support the development of cluster initiatives, the Cluster Guide will be promoted, which is intended for their management. We will continue to support the organization of seminars for raising awareness about cluster associations, supporting specific projects submitted by clusters, strengthening the capacities of the cluster, and organizing debates on indicators for a successful cluster.

In order to strengthen the technological cooperation within the clusters, within each cluster a Register of North Macedonia companies with the greatest capacity for innovation and research will be established. In cooperation with the existing clusters and in accordance with previously defined criteria, the capacity of the North Macedonia companies capable of conducting research will be measured, which would be applied in the production processes. According to these rankings, the cooperation between the companies, universities, faculties and North Macedonia innovators will be built (Bancic I., 2018).

Organizing training at the cluster level. The technologists and engineers of the top 10 firms from each cluster and 5 innovators from the respective area will give a lecture on the practices and innovations in their work. For its part, the government, in cooperation with international financial institutions, will finance at least two regional and European renowned lecturers in the field to hold a lecture on world achievements.

The Agency for Technologies and Innovations will be established for institutional support of innovations and research in North Macedonia, independently or within state institutions. This agency will co-finance research projects that have the potential to find application in North Macedonia companies, in accordance with the current level of technological development. In this way, the funds will be used only for those projects that can have practical application and will improve the

competitiveness of the companies. In the medium term, with the changing structure of the North Macedonia economy, projects will be co-financed in new areas. The agency will work with clusters in identifying companies that have the greatest potential for innovation. In the later phase of the Agency's operation, besides co-financing of technological innovations in the industrial sector, research projects and innovations for local and development of the service sector will be financed.

The program will be implemented during 2019 with funds from the budget of the Republic of North Macedonia, as well as donations, as well as funds realized through projects supported by the European Commission (Baum J. R., et al 2019).

The institution responsible for this project is the Ministry of Economy, which in cooperation with the Agency for Support of Entrepreneurship of the Republic of North Macedonia (APPRM), the Agency for Foreign Investments and Export Promotion of the Republic of North Macedonia (ASIPI) and the chambers of commerce will enable realization of the activities of the Program.

Barriers to the creation of clusters in North Macedonia

The surveyed stakeholders, i.e. stakeholders, we think that we are generally good at developing cluster development policies, sharing experiences with other countries in the region and enthusiasm, especially with some clusters, but that we are not equally good in practical actions. Some also consider that the number of specific cluster support activities is still limited.

Cluster membership is not yet clearly seen as an activity that adds value to the enterprise. Active clusters often look like a kind of business association. Existing clusters do not work enough to properly position them and define activities that add value. It is not enough to adequately promote the idea of clustering in the business environment, the development of the vision of the association, the development of the cluster mission, the setting of the long-term goals of the association, thedefine a set of activities that will truly add value, and develop the capacity of clusters' leadership, and plan it and implement it in practice.

A survey of key clusters shows that the mutual business trust among members is low, that we have insufficient vertical integration and connection and weak support from institutions and in access to finance (Beaudry C., Breshi S., 2019).

It is noticeable that there are no tools for exchanging experiences between different clusters, in terms of software systems, portals, newspapers, workshops and similar concepts. Thus new clusters unnecessarily go through the same childhood diseases. It is necessary to develop a platform for organized exchange of experiences between clusters, a task for which the Ministry of Economy should be a bearer.

Bearing in mind that clusters are appropriate forms for access to many European development and innovation programs, the need for better coordination of the existing clusters with the European Integration Sector is highlighted.

We can conclude that the activities of our clusters take place in conditions of low recognition of the advantages of joining the business community. Expenditures and activities to promote the concept and existing clusters are minimal or practically non-existent. This is probably due to insufficient total funds and to rationalizing the truly essential costs of clusters.

On the other hand, raising the profile of clustering and the promotion of our clusters, at home and abroad, is a requirement for their establishment and if the promotional activities remain or are limited exclusively at the annual conference, there is a danger that the overall intervention and the funds invested so far will not be valorised in an adequate manner.

The need for training staff and cluster members is obvious. Surveys have shown that technical issues are seen as crucial and it is obvious that management teams of existing clusters would greatly assist in training in general business skills, such as strategic management, marketing and human resource development.

Generally speaking, all North Macedonia clusters still need support from the state, with the need for it to be adapted by type and after the necessary co-payment by the users depending on the achieved level of the individual clusters.

A comparison of the general features of intervention in the EU countries with that of us shows that we are not lagging behind at all. On the contrary, thanks to the early experience of the project "North Macedonia Initiative for Entrepreneurship" of UASID, similar projects financed by IEC, GTZ, Norway, Switzerland and the Netherlands, and thanks to the previous engagement of the Ministry of Economy, the Republic of North Macedonia belongs to the group of more experienced and more agile countries when it comes to organized support of cluster associations (Becattini F., Rullani E., 2016).

Innovation policy of clusters

The development of an innovation strategy in many countries in the world is implemented through the creation of innovative clusters that act as a mechanism for implementation, while establishing synergies among the main stakeholders in the target markets.

Since the late 20th century, clusters defined and widespread in an industry or sector increase the productivity of businesses. Experts, such as Peter Drucker, later Dr. Michael Porter, have expanded the cluster's mentality to the forefront of economic development, focusing on developing competitiveness in industries located close to space. The cluster model, based on the new fabulous "Porter Diamond", has become the basis for developing global economic initiatives. Many

of these initiatives have achieved success for a limited time, while others have collapsed for a variety of reasons, not least because of the lack of understanding of practical cluster development elements, but for some theoretical reasons.

In the last ten years, innovation clusters have emerged, taking theoretical and practical application of new levels. An innovative cluster by definition is a group of companies, research centres, investors, public sector representatives, academies and organizations, which allow them to work together to proximity in the direction of creating new technologies, products and enterprises. Innovative clusters differ from industry in several ways, some of which are the following (Belak J., 2018):

• Industrial clusters focus on broad industry grouping in the sector, focusing on "building massiveness" in a particular industrial grouping. Innovative clusters take up a wider focus, including the public sector, academia, technology / research organizations and prominent organizations. This allows innovative clusters to focus on the impact of knowledge on a particular industry that will induce innovation versus simple production, sales and marketing impact, which will promote economic growth in a short time.

• Industrial clusters are focused on competitiveness; innovative clusters strive to focus on prosperity. Industrial clusters evaluate the effect and production as mechanisms for increasing productivity, while innovative clusters focus on creating knowledge and creativity to increase prosperity. The ability to innovate and create commercial change is the basis for both, competitiveness and prosperity.

• In contrast to industrial clusters, which in many cases are formed as permanent mechanisms for increasing productivity, innovative clusters are "ecosystems" that are born, aging and die, or eventually transformed in one form or another into a different form. Because prosperity is a dynamic process, innovation becomes more important than identifying an industry as a permanent mechanism for economic growth, most of them will "die" in their present form, unless innovations facilitate their evolution.

Measuring the impact of the "path of prosperity" is not difficult, but often is driven by the desire for strategic and implementation. Many times the innovative effort has not been evaluated according to criteria based on objectivity, so the results are clouded by misinformation, false data and inadequate information.

This coincides with the fact that in many emerging markets monitoring and evaluation are not valued because of a misunderstanding of their definition or a chaotic decision, not recording the progress in key indicators. In the last case, this typically means that no results have been achieved that should be noticed.

Monitoring and evaluation begin with basic indicators that states record (or in some cases sectors or industries) for the current position relative to specific measurable criteria. Once the basic indicators are set, the target impact can be created and recorded on an ongoing basis. Typically, the cluster manager would be responsible for recording these data and sharing results with cluster members, but specific comparative analyses and impacts should also be recorded at the national level.

In many cases, monitoring and evaluation, especially in cases of recording economic indicators, is inconsistent because it is not legally supported. For example, in some states (Canada) for decades records of thousands of data, for example, economic, social, educational, and others. This is possible because adherence to data collection is compulsory for all businesses and checks are carried out to ensure the accuracy of the information.

Even without coercion to law, countries can collect empirical data by focusing on a small set of key indicators and to record them consistently over a longer period of time (Bertini S., 2013).

It can be concluded that innovation is critical to the prosperity of a country and its position in the value chain of prosperity. It can be said that prosperity has its own price. Not every country can implement the path of prosperity, using and adopting more localized mechanisms or implementing outdated strategies that focus on achievements rather than losses. Prosperity can be achieved only by daily investment in technologies, innovation promotion and management structure refinement.

It is quite clear that countries with a growing economy can implement effective innovation strategies by putting their natural resources into practice, building a local knowledge base, increasing productivity, supporting competitiveness, and compulsory prosperity creation. The key is in adopting a methodology that can overcome political hardships, economic turmoil and cultural paradigms. This methodology must be understood and accepted by the citizens and they must be involved in the process of creating prosperity. The reality is that the responsibility for creating prosperity lies with the country itself and its inhabitants. Donors can speed up the process, but they can not replace the initiatives, energy, creativity, and commitment that must be in place to advance innovation and to grow the seed of prosperity (Best M., 2019).

Innovation policy within the EU

Almost all European clustering programs have private businesses as a target group. Another larger target group are research and developmental institutions. The inclusion of research and development in European cluster programs is generally high. Almost 50% of European cluster programs include cross-border cooperation. There is also a trend of shifting the focus of the cluster policy from nationally to the local and regional (interstate level).

Regarding the form of cluster policies, they appear in different documents. Sometimes the cluster approach is part of the overall industrial, and somewhere in the innovation policy. There are special national competitiveness councils in 16 out of 31 countries covered by the analysis.

In most European cluster programs, there is a specific formal application process for initial cluster support. The group of companies, active and potential clusters,

make an appropriate application for financial support. In 39 of the 69 analyzed cluster programs, the selection process is completely downward, that is, on the basis of an initiative of interested applicants, and 28 programs are more oriented upward in terms of selecting.81 Regarding the type of request, win-win support in 31 programs, it's about exclusive financial support. Only 8 programs require support in acquiring and sharing knowledge and building networks. In 26 programs it is a certain combination of financial support with different forms of knowledge exchange and network building (Best M., 2019).

The European Cluster Observatory monitors and publishes examples of best European practice as an instrument for exchanging the experience gained. Additional sources of best practice and case studies can be found on the Inforegio website, platform for transferring knowledge and technologies. With regard to direct state intervention and its effects, we highlight the program of Italy. The state has initiated two very successful clusters, for textile in the Carpets and for agricultural mechanization in Modena. There are around 1,600 textile (knitted) companies with 10,000 employees and an annual production of 1 billion euros (6.5% of the national), of which half is for export. In Modena there are 4,000 enterprises in five clusters, the value of industrial production is 7 billion euros. Only 171 in the cluster for the production of tractors and agricultural machinery.

An example of a successful regional program can be highlighted the Basque Country's Social Competitiveness and Innovation Program. The province is known for two mega-clusters: Marine traffic "Uniport Bilbao" with 146 members and "Hegan" cluster of the airline industry (the production of many parts for Airbus) with over 30 specialties, 32 enterprises and three research centers. The program is realized through cluster associations. They, together with companies, universities, training centers, technology centers and public authorities (municipalities, parliament, sectors of the Basque government) act as facilitators of competitiveness.

The Slovenian experience in conceiving a successful cluster support program is also successful and rests on various modalities of public-private partnership.Thanks to this model of organization, ten clusters currently operate in Slovenia, of which at the European level are the metalworking and cluster of furniture, with a strong export capacity and medium level of innovation and agglomeration, measured according to European criteria. In the Republic of Slovenia, the main institution responsible for formulating the cluster policy at the national level is the Ministry of Economy, and the main implementing organization is the Agency for Entrepreneurship and Foreign Investments. The National Program for Encouraging the Development of Clusters was funded by the Ministry of Economy. The activities started with the mapping of potential concentrations,and initially implemented measures (projects) for encouraging business cooperation in general, and then a cluster pilot project was developed (Best M. H, 2019).

The second area of intervention in the Republic of Slovenia, interesting as a reference model, is the development of local clusters of microenterprises. 12 regional development agencies are responsible for the implementation of the

cluster policy at the regional level in Slovenia, which act as implementing organizations through projects with which they apply for funds from the Ministry of Economy.

From the analysis of the EU practice and the recommendations of the European Commission, it can be concluded that the shift in the focus of national agencies and local business support centres, from general support to focused and specific programs for particular industries in the given business environment, gradually will become a widespread practice in the EU countries. It is also interesting that the institutional assistance to small and medium enterprises is channelled through clusters, which gradually changes the mission of the previous institutions of support to entrepreneurship. As trends identify and change the type of business services, which are now adapted to the specifics of the industry, the requirements for innovation and the requirements for regional co-operation.

The application of the Italian model, the organization of clusters around a larger enterprise, and the use of an already existing national implementation institution and the network of local agencies to support entrepreneurship and in the process of supporting clusters, as in the example of Slovenia, seems completely rational and in the case of the Republic of North Macedonia (Beter J., 2019).

Conclusion

For most of the post-war economic period in West European countries, the main driving force of economic growth, employment and economic stability were the activities such as metalworking, tool making and automotive industry. At the end of the twentieth century, Western European countries, like the United States, began to lose competitive advantages in the mentioned industries, first of all, for two reasons: first, due to competition from the newly industrialized countries of Southeast Asia and Central and Eastern Europe, and secondly, due to the development of new communications technologies that have influenced the geographical distribution of production. Low value added products have moved and are still moving in countries with cheaper labour, which has a consequence of reducing the need for low-skilled labour in the developed countries. Maintaining relatively high wages and at the same time employment in the developed countries is possible only by diverting to highly value-added activities, that is, in those activities that are based on knowledge and innovation.

In the so-called knowledge economy, the products and services become ever more complex and contain a growing knowledge base, and their functions are, on the other hand, constantly broader and more tailored to the specific requirements of buyers. Among the most frequently mentioned features of the knowledge economy, can be stated:

- growth of research-development intensity, shortening of the driver's time for development of new products and shorter product life;

- high fixed costs associated with the creation, production and distribution of products, which are repercussions in the increase in the volume of income;

- an increase in externalities, that is, complementarity among enterprises that increase the economies of scale when products and production chains become more complex;

- the growing importance of connecting with suppliers and buyers, which cover the lower cost of communications, are more often geographically determined;

- the key role of human capital as well as the significant external benefits arising from the higher general level of the next in the chain.

Knowledge as an investment in productive function differs from more traditional labour, capital, and land. While the economic value of monitoring is fairly certain, knowledge is not, and its potential value, in turn, is asymmetrical for economic agents. Knowledge is a heterogeneous treasure, which can be used in a variety of applications, and very often for a particular product or service it must have a certain kind of knowledge and be combined with different types of knowledge.

Operating conditions require enterprises to concentrate on the so-called carrier skills, which means an increased specialization of activities and knowledge in an individual enterprise. The knowledge needed to effectively increase and use the funds, however, is very complex and is usually not concentrated in one enterprise. The consequence is the need to connect with enterprises that specialize in complementary activities and knowledge. Dunning among the reasons for the increased range of cooperation among enterprises lists three characteristics of knowledge:

- can be extremely expensive, because, for example, the cost of developing a new drug or the development of a new microchip amount to more than $ 1 billion;

- the results of investing in increasing knowledge (for example, by investing in research and development) are highly unreliable;

- many types of knowledge, and especially those that can be mimicked, are expiring quickly.

Knowledge is, therefore, a production factor, derived from different sources: research development and education systems, training systems, as well as the innovative climate in the enterprises themselves. Investments in knowledge can be at least partially measured by investments in research and development activity. They are, in fact, only a bet, while the efficiency of those investments depends on the efficiency of the innovation system, that is, from the research infrastructure, cooperation, the ability to absorb the external technologies. The funds for research and development are partly derived from special sources, ie from enterprises, and partly from public financial sources. While the first ones are intended primarily for applicative and developmental research with immediate economic goals, the

public funds are intended to co-finance the basic scientific research, and above all, to encourage the cooperation of individual actors in the transfer and use of knowledge and results from the basic research into productive goals.

The National Research Center should monitor the progress of its initiatives to support government requests, to assist in the planning ofprograms and management (management) of current and future initiatives and to help communicate with stakeholders in the cluster (industry and local governments), as well as central government. The National Research Center should find relevant data sources to support their planning and performance measurement activities. As mentioned earlier, several different methods and techniques for analyzing clusters are recommended in the literature, but there is no standardized approach, and there are many challenges in analyzing clusters that appear, as well as the established clusters in different industrial sectors.

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