CURRENT TRENDS IN CLUSTER DEVELOPMENT IN EUROPEAN COUNTRIES

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ABSTRACT

This paper explores some of the key areas in the development of innovative clusters in European countries. It is worth noting that in European countries cluster policy is currently aimed not so much at the creation of new clusters as at the mobilization of available regional resources within clusters that are already in place. In addition to that, among the present-day trends is an increase in the share of small and medium-sized enterprises in clusters, which is determined by the special nature of these enterprises and the need for their integration with large companies and scientific centres. One is currently witnessing a trend whereby the focus of most cluster programs is on cluster development within highly specialized sectors of a region's economy as opposed to across all of its sectors indiscriminately. In a climate of the rapid development of cutting-edge information technology, there is taking place a transformation of both the very essence of innovative clusters and the way they associate with each other. One is witnessing the emergence of an increasingly great number of international clusters reaching beyond the region. Analysis of best practices helps determine some of the key areas for enhancing cluster policy. This is of significance for the Russian economy, with cluster development viewed as one of the priorities for Russia's economic policy today. At the moment, the process is, however, being carried on with much difficulty. To help streamline this process, the authors are putting forward a set of solutions which it may help to implement at different levels of economic management.

Keywords: Innovation, Cluster, Development, Resources, Programs.

INTRODUCTION

Innovation is one of the key factors in the development of a modern economy. The implementation of innovative solutions is increasingly undertaken these days in partnership with other participants, as opposed to by standalone firms exclusively. A major form of this type of cooperation today is clusters. Cluster theory is not new to economics. Its foundations were laid down back in the 19th century. The concept was *"fine-tuned*" by Porter (2003). Various aspects of cluster theory have been explored by Enright (2000); Hart (2000); Bergman & Feser (1999); Andersen et al. (2006). Technically speaking, a cluster is a group of interrelated enterprises, located in a certain area, which compete with each other but, at the same time, are also engaged in joint activity. It is no longer the sectoral approach that is shaping our modern economy-increasingly, it is the cluster approach that is. There are different types of clusters. Among the most promising are innovative clusters. These differ from traditional clusters in that there is close territorial linkage among not just the firms but also their suppliers and clients, as well as large

research centres and universities. This makes it possible to have a closed technological network that will take care of everything-from creating a product through to manufacturing and getting it into the market. These clusters, mainly, turn out export-oriented products (Lenchuk & Vlaskin, 2010).

The ground breaker on this type of clusters is Silicon Valley, located in the United States. The area houses nearly 87,000 companies, dozens of research centres and several large universities (Mantaeva & Kurkudinova, 2012). A significant amount of attention, over the past 20 years, has been devoted to innovative clusters in European countries. This is associated with a desire to attain leading positions in the area of developing and implementing innovations. Existing best practices are facilitating rapid growth within regions employing the cluster approach (Rutko, 2016). The more successful cluster initiatives have been implemented in Germany, Austria, Great Britain and Spain (Sölvell et al., 2003).

The expert community and participants of the successful operating clusters consider the effective development of a cluster to be characterised by the Triple Helix mechanism, i.e. the interaction of three groups of participants: business, government and science (Sölvell et al., 2003). The Triple Helix is managed through the regional partnership mechanism aimed at economic development based on innovation (Erzkowitz, 2008). However, the management process itself is complicated due to the peculiarities of all three categories of participants (Roriguez-Clare, 2005), despite its long existence is extremely relevant for the European Union and at present that can be seen from the terms of participation in the programs for supporting clusters within the framework of structural funds and the EU framework programs (Cluster policy in Europe, 2008).

The Russian economy is being keen on cluster development as well. Different regions across Russia have this kind of establishments in place today. However, the process is faced with numerous challenges. In resolving these issues, it may help to rely on international best practices in the field.

METHODS

Trends in the development of innovative clusters are grounded in certain consistent patterns in their formation and operation. These consistent patterns include the following:

The Initiation of the Process of Creation of Clusters

There have been different approaches to this. In the 1990s, there was no consensus on who must initiate the creation of clusters. It was believed that clusters should be created "from below", while the role of the state came down to just providing support for the process. One of the most successful examples of forming a whole community of innovative clusters that carry out active interaction within the same region is the experience of Germany. Industry and interbranch networks of companies established within the federal state of North Rhine-Westphalia allow regional authorities to form their own international brand under the original name Exzellenz NRW, considering it part of the overall strategy of positioning the region to attract investments (White paper, 2010; Cortright, 2006).

Later on, a series of studies were conducted based on 13 European agri-food and agricultural clusters which challenged the argument that clusters should be created "*from below*". It was demonstrated that the more common practice was initiating clusters at the state and regional levels (Capitão, 2012). In 2012, an extensive study was conducted by the European

Cluster Observatory. The study helped establish that a cluster can be set up in equal measure by the state and by a business (a "*from below*" initiative) (Viachka, 2012). It is this approach that prevails around the world at the moment. For example, the most holistic approach to biotechnology development is carried out in the bio-regions that interact with each other through numerous formal and informal networks. The largest association is the European Council of Bioregions (CEBR), established in 2006 as a project of the European Association of Bio-industries in order to form a network of biotechnological clusters operating throughout Europe, to harmonise the biotechnological industry and its supporting infrastructure.

The Stage-By-Stage Nature of Cluster Development

An innovative cluster is an economic organism that has certain phases in its activity. The first stage is the formation of a cluster. Here, it is important to understand the basis the cluster will be formed on. Many innovative clusters emerge on the basis of scientific centres and universities. One should definitely factor in the initiating forces behind the creation of a cluster. The second stage is the making of a cluster. This is facilitated by the availability of qualified human resources and an edge on costs. There is a growing need for innovative infrastructure. The next stage in the cluster's development is growth. This stage involves developing a set of programs aimed at boosting the cluster's competitiveness and expanding its infrastructure. A special stage is the process of transforming the cluster. This involves some structural changes and streamlining (Dudin et al., 2016). It can be a shift to new technologies, changes in the nature of interrelationships within the cluster and other transformations (Prazdnichnykh, 2011). At the first stage of the life cycle of an innovative cluster, individual actions of economic entities are the driving force. The second stage is characterised by the manifestation of the initial cluster effects and the third stage-by the full-fledged cluster effects.

Systemicity

A cluster is a complex entity that has the form of a set of interrelated elements. There are both vertical and horizontal relationships among its component parts. The need to attain the objectives set brings about the need to coordinate actions. The system expands when the cluster reaches beyond the region. An important distinctive feature of the development of innovative clusters is the combination of cooperation and competition: firms cooperate and simultaneously compete with each other.

The Action of Differently Directed Forces

Just like any other complex entity, an innovative cluster is no stranger to discrepant trends. Things that to most would seem incompatible are combined here, like competition and cooperation or centrifugal and centripetal forces. Of a special nature is also the way clusters are regulated, which includes regulating "*from above*", i.e. on the part of the state and regulating "*from below",* i.e. in the form of self-regulation. As internalisation of business has grown in recent years, there has been a gradual development of cross-border cluster initiatives. This is due to the need to meet the growing needs of consumers, search for new opportunities for economies and complementary competitive advantages of partners at the international level (Dagnino and Padula, 2002). Nevertheless, European experts note that currently only Germany and France are fully involved in the process of internalisation of innovative clusters. The main initiative, aimed

at the development of international clusters in Europe is TACTICS (Transnational Alliance of Clusters Towards Improved Cooperation Support).

Having a proper idea of these consistent patterns enables better understanding of trends in the development of clusters.

RESULTS

All countries where the cluster approach to economic development is in wide use have a certain cluster policy in place which they follow. Right now some nations are witnessing changes in their cluster policy. In particular, a number of European nations (Great Britain, Spain, Hungary and the Czech Republic) are experiencing a trend of cluster policy being not so much aimed at creating new clusters as at mobilizing existing regional resources within clusters that are already in place. This is due to the growing role played in a nation's economic development by its regions. As part of cluster policy, the government will have developed a set of general requirements for clusters. In Europe, 90% of participants in a mature cluster must be registered. Half of them have to be commercial organizations operating within the sector in which the cluster specializes. Universities and research-and-development centres are a mandatory part of a cluster. No less than 15% of cluster participants must interact with each other. Clusters need to have a program and strategy for development (Working group 2 of ECEI, 2012). Many economists, geographers, city and region planners, sociologists and political scientists use the institutional approach to studying the patterns of business location. They focus not on the reactions of individual firms and consumers to economic incentives but focus on the effects of social relationships that cannot be completely ruled out when market decisions are made by individual actors. In their opinions, the market is not the main organising principle of economic life, but rather the market itself fits into non-market social relations.

Today's trends in the development of innovative and other types of clusters include an increase in the share of small and medium-sized enterprises. In the early 2000s, a group of European researchers conducted a study that featured 34 clusters in 17 European countries. The study established that 19 of the clusters were dominated by small and medium-sized firms, while 12 clusters featured a combination of firms of different size and just 3 were dominated by large firms (The observatory of European SMEs, 2002). One is currently witnessing changes in the sectoral structure of clusters. Based on findings from the European Cluster Observatory, regions are increasingly shifting the focus from having cluster programs in all sectors to implementing cluster programs in highly specialized ones. Concurrently, it was established that most regions are striving toward intersectoral cooperation among cluster participants representing different clusters (Ketels and Protsiv, 2014). This is of particular significance to small businesses.

Of major significance in driving cluster development is state support, typically provided by way of national programs and projects. A good example is the "*Go Cluster*" project, initiated by Germany's Federal Ministry of Economics and Technology. The program is aimed at providing assistance to clusters' senior management with a view to enhancing their qualifications and educating the participants in innovative networks (Prokof'ev et al., 2013). Note that certain changes have been made regarding eligibility for participation in state programs for cluster support. Firstly, it has been understood that only effective clusters deserve to receive funding from the state. Should a cluster's management team fail to achieve the objectives set, the government is going to discontinue the funding program. In this regard, a number of nations (e.g., Norway, Hungary, Sweden and Denmark) have a system in place whereby a cluster's performance is evaluated on an intervening basis, based on which decisions are then made

concerning the provision of state support for it. Secondly, applications for participation in state cluster programs are evaluated on a competitive basis. There are long timeframes for submitting an application and going through a competition. State support is provided only to competition winners. Thirdly, preference in awarding state funding is given to small and medium-sized enterprises. For instance, with the BioRegio program, implemented for German enterprises, the share of small and medium-sized businesses is about 60% (Cluster Policy).

DISCUSSION

Researchers exploring innovative clusters have stressed their major effect on companies' development. In particular, Malmberg & Power (2005) note that being in a cluster helps companies exchange, acquire and generate new knowledge-the basis of competitiveness. The scholars put forward 3 major arguments in support of the claim that knowledge plays a significant role in creating competitive clusters: knowledge in clusters is created through various forms of local inter- organizational collaborative interaction; knowledge in clusters is created through increased competition and intensified rivalry; knowledge in clusters is created through spill over following from the local mobility and sociability of individuals (Malmberg and Power, 2005).

However, there remain numerous unresolved issues related to cluster development. Due effort needs to be put into exploring the mechanism underlying the management of companies' innovative development in a climate of clusterization (Korolev et al., 2017). It has been found that clusterization can both stimulate and impede innovative activity. For instance, scholars Beaudry and Breschi (2003) have established that most firms are positively inclined to innovation when they are located in a region where there are many other firms positively inclined to innovation. However, a negative effect may arise when there are numerous firms that are not inclined toward innovation with regard to their own production operations (Beaudry and Breschi, 2003). Some researchers have also explored the efficiency of state programs aimed at driving cluster development. It has been found that programs of this kind are not always implemented in a cohesive manner, lacking proper coordination. Thus, for instance, with regard to the outcomes of the implementation of US federal cluster programs Porter notes that they are often fragmented, duplicative and inefficient (Porter, 2009).

Existing issues in the development of innovative clusters are not letting one get a definitive answer as to what a "*model*" cluster should be and how the state should support it. Nevertheless, existing research and practices are making it possible to determine some of the key areas for enhancing cluster policy. These include the following: in joining up enterprises and scientific organizations into an innovative cluster, the integration process should be oriented not toward the more successful enterprises-the focus should, rather, be on assessing the potential of developing an enterprise within the cluster under formation; of special significance in a cluster is interaction among its participants, which may require developing relevant institutions of collective cooperation in order to galvanize innovative processes; a driver of boosts in a cluster's competitiveness is fostering its international ties; enhancing the targetedness and boosting the efficiency of state and regional programs aimed at cluster development.

CONCLUSION

So, based on the findings of the authors' analysis of the latest global trends, what are some of the conclusions to draw with respect to cluster policy within the Russian economy?

Clusters became a popular item on Russia's economic agenda relatively not very long ago-during the 2005-2006s. Around that time, the issue began to be one of the keynotes of federal and regional programs for social/economic development. In 2012, the Ministry of Economic Development of the Russian Federation started to implement a program featuring 27 innovative territorial clusters selected by way of competition. Between 2012 and 2015, a total of 46 new clusters were launched in Russia. In 2016, the Ministry moved on to Stage 2 in the implementation of cluster policy, launching a priority project aimed at driving the development of innovative clusters (Islankina et al., 2017).

However, the nation is currently faced with a whole lot of unresolved issues when it comes to trends in the development of Russian innovative clusters. In contrast with the European cluster initiative, whereby clusters are formed both "*from above*" and "*from below*", in Russia most clusters were formed in a top-down manner without first getting tested by the market.

To enable the proper streamlining and development of innovative clusters, it will help to synchronize the actions of all participants in a cluster at the federal, regional and local levels and the level of enterprises. What is needed putting in place a market for managing the companies. The coordinating role could be taken on by establishments formed by the latter's participants in conjunction with federal and local authorities. A major objective is also to providing clusters with a highly competent workforce, whom there is a real shortage of at this time. There is a need to put in place a well-developed infrastructure, cultivate a network of sustainable relationships among all cluster participants and ensure all of the innovative companies equal access to financial and other resources (Korolev, 2013).

This paper examines just some of the aspects of the issue of innovative clusters. Putting a fair amount of effort and research into resolving existing issues will help come up with the more insightful ways to drive innovation in the country going forward.

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