

CLUSTER INITIATIVES IN THE CONTEXT OF THE BEE MODEL

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ABSTRACT

The phenomenon of small and medium-sized enterprises has been known for decades. The importance of these businesses is important both from the perspective of macroeconomic and social. It is a fact that small and medium-sized enterprises have a competitive position in the market compared to large competitors, for example multinational concerns. The financial possibilities of SMEs are weaker and the possibility of investing in research and development is scarce. Solution to this problem is to link the business to the entrepreneurial networks and the cluster. The aim of this paper is to identify the benefits of linking SMEs to the network and to describe the possibility of using the BEE model to assess the state of the business environment.

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BEE model, benefit, cluster, cluster initiatives, SMEs.

Introduction

Michael E. Porter (1990) summarized historical background and created the first known cluster definition in the book entitled 'Competitive advantage of nations': "geographical concentration of interconnected companies, specialized suppliers, service providers, companies in related industries, and associated institutions such as universities, agencies and business associations of different directions that compete, but also cooperate".

Clusters are becoming an increasingly popular concept, which is being reflected in an increasing number of clusters, cluster initiatives and policies to support them (more in CzechInvest 2007; Mynarzova, Stverkova 2017). Just like entrepreneurship, especially small and medium-sized businesses are considered to be the backbone of national economies, so clusters are regional and national "phenomena"

that need to be promoted, both in terms of foundation, development and successful cooperation. Engaging small and medium-sized businesses into clusters and cluster initiatives will increase their competitiveness and thus stabilize them on the market. Clusters create synergies and are seen as an important tool for developing competitive industries, regions and respectively whole economies (Mynarzova, Stverkova 2017).

However, on the other hand, clusters are complex and dynamic structures that are subject to continuous change. Strong clusters can promote economic growth through leveraging the innovation and business potential of a region. New employment opportunities, new products and services, new companies, new R&D activities and new patents can be the result of activities within a cluster. A professional

cluster management can contribute to such a development through projects and services that tap into the cluster's potential (ESCA 2017).

In March 1890, Marshall noted that businesses or industries that are locally concentrated, gain the benefits of externalities from these clusters. Thus, the economic efficiency of the business volumes, i.e. clusters, was discovered. Marshall's analysis concerned the concentrations of industry created during the industrial revolution. At present, both traditional industries and innovative industries (automotive, nanotechnology, etc.) are concentrated in strong local clusters. The cluster concept – as per Skokan (2004) - became more prominent in the 1990s and clusters quickly became a “world discovery” in economic and regional development. The concept of clusters and cluster policy evolves in the Czech Republic, especially in connection with the country's entrance to the European Union.

The issue of clusters has been a frequently discussed subject during recent years, and the developers of strategic development documents deal with it not only in the Czech Republic, but globally. Granovetter (1985) argues that the whole economic space is a network of contacts, links and cooperation between individual actors of regional development. Each entity has a certain embedded nature in these networks, and from this position the region's ability to influence not only its development is derived. Although clusters understand the links and networks in a positive sense, there are also critical views of these clusters that point out the negative aspects arising from these clusters (Piperopoulos 2012). Synergy, or the effect of joint action, is usually greater or better than a simple sum of the effects of the individual effects of individual elements. The advantages of the merger will not only

benefit the members of the group but also benefit the region where it acts as a lever for its development and growth (Stejskal 2011; Haviernikova 2015). It is therefore possible to state that clusters create synergistic effect and are considered to be an important tool for the development of competitive industries, regions and economies, and therefore there is a broad support for clusters and cluster initiatives both from the state and the European Union.

Small and medium-sized enterprises are considered to be the backbone of the national economy (Mynarzova, Stverkova 2015). Small and medium-sized enterprises have an important role both economic (economic growth, competitiveness, job creation, etc.) and social (free spilling of the entrepreneurs, social integration etc.), but also on regional and international development. It is a fact that small and medium-sized enterprises have a competitive position in the market compared to large competitors, such as multinational concerns. The aim of this contribution is to identify the benefits of linking SMEs to the entrepreneurial networks and to describe the possibility of using the BEE model to assess the state of the business environment.

1. Small and medium-sized enterprises

“Micro, small and medium-sized enterprises (SMEs) are the engine of the European economy. They are an essential source of jobs, create entrepreneurial spirit and innovation in the EU and are thus crucial for fostering competitiveness and employment” (Eusmecentre 2017).

Small companies have been often presented as a hidden giant. And in this case it is not an exaggeration. Small and medium-sized enterprises (hereinafter SMEs)

play a significant role in the development of economy not only in the Czech Republic, but also globally. The existence of SMEs is vital because of their social and economic policy, especially the labor policy, in the European Union employs nearly 60 % of manpower and create 80 % of all companies. In the last five years the small and medium-sized enterprises experienced the employment growth of 75 %; on the other hand, the large enterprises offered only 25 percent of new jobs (Stverkova 2013).

The SMEs ensure the social stability and freedom. In addition, they provide a chance to free finding of entrepreneurs and to a self-realization of citizens in the economic sphere. The employment has been together with ensuring the economic growth and the acceptable inflation and balanced payment balance the basic aim of the economic policy. The SMEs have been creating the available employment, especially for the group of job applicants who have been freshly entering to the labor market; furthermore for women (part-time work) the freed manpower from the secondary sector etc. (Stverkova 2013).

The small and medium-sized enterprises struggle to gain work on the work market, thus the goal of a small company is personal income of an entrepreneur and his/her employees. The small enterprises are self-teaching and self-productive subjects in a certain measure. The reason is clear; in the small and medium-sized enterprises people work in the complex way. This means that only one person in the company can hold more positions and functions there. Therefore comes to the employee development and to small innovations in the business. Thus, on one hand the entrepreneur acts as an owner of his/her business, but on the other hand he/she is there as the manager and not at least position, he/she is also the employee. Indeed, the owners

of small and medium-sized enterprises have been creating the value not only for himself/herself but also for the society.

Small and medium-sized enterprises (SMEs) are non-subsidary and independent firms which employ fewer than a given number of employees (Table 1). Small and medium-sized enterprises (SMEs) are defined in the EU recommendation 2003/361. The main factors determining whether an enterprise is an SME are staff headcount and either turnover or balance sheet total. The following table illustrates how to determine the factors of enterprises.

Table 1. Definition of SMEs

Company category	Staff headcount	Turnover	or	Balance sheet total
Medium-sized	< 250	≤ € 50 m		≤ € 43 m
Small	< 50	≤ € 10 m		≤ € 10 m
Micro	< 10	≤ € 2 m		≤ € 2 m

Source: EU recommendation 2003/361

These ceilings apply to the figures for individual firms only.

2. Clusters and cluster initiatives

M.E. Porter created the hypothesis that clusters are the driving force of national, regional and local development. Porter updated his definition of the clusters in 1998: "Clusters are local concentrations of interconnected companies and institutions in a particular field. Clusters include a group of interconnected industries and other entities relevant to competition. They include, for example, suppliers of specialized inputs such as components, machines and services, specialized infrastructure providers. Clusters are often expanding downstream to sales channels and customers and to complementary products manufacturers and companies in industries related to skills, technologies, or common inputs.

Many clusters also include governmental or other institutions – such as universities, law-making agencies, research teams or business associations – that provide specialized training, education, information, research and technical support” (Porter 1998; CzechInvest 2007).

In OECD documents, clusters are defined as: “Networks of interdependent firms, knowledge-producing institutions, bridging institutions and customers linked to the production chain, bringing added value. The concept of clusters is beyond corporate networking, since it affects all forms of sharing and knowledge sharing and goes beyond the traditional sectoral analysis.” (OECD 2004). According to Skokan (2004), clusters are sectoral and geographical concentrations of enterprises, specialized suppliers, service providers and institutions (universities, research institutes and trade unions) linked by common networks (transfer of knowledge, information, etc.), using this proximity to external savings, which leads to the strengthening of the competitiveness of the cooperating companies.

In terms of defining cluster support, clusters are defined at European Union level as: “groupings of independent business entities - innovative start-ups, small, medium and large business entities and research organizations - operating in a particular sector and region and designed to stimulate innovative activity supported by intensive interconnection and interaction of activities, co-operation, sharing facilities and exchange of knowledge and expertise, and effective contribution to technology transfer, networking and dissemination of information between business entities and other cluster entities” (ČS 2012). In the Czech Republic, the Business and Investment Promotion Agency adopted the following definition: “The cluster is a set of

regionally linked companies and affiliated institutions and organizations - especially tertiary education institutions - whose links have the potential to consolidate and increase their competitiveness” (CzechInvest 2007).

Clusters can be formed in different sectors and may include different levels of the value chain. We can talk about sectoral, industrial, enterprise, innovation, knowledge-based and other clusters (Skokan 2004). Already at the end of the 19th century, Marshall (1890) dealt with the issue of grouping certain firms in specific geographic areas due to location savings. In the course of the 20th century, many authors (e.g. Weber 1978; Schumpeter 1951; Hayek 1968 and others) dealt with issues of concentration of business (in industry) and economic performance.

There is often no distinction between clusters as a real economic phenomenon and cluster policies and initiatives that occupy and realize a rather normative function. Cluster policies can be defined as specific government efforts to support clusters. From a territorial point of view, cluster policy can be seen in several dimensions: regional cluster policy, national cluster policy, European cluster policy and global cluster policy. As stated in the National Cluster Policy (Narodni klastrova asociace 2017), the implementation of this effort and the recipient of the resulting support is in the Czech Republic and in connection with the Cluster Life Cycle: Cluster Initiative and Cluster Organization. As stated by Sölvell et al. (2006), the cluster initiative is: “organized efforts focused to increase cluster growth and competitiveness within the region with the participation of cluster firms, governments and / or research communities”. Efforts to unify the view of clusters and to promote their creation and development also exist on the lev-

el of EU policies. These can take various forms and follow different objectives, such as SMEs support policy, research and innovation policy or industrial policy. They are supported and implemented by specific government cluster programs or initiatives. According to Pavelkova et. al (2013) is a cluster organization: “organized efforts to facilitate cluster development, which can take different forms from non-profit associations through the public agencies to companies”. A cluster organization often plays an important role as a cluster support service provider.

From the point of view of rules of operation in clusters, it is mutual independence when the cluster consists of independent firms with multilateral trading links; especially mutual preference, voluntary membership and non-exploitation. In addition, there are three basic types of clusters: horizontal, vertical and lateral. First of all the horizontal clusters are characterized by a wide range of manufacturers. Second of all, the vertical clusters are characterized by their depth and are not dependent on the supply of input sources from the environment. The lateral cluster is most common in the automotive industry, and the principle lies in the network of a number of companies that supplement or customize the standard products of large firms to slightly different versions that would not be paid for by a large company, while a small company may be more flexible in details (Leeder et al. 2004; Pavelkova 2009).

Similarly, another such possible analytical breakdown is the taxonomy of a functioning, latent and potential cluster. The functional clusters have already been identified; latent represent opportunities for the future and the potential already meet the conditions of their existence but lack the inputs and some other necessary factors (Pavelkova 2009; Rosenfeld 2002). Enright

(2000) adds this taxonomy to the policy of managed clusters that were selected by the government for support because of missing critical factors or unfavorable natural conditions for development. This typology is important in terms of cluster support and cluster initiatives.

Cluster issues are contained in the relevant development documents of the Czech Republic: the International Competitiveness Strategy of the Czech Republic for 2012-2020 (key initiatives 9.40 and 9.41); the National Innovation Strategy of the Czech Republic 2012-2020 (strategic objective to improve the key links between the various elements of the innovation system including horizontal sector-based clusters and vertical clusters based on the value chain) and the Concept of Support for SMEs 2014-2020 (strategic priority no. 2: Business development is based on support for research, development and innovation including innovation and business infrastructure).

3. BEE model and benefits

Utility is a term used in economics to describe the subjective feeling of consumer satisfaction resulting from the consumption of the goods. Every rational consumer or customer strives to maximize his/her benefits; on the other hand, minimize his/her expenses (or costs) related to the benefit.

Social Welfare (SW) is understood to be synonymous with the level of satisfaction or benefit of society members. Social welfare is not the same as the standard of living but is more concerned with the quality of life that analyzes factors such as the quality of the environment (air, soil, water), level of crime, extent of drug abuse, availability of essential social services, as well as religious and spiritual aspects of life (Horejsi et al. 2011).

The theory of social welfare (SW) can be used in the abstract form to evaluate the effective and equitable allocations for clusters and cluster initiatives. The function of SW is an enumeration of factors that SW determines. It includes the total number of products and services Q , the way they are distributed D , and factors such as the health of society H , the amount of free time L , the degree of environmental pollution P , the political stability S , the amount of water precipitations R and other relevant factors Z . Social welfare (Horejsi et al. 2011) is then

$$SW = f(Q, D, H, L, P, S, R, Z)$$

If we transform the social welfare into clustering, then we are talking about the analyzes and the monitoring (Gajdová 2014; Havierníková et al. 2016; Pokorný, Gondek 2016; Malerova et al. 2014) of the factors: the total number of products and services Q , the way they are distributed D , networking N , organizational structure and human resources O , research and innovation R , business cooperation and promotion C , financial health H , lobbying L , supportive activity S , and other relevant factors Z . We would then get the following social welfare function together with these clusters:

$$SW_c = f(Q, D, N, O, R, C, H, L, S, Z)$$

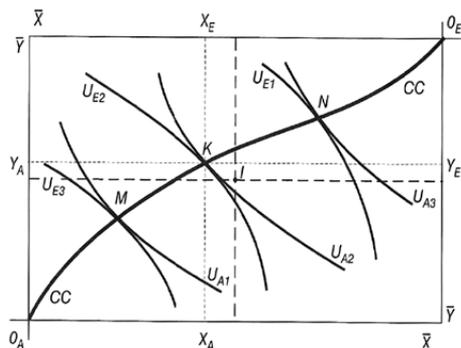
Alternatively (as with the company), in terms of clusters we can say that the well-being of the cluster as a whole depends on the well-being (the benefits) of individual members who make up the whole. Then the n^{th} member of the cluster can use the symbol U_n , as:

$$SW_c = f(U_1, U_2, \dots, U_n)$$

Based on these formulations, it is hard to say whether a change in the economy will only improve the situation of one member of the cluster or make it worse for another. In order to evaluate this it is necessary to determine the criteria for assessing social

welfare; in particular, these criteria are economic efficiency and fairness. Figure 1 shows the Box Sharing Scheme and the Fair Allocation where it is possible to talk about the effective allocation only on the points on the contractual curve (CC). Fulfillment of the conditions of production efficiency and the shift is not a sufficient condition for the overall efficiency - to achieve a total efficiency must be simultaneously produced desirable combination properties. Choice among efficient allocation of resources leads to the fact that some members of the cluster will prefer some effective allocation of M , while others will prefer the efficient allocation of N or K .

Figure 1. Box sharing scheme and fair allocation



Source: Horejsi et al. 2011.

The criterion of economic efficiency stipulates that any change in the production and distribution that benefits one without harming anyone else will increase the social welfare. Utility Possibility Frontier (UPF) shows the combination of benefits of two members which can be achieved assuming the effective allocation of resources. The concept of justice is linked to the allocation question for whom to produce. Under this criterion, the standard of social conscience is important and is based on the idea of interdependence between the benefits of consumers in the sense that the well-being of a consumer depends not only

on the quantity of goods which belongs to him, but also on the amount of goods available to other consumers. Using the UPF, one can understand the social optimum as a problem finding the criteria for choosing a particular one to be on that curve.

In management, the concept of benefit (utility) is closely related to the concept of acquisition, which is used to express the benefit rate and the associated costs. Benefit is assessed by an entity (user, organization, business) that has to evaluate it against its needs and the costs incurred to achieve it. Different methods can be used to assess benefit, through the cost benefit analysis, the cost efficiency analysis and the cost utility analysis. These methods are characterized in particular by the evaluation of financial aspects.

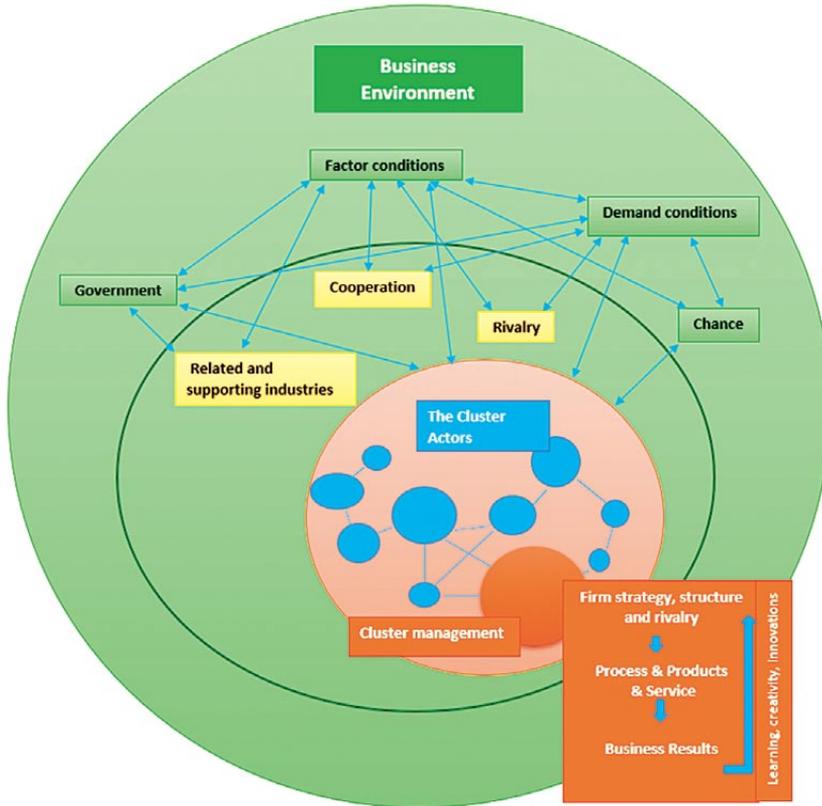
Various methods and techniques are used to evaluate the business environment. In order to evaluate the state of the business environment, it is necessary to perform several analyzes synthesis of the results. Based on the results of analyzes and syntheses, it is possible to evaluate the current state, trends and propose measures that the company should take to keep it on the market. There are some measures depending on business type and current standing, which have various aspects, for example changing the strategy, production, segmentation of customers, marketing and price policy.

Authors consider the BEE (Business Environment Evaluation model) as a comprehensive solution for assessing the state of the business environment; in particular, this BEE has been created for business environment assessment and is based on a combination of Porter's diamond with EFQM excellence model and together with the cluster management excellence methodology. In addition, this model can be widely used in the evaluation

of competitiveness and evaluation of companies. On the other hand, the Diamond Model was created to help to understand the competitive position of a nation in the global competition. The framework of the Diamond Model proposes four interrelated facets, each of which represents the determinant of regional advantage: 1) Firms strategy, structure and rivalry; 2) Demand condition; 3) Supporting industries; 4) Factor conditions. In addition, another two factors, 5) The chance; and 6) Government, that influence these determinants exist there, but they are not determinants themselves. Together these six factors introduce system for evaluation, which differs in locations (Porter 1990). The EFQM excellence model provides a holistic view of the organization and is based on nine criteria. In fact, five of these criteria are enablers – leadership, policy and strategy, people, partnership and resources, processes (cover what an organization does) and four are results – customer results, people results, society results, key performance results (covers the what an organization achieves). The EFQM excellence model is determined on the RADAR logic. This is a dynamic assessment framework and powerful management tool that provides a structured approach to questioning the performance of an organization (EFQM excellence model 2017), the cluster management excellence methodology to solve the problem and how to assess and measure the quality of a cluster.

The beauty of this BEE model is that it can be applied to any organization, regardless of its size, maturity or branch (Stverkova, Humlova 2016; Stverkova 2017). The simplified model called Business Environment Evaluation Model, the BEE model, based on the EFQM methodology, the Porter's Diamond and the cluster management excellence methodology is captured in Figure 2.

Figure 2. Business Environment Evaluation Model – BEE model



Source: Stverkova, Humlova 2016.

Conclusions

Process of economic transformation is still ongoing research. Although there have been successful developments, however, the regional disparities still exist in all countries. The globalization have been the stimulus for networking development, clustering and cluster development. With the extension of some political instruments such as promotion of innovative business networks and clusters, it is possible to expect some kind of cooperation also of small and medium sized enterprises and business networking. Networks and clusters have become popular not only

in regional but also in national and cross-border dimension. Spatial proximity plays a significant role for small and medium sized enterprises. The structural change and economic reconstruction must be supported by promoting of innovation processes in companies and networking.

In particular, the small and medium sized enterprises have been traditionally thought to benefit from the clustering. The cluster theory has developed on networking in specific regions and the geographic proximity of organizations, including the small and medium sized enterprises appeared

to have been the key source of advantage. The geographic clustering may be the key to small and medium sized enterprises knowledge acquisition and growth in certain context and in certain time in the life cycle of the organization.

The authors based on a research of methods and techniques focused on clusters, competitiveness and companies conclude that the BEE model is a comprehensive solution for evaluating the business environment with regard to utility. We can conclude that the small and medium sized enterprises involvement in clusters can be assessed positively up to now.

The issue of entrepreneurial networking and creating the cluster initiatives, including the use of BEE Model (Business Environment Evaluation Model), is only in its research beginning now. Future research concerning this issue should be focused on evaluating of clusters' impact measurement on development of small and medium-sized enterprises. The authors will therefore pay attention to the involving the small and medium-sized enterprises into the business networking and clusters. This research will be focused on the using the BEE Model in clusters in the Moravian-Silesian region, in the Czech Republic.

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