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Clusters as stimulators of businesses and regional development

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Abstract: Socio-economic development of a region depends on the number of prosperous and profitable businesses. Local authorities provide proper development potential and facilitate the establishment and operation of business entities by creating business-friendly environment. The Polish and EU regions achieving high rates of efficiency are characterized by the fact that they “combine”, both in formal and informal way, all socio-economic entities in a region in order to gain mutual benefits. Clusters are examples of such networks. Competitive capabilities of autonomous business entities, institutions and research centres in regions with high unemployment, small investments and capital are significantly reduced. The only effective way is to combine their potentials in order to obtain a cumulative advantage over the competition. One such region is Warmia-Masuria Province, which is seeking its chance for development in cluster initiatives. The present article is an attempt to answer the question: What benefits has the Warmia-Masuria region obtained after free years of cluster initiatives?

Keywords: cluster, business, regional development, Warmia-Masuria region.



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Introduction

Contemporary economic reality provides companies with great opportunities of development. This is connected with the existing "economic freedom", progress in the fields of technology, information technology, organization and marketing— all this inspires managers to entrepreneurial and innovative activities, allowing to achieve better and better financial and economic results. On the other hand, globalization and market competition pose a threat to the existence of entities already operating or intending to start business. Regions with different levels of socio-economic development have always existed in Poland and all over the world. It is caused, among others, by access to natural resources, geographical location, economic profile of a region within the framework of the existing system. The economic-political changes introduced in Poland at the turn of the eighties and nineties have not only deepened the differences in society's well-being but also vividly highlighted unprofitable regions, entire industries or businesses.

The new economic model implies decentralization in terms of decision-making capabilities as well as responsibility for the development of a region. Local authorities determine a direction of development and their primary purpose is to ensure well-being of society. The most appropriate way to ensure this aim is to stimulate entrepreneurship by attracting outside investors, local entrepreneurs, highly skilled workers and students to pursue and develop business. The local policy aiming at supporting entrepreneurship will come down to performing public utility tasks, maintenance and expansion of social and technical infrastructure of regional and local level, and above all, creating the conditions for economic development. In Poland, local authorities use various forms of stimulating entrepreneurship, which are the basis of socio-economic development of a region.

The examples of such methods are special enterprise zones, establishment of modern research-and-development centres, innovations and technology transfer centres, science and technology parks or incubators. Thus, all regions try to support local businesses since they guarantee and inspire development and cooperation of all entities operating in the area. Therefore, cooperation of businesses with representatives of scientific communities as well as local governments has become a crucial element of economic competitiveness. Economic clusters are an excellent example of providing high-quality competition and facilitating beneficial cooperation. The establishment and functioning of clusters affect the growth of investment, technology, knowledge, reduction of unemployment, more efficient use of the existing potential, business activities of the local community and stimulation of socio-economic development of a region through creating conditions for fair competition.

A number of Polish regions, particularly its eastern parts, struggle with economic and social problems: lack of industry, capital, appropriate infrastructure, natural resources, outdated inadequate economic structures and an increasing level of unemployment. All these elements deepen the economic and social gap between regions of the country. Therefore, poor regions look for "recipes for economic success" and one of them are business clusters. Clusters allow, in the most efficient way, to make use of the local potential and initiative of the society and not only to make local entrepreneurs stay in the region but also inspire them to create new values. Creative environment is a "force" driving the whole region and, as a part of innovation and entrepreneurial core, new businesses and investments are created and capital is obtained.

Recently several dozen cluster initiatives have been created in the Warmia and Masuria region and despite a high interest in these projects from the local authorities and scientific communities – there still remains an open question about the effectiveness of these initiatives and their impact on the development of businesses and the region. It is extremely difficult to obtain reliable data on the functioning of companies within cluster initiatives, because it is not in the business entities' interest to reveal such information or they just do not keep such aggregated data useful for analyses.

The purpose of this article is to present the importance of business clusters in the development of enterprises and the region. The research hypothesis of this article is an attempt to prove that cluster initiatives - through cooperation of various companies and organizations, scientific and social institutions, available funds allocated mainly to innovation – can stimulate the local Warmia and Masuria business.

1. Changes in the environment and their impact on competitiveness of business entities

In the modern world there are dynamic and multidisciplinary changes. The main factor of these changes is civilization transformation which results, among other, in the process of globalization and political transitions in Central and Eastern Europe. These changes have significantly affected business activities of not just individual entities and regions, but also of entire international economies. The essence of globalization is to eliminate all barriers in the management (application of uniform law, free flow of goods and services, availability of information, capital, etc.) and thereby to influence the use of similar patterns of tangible and intangible goods consumption. The impact of globalization inevitably contributes to changes in the behavior and activities of businesses, institutions, societies, regions and individual people. If an organization wants to exist and thrive in today's rapidly developing world, it must implement a variety of changes regarding the purposes it wants to

achieve, structures and processes. It must constantly adapt to the external environment, which imposes certain restrictions and specific actions and, in case of business entities, forces them to rational competition within mechanisms of free market economy. However, globalization processes also create opportunities to develop and use their capabilities: knowledge, innovation, new technology, wide markets, etc. Changes brought about by globalization factors contribute to socio-economic development of countries, glorification of knowledge, innovation as well as development of competitiveness. For many companies, changes are an attribute of their development, therefore they are an objective necessity in the existing global competitiveness. A lot of companies are "forced" to make changes which are so indispensable for their existence. Industry and sector leaders undertake actions to modify the structure, system or method of operation since they see opportunities for development and improvement of their competitive position – they have a vision of future activities.

The main economic entities ensuring economic development of a country are companies, which must constantly improve the ways of attracting customers to their services and products. The functioning of a free market economy is based on competition between business entities. It is a consumer-centered economy since consumers still need to be sought and offered the cheapest but high quality products. At the same time companies cannot forget about the implementation of innovative solutions for the development of new products, manufacturing processes and organizational changes, which improve the quality and efficiency of production or services. All these actions are extremely costly but also essential not only for the development of a company, but sometimes for survival in a competitive market. Conducting business activities in the global market requires from companies constant changes. These changes may be forced – when a company does not want to make investments, but competition forces it to acquire new technologies and adopt modern organizational solutions to remain in the market. On the other hand, companies with position in the market and those which want to keep this significant position must make constant changes and innovation, through which they can gain the greatest number of consumers.

By introduction of original changes, the boards of companies expect to achieve leadership position in the field of costs, prices, qualities, new products, new sales systems and contacts with customers. Other companies, fearing to lose their market position, acquire ideas for change, adapt them to their own conditions and thus contribute not only to popularizing these changes, but also to the development of technical, organizational and marketing areas in business practices. The fact that new changes are popularized and widely implemented means that in fact changes introduced earlier lose their attractiveness and leader companies lose their position (Świtalski 2005, p.23). In the past, economic entities operating in a market economy always strove to make changes in order to increase their profitability and attractiveness. However, these changes did not occur so rapidly or were not implemented on such a regular basis. Expenditures connected with these changes were characterized by a longer playback period. The development of a new product or service was of interest to potential customers in the long term, while currently "a new product" can be considered outdated the moment it leaves an assembly line, in terms of technology and price or in terms of the demand on the part of customers.

Changes in the environment today are multileveled and affect all areas and levels of a company, forcing its specific transformation and adaptation to structures and potential of this environment. These changes may force a company to reject what was efficient in the past and even to "invent" the future, transform and create itself from the beginning in order to accomplish its plans and to serve better its environment as well as the company itself (Penc 2006, p 40).

Any company wishing to provide itself with conditions for existence and development must change itself, improve processes, structures and culture and adapt them to external requirements resulting from a diversity of the environment in which its various systems operate (Penc 2006, p.42).

There is also a need to mention the changes which result from the search for new market niches in order to gain the market or strengthen on it. These changes apply to new and improved products or services as well as any kind of innovation. Such changes are extremely costly and not all companies can afford them, then, in order to develop the region, different organizations which are designed to support such activities, start to act. Recently the best examples are clusters, incubators and technological parks which combine the company potential with scientific and technological centers or with local governments.

A company, in the course its operation, is subject to various changes. In the past these changes could be purely cosmetic, but now in the era of globalization companies are subjected to deep restructuring, not only in terms of organization but also in terms of products, which leads to better results or ensures survival in the market. Companies in the course of their existence develop, transform into bigger entities or sometimes cease to exist. Businesses constantly change and improve their products or services, adjusting them to the market needs. Such changes also involve manufacturing and organizational processes, which are intended to increase the efficiency of their business. Companies also look for better suppliers who can provide high-quality materials, energy and who can guarantee higher economic efficiency. New products bring about the changes of technological parks and result in the use of new, innovative manufacturing technology which requires new employees with appropriate qualifications. Over the years, companies change their structure of supplying markets. This can be done by extending sales to new markets, to traditional and niche markets.

The basis of business entities operation in a market economy is their competitiveness in relation to other companies. In order to achieve this competitiveness, a company must have strong potential in terms of human resources and knowledge, high flexibility and innovation. High competitiveness resulting from globalization, among other things, forces companies to look for methods and ways of ensuring their operation and profit making. The race for competitiveness is joined not only by business entities but also by various socio-scientific units and regions. High competitiveness of a region, resulting among others from prosperous businesses, new investments, a large number of research centers and universities – guarantees economic and social development. The old theory claiming that local development is determined by natural resources, climate and geographical location convenient for economic development, does not work here, either.

The principal entity that guarantees development of a region is an innovative company. Every company should be provided with the same conditions for economic activity and competitiveness of each of these companies will depend on their knowledge, risk tolerance, investment as well as effective decisions.

In order to achieve and maintain a competitive advantage, companies must recognize the importance of innovation in business processes which result primarily from pressures and challenges posed by competitors, but also from the environment in which they operate, such as economic clusters. External environment, including institutions and local organizations, plays an important role in the functioning of a company in terms of quality and competitiveness. A large number of efficient business entities means investments, new work places, development of research centres, diffusion of knowledge and technology transfer – a guarantee of socio-economic development of a region. Therefore, regional and local governments have long been searching for the most effective methods by which they could stimulate regional development. The best results, as shown by the experience of recent years, are achieved through multi-dimensional systems, formal and informal links of a network-type. These make it possible for a company to create, acquire and implement innovations as a result of cooperation between a wide range of organizations and institutions operating in a region. The benefits of this type of cooperation are derived not only by companies but also by institutions forming a network system which can be called a cluster. Cluster initiatives arise from independent companies and institutions creating and delivering knowledge (universities, research institutes, technology companies), intermediaries (e.g. banks, public institutions) and customers.

Connections within a network and business environment enable companies to reach a higher level of specialization, better use of their potential, increased flexibility and scope of activities, and most importantly, to gain competitive advantage over potential rivals. Entities in business environment interact and affect one another and are able to shape a higher efficiency than in case of integration. The quality of business environment affects the level of cooperation and efficiency of firms competing in a given geographical space. Companies cannot use advanced technology if they do not have adequate infrastructure at their disposal. Business environment is most often created and coordinated by local authorities, which is particularly important for investments, especially the foreign ones. The location of a factory in a particular area is always preceded by a thorough analysis of whether the conditions created there are optimal for this company and whether it has the ability to do business and develop. In addition to such important factors as: availability of infrastructure, legislation, environmental standards, paid taxes and possible exemption from taxes, other elements are also important: innovative partners, educated managerial staff and employees, availability of resources, existing climate for cooperation. Amicability of business environment as well as adopted solutions and conditions for conducting business will affect the establishment and functioning of clusters.

In the era of economic globalization and transition to information society, there is a growing importance of information and technology transfer as a factor of growth in a region's competitiveness. Creation of the environment facilitating economic entities to obtain a competitive advantage is an important task of regional policy (Parysek 1998, p.300). Favorable social climate supported by local authorities, innovative environment and existing research centers will determine a region's competitiveness. A region becomes competitive by effectively-functioning business environment. The efficiency is increased by a process of collaborative learning. This process is accomplished by interaction and cooperation of companies, central and local government, universities and research institutes, professional organizations, institutions and social organizations. Knowledge is seen as the basis for sustainable economic growth and the creation of an efficient regional innovation system. Cooperation and integration of business entities and various institutions, generating new skills and manufacturing capabilities, serve the purpose of gaining a competitive advantage by all participants in the business environment.

On the one hand, the established business environment makes companies locate their business in a place with the most favourable conditions. Friendly environment attracts investors, both from the region and from the outside, who want to conduct business also for the reason that they are able to cooperate with modern and most developing entities, not only economic ones. On the other hand, friendly business environment ensures socio-economic development for an organization. Business environment in its narrow meaning is “a climate of economic activities reflected in creation, in a region or urban centre, conditions favorable to making decisions of establishment and expansion of businesses, including activities of public authorities, trade unions and public

opinion" (Chojnicki 1999, p 368). In a broad sense, the term "business environment" also includes institutional facilities and innovative environment. Institutional facilities are a network of combined and integrated organizations and institutions. These include financial institutions, chambers of commerce, training centers, trade associations, local authorities, development agencies, innovation centres, government agencies and organizations providing services for business. Institutions active in the field of innovation are defined as centres of innovation and entrepreneurship and they are specialized in fostering the development of entrepreneurship, technology transfer and commercialization of new technologies. These include (Matusiak, 1996, p.59):

- a) training and consulting centres – engaged in training, advisory and information activities;
- b) technology transfer centres – dealing with diffusion and commercialization of new technologies, responsible for developing a network of contacts between science and economy;
- c) business incubators, technology centres – offering advisory, technical assistance and premises for start-ups in the initial period of their operation;
- d) technology parks – organized industrial complexes bringing together, on a specific area, research institutions and business environment in the field of financing, consulting and support of development of innovative companies;
- e) local loan- and- guarantee funds – a non-profit banking units providing financial assistance in a form of grants and concessional loans to start-ups as well as warranty and guarantees for small developing businesses, which do not have the required loan collaterals.

One of the most important features of innovation and business centres supporting business entities is that they carry out their activities not for profits but to promote entrepreneurship in a region. The beneficiaries of this aid are generally companies which are on the point of starting their business. They receive both financial and advisory assistance. The experience and capabilities of these centers also are also used by companies already operating in a region and, in case of cluster initiatives, by all economic- scientific- social entities.

The potential development in a region is determined by appropriate social climate which understands economic changes and tries to support them. This climate may be more or less friendly to entrepreneurship, enabling effective cooperation. The basic elements of the social climate of local development include (Parysek 1997, p.121):

- a) social structures at the local level interested in local development and supporting this development;
- b) experience and willingness to create development by local governments;
- c) initiative, activities and entrepreneurship of the population;
- d) substance and financial support for local development initiatives.

Business environment has an impact on companies' development. Large companies with experience, brand and potential develop their activities in a particular environment, because it brings them tangible benefits. There is a proper atmosphere conducive to business development: available infrastructure, adequate human resources, research centres supporting business knowledge, new technology or innovation, friendly local institutions, legal and environmental solutions which support entrepreneurial initiative. On the other hand, small and medium-sized businesses, which affect the strength and importance of local communities, (they provide employment for 70% of the total workforce in companies and they produce 67% of national income) can use friendly business environment mainly in terms of possibilities of introducing innovation into their activities. These companies are the most flexible and entrepreneurial and their competitiveness is dependent on implementation of new methods and technologies. Despite a modern approach to business processes, small and medium-sized companies are not able to establish and conduct research centres independently, which would allow them to operate in the modern market. Therefore, one of the most important ways of their development is functioning in a friendly local environment, which is oriented to development based on innovation. Access to information, new technologies and innovation provided by the innovative environment is essential to establishment, functioning and survival of these companies. Companies and organizations creating this environment as well as centres fostering business achieve a synergy effect which leads to obtaining benefits by all market participants.

The policy of creating a friendly business environment in order to create competitive enterprises, regional and national economy is in line with the concept of the Lisbon Strategy, which is the basic document setting out the priorities of the European Union as well as directions and prospects for change. The main objective of the Lisbon Strategy is to create in the EU area the most competitive and dynamic economy in the world based on knowledge, able to create new work places and ensuring social cohesion (Duraj 2010, p.115).

2. Clusters as tools to increase competitiveness of companies and a region

Nowadays clusters are considered to be one of the most effective forms of activity with a cross-regional and local dimension.

The concept of clusters reveals an important role of cooperation between companies, authorities and institutions aiming at strengthening competitiveness. The initiators of an economic cluster are all those

interested in its establishment and those who will have tangible but also various socio-economic benefits. Clusters are created in different sectors, in large and small areas and even in local areas of activity: windows production, a local sewage treatment plant, production of sausage. Clusters are socio-economic initiatives and they exist in both developed and developing economies. Clusters differ in terms of size, scope and level of development. Some of them consist primarily of small and medium-sized firms, others include large and small companies. Some clusters gather around universities conducting research, others do not have any connections with scientific centres. Clusters with higher level of development have deeper and more specialized supplier base, a wider range of related sectors and numerous supporting institutions. The tasks performed by clusters also change together with the development of economy, because not only do new industries and sectors appear but also local institutions and legislation change. A question can be asked: Why are current economic processes more and more often analyzed through the prism of clusters, not individual companies, sectors or industries? It is because, first of all, clusters are now seen (mainly by regions but also by companies) as the best forms of management, allowing to achieve a competitive advantage and ensuring development not only of single entities but of the whole regions. In addition, cluster initiatives capture important links, complementarity and transfer of technology, skills, information, marketing and customer needs beyond the boundaries of firms and sectors. The presented links within the inner and outer structures of clusters ensure competitiveness and efficiency for all participants of a cluster. Organizations in clusters do not compete with one another directly and if competition does take place, it is beneficial to all involved parties, due to previous constructive cooperation. Clusters are an effective forum for a dialogue between related companies, their suppliers, authorities and other relevant institutions.

Clusters have influence on three ways of obtaining a competitive advantage: increase of productivity of cluster members, increase of their ability to innovate, encouragement to create new businesses.

Clusters in increasing productivity of companies (conditions of production factors). Through its structure, a cluster is able to collect more efficiently and effectively the capital needed to production or service processes; that is means and subjects of work. Obtaining stock from a cluster member leads to lower costs and minimizes the need to store inventory, eliminates import costs, generally reduces transaction costs and shortens the awaiting time. Stocking up within a cluster facilitates communication, reduces costs of adapting to specific needs and facilitates provision of support services such as installing equipment, removing defects, trainings, timely repairs.

Clusters in promoting and implementing innovation (demand conditions). Clusters' capabilities for innovation contribute to efficiency of the entire organization. Firms in clusters are able to quickly notice new needs of customers due to the fact that they are close to clusters of firms which know the customers and maintain relations with them, specialized units that generate information and sophisticated buyers. Participation in clusters enables to gain an advantage in spotting new technical, operational and commercial opportunities. The structure of a cluster makes all entities strive to conduct their business on the basis of systematic innovation.

Clusters in creating new companies (strategy, structure and competition of companies). High competition between business entities and sectors is the reason for existence or creation of barriers preventing the establishment of new companies. The philosophy of clusters as well as institutions and organizations that clusters consist of is conducive to establishment of businesses and then to joining cluster initiatives. Public institutions are interested in new investments because new work places are created, while businesses are able to cooperate and compete with other firms and benefit directly and indirectly from their resources; in this way they strengthen cluster investments and a competitive advantage over rivals. The condition of participation in a cluster, however, is fulfillment of certain requirements such as innovation and competitiveness.

While cluster initiatives are being built, their strategy and vision for their activities are also created and these are oriented to particularly important areas through which it is possible to improve competitiveness of entities in a cluster. All organizations participating in the project determine what will constitute the main strength of a cluster: knowledge, range of benefits, cooperation with suppliers, sourcing new technologies, business experience, resources and institutions supporting these initiatives.

Obtaining a competitive advantage by companies is possible owing to the environment in which they operate and which provides companies with opportunities and abilities to entrepreneurship, specialization, innovation and diversity sourcing strategy based on coordination and trust. Possibilities of the local environment are the sources of competitive advantage of companies participating in clusters.

It should also be mentioned that clusters are created by companies of different sizes, which is a big advantage in terms of diffusion of knowledge between entities (especially for small and medium-sized companies), innovation, technology development and, as a result, the entire region development. A characteristic feature of clusters is voluntary participation, therefore relations among organizations are also voluntary, which results in faster acquisition and circulation of necessary information and innovation, and this in turn leads to an increase in productivity and quality of a cluster.

In regions with low economic growth, high unemployment and low investment the importance of business clusters is particularly essential, even more than activities of individual firms or sectors. The concept of a cluster is a new way of thinking about the local economy: it reveals a new role of business, authorities and other institutions seeking to strengthen competitiveness through the application of innovation. Clusters indicate that a competitive advantage largely depends on factors outside a particular company, and even outside a sector; it depends on location of its business units. The existence of clusters requires new managerial programmes, whose importance is often neglected. Companies are dependent on business environments in which they are located. General environment (legislation, conditions for the establishment and conduct of business, taxes, etc.) created by local authorities is especially important to companies. A priority of regional authorities should be to remove any obstacles to the establishment and development of business clusters in a region, because clusters can become a cure for reducing unemployment in a region and attracting investments, including foreign ones. They can become a driving force of socio-economic development and provide a forum for a new type of dialogue between businesses and public institutions such as schools, universities and research- and- development centres.

It is only now that an increased role of clusters begins to be noticed, especially in times of crisis and difficult economic conditions. Profitability of companies has dropped significantly and it is increasingly difficult to survive in the market. Universities and research centers face problems with operation, which is primarily associated with population decline as well as with reduced inflows of older people (who have already completed their education at the turn of the century) to universities. Besides, the role and tasks of all universities have been changed and now only these universities are promoted which can combine theoretical knowledge with possibilities of its use in practice in business entities and in the market. As a result of economic transformation, there are also new challenges for local authorities. They have become a real host on their territory; they have financial resources and enormous powers and responsibilities. Local authorities must therefore pursue a wise, rational, socio-economic policy, which will provide regular incomes, including these from taxes, expansion of infrastructure, reduction of unemployment, systematic investment and a good climate for development of the entire region. Understanding this role requires setting clusters in a broader, more dynamic theory of competitiveness, taking into account costs, diversity, static efficiency, continuous improvement and innovation, as well as the world of global markets, production factors and products. Clusters therefore play an important, multi-institutional role, they exert a decisive influence on competitiveness and they are a distinctive feature of market economy. The status of clusters in a given economy gives us an important insight into its production potential and factors that might limit its development in the future. The role of clusters in competitiveness has important applications for companies, authorities and other institutions.

3. Cluster initiatives of the Warmia-Masuria Province and their impact on development of companies and the region

Macroeconomic indicators (Table 1)- and not only those of recent years- clearly indicate that the Warmia and Masuria region faces difficulties concerning socio-economic development and in this respect the region holds one of the final rankings positions when compared to other Polish regions. Such state of affairs is not due to a lack of entrepreneurship, but rather due to historical and geographical conditions. Over the years the region has been associated mainly with agricultural State Farms functioning there. As a result of the economic transformation, state-owned farms were liquidated, unemployment (the largest in the country) appeared and lack of demand for products and services led to the collapse of a few businesses in the region. Another barrier to the development of the Warmia and Masuria region is also a lack of capital, natural resources, much-needed investment and pro-development expenditures on innovative activities. These factors are a major obstacle for development. Expenditures on research and development activities and the number of created entities in the region and in Poland in the years 2010-2012 are presented in Fig. 1, 2, 3.

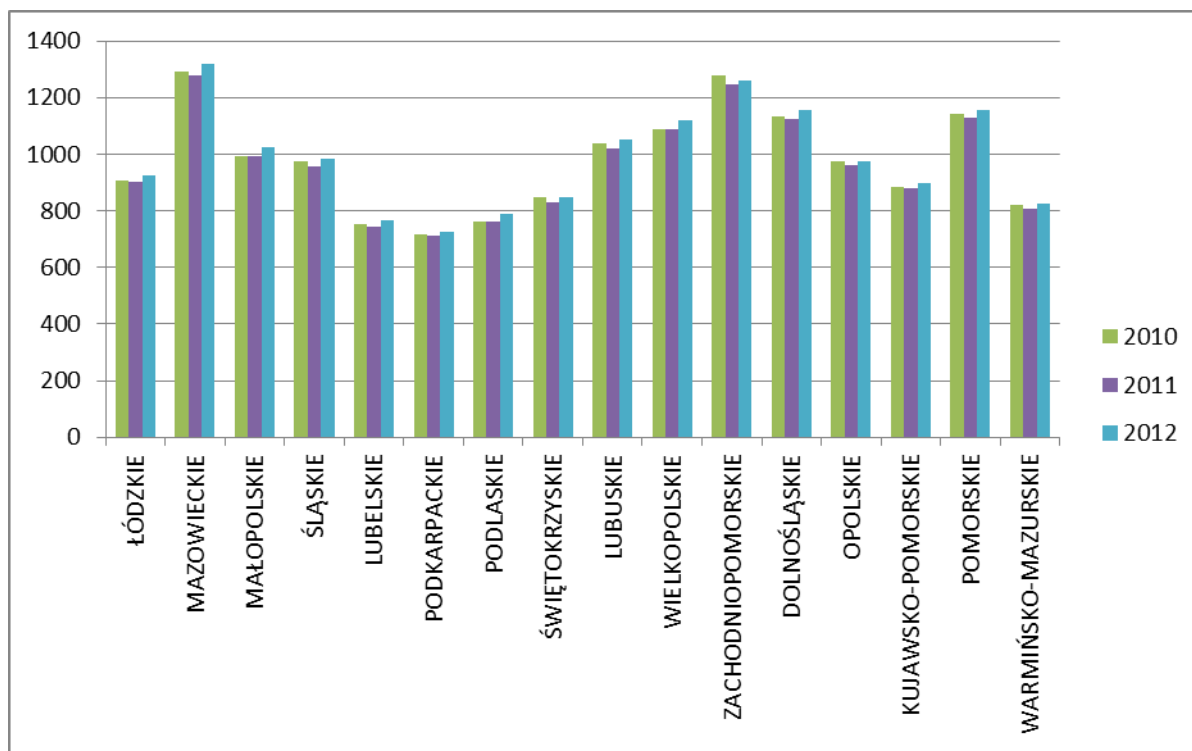
Although the region's economic weakness is visible when compared with the whole country, it has potential which can be the basis for its future development and it includes:

an attractive tourist areas of stunning natural beauty, research and development centres, the university, human potential with plus birth rate and corresponding demographic structure as well as possibility of obtaining the capital from external sources, mainly from EU funds.

Table 1 Macroeconomic indicators of the Warmia and Masuria region in the years 2008, 2010, 2012

| Macroeconomic indicators of the Warmia and Masuria region | Value | Position in the country | Year |
|--|--------|-------------------------|------|
| Share in GDP of Poland (%) | 2,8% | 12 out of 16 | 2008 |
| | 2,8% | | 2010 |
| | 2,8% | 12 out of 16 | 2012 |
| Unemployment (%) | 16,8% | 16 out of 16 | 2008 |
| | 20,0% | 16 out of 16 | 2010 |
| | 21,3% | 16 out of 16 | 2012 |
| Employed in industry (%) | 30,2% | 8 out of 16 | 2008 |
| | 29,7% | 8 out of 16 | 2010 |
| | 29,1% | 8 out of 16 | 2012 |
| Employed in services (%) | 53,9% | 8 out of 16 | 2008 |
| | 53,8% | 8 out of 16 | 2010 |
| | 54,2% | 8 out of 16 | 2012 |
| Expenditure on Research and Development in GDP (%) | 0,23% | 13 out of 16 | 2008 |
| | 0,45% | 10 out of 16 | 2010 |
| | 0,51% | 10 out of 16 | 2012 |
| Employed in R&D (1 person per 1,000 economically active persons) | 2,1 | 13 out of 16 | 2008 |
| | 2,3 | 14 out of 16 | 2010 |
| | 2,7 | 14 out of 16 | 2012 |
| Expenditure on innovations in industrial businesses (in thousands) | 333777 | 16 out of 16 | 2008 |
| | 352137 | 16 out of 16 | 2010 |
| | 460941 | 16 out of 16 | 2012 |

Source: Own compilation based on Central Statistical Office data.

**Figure 1: Business entities by provinces in 2010-2012**

Source: Own compilation based on Central Statistical Office data.

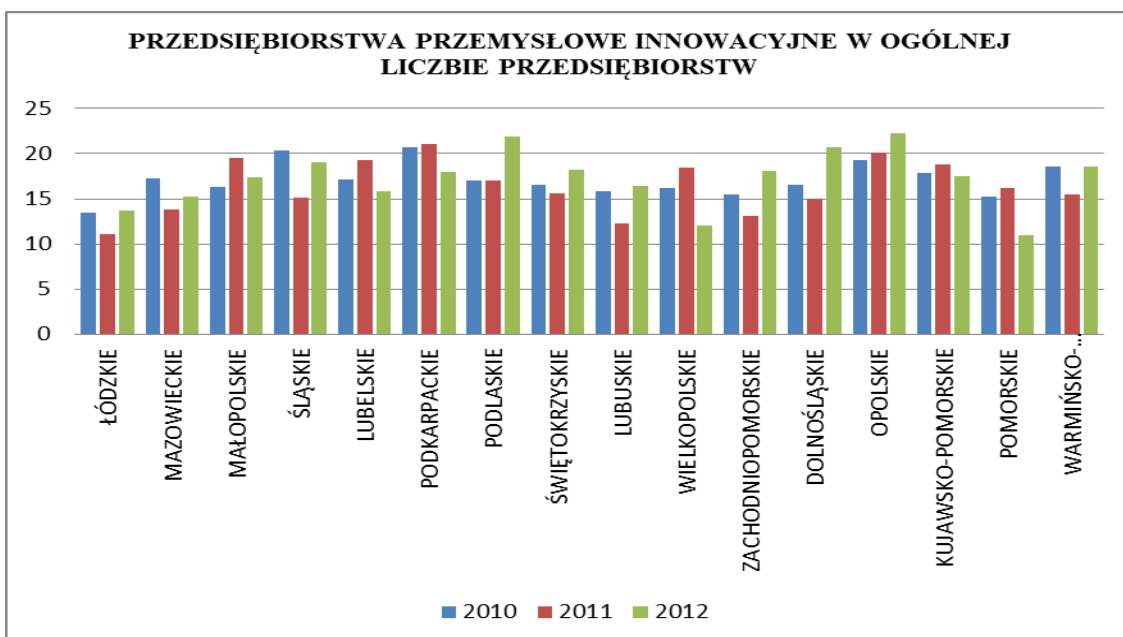


Figure 2: Innovative industrial businesses in the total number of business entities

Source: Own compilation based on Central Statistical Office data.

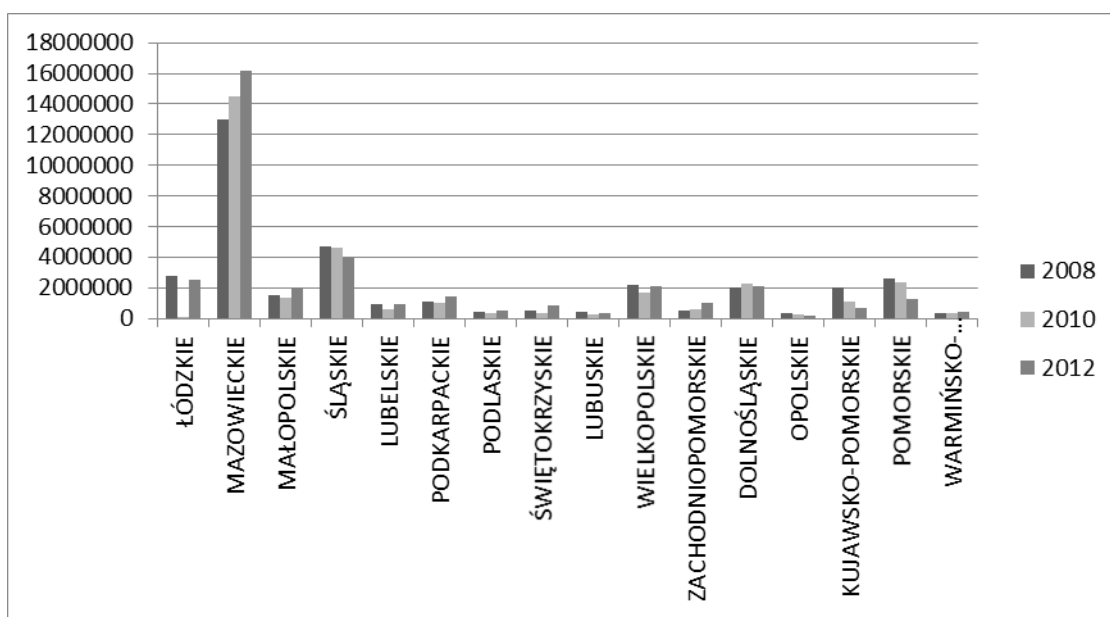


Figure 3: Expenditures on innovation in industrial businesses in the provinces.

Source: Own compilation based on Local Data Bank

It is this potential that forms the basis for the establishment of cluster initiatives in the region. In 2011, 18 cluster initiatives were created in the Warmia-Masuria region, as shown in Fig. 4.

The clusters in the Warmia-Masuria Province are associated with such strategic sectors of the region as wood and furniture industry, food processing and tourism, and are mainly due to natural conditions. Vast woodland areas are an excellent resource base for such clusters as “Cluster of Elbląg Furniture”, “Cluster of Lubawa Furniture”, “Cluster of Masuria Windows”, “Cluster of Wood Joinery” and “Together is warmer” Cluster. Also food and processing industry is an important contribution to GDP in the region and in 2009 it amounted to about 40%. The regional potential also fosters the establishment of such clusters as “Cluster of region Brewery”, “Cluster of Dairy” and “Cluster of Beef”. However, the most famous value of the region is primarily tourism: enormous amount of forests (about 30% of Warmia and Masuria region), lakes, beautiful, virgin, picturesque areas promote the formation of cluster initiatives such as “Elbląg Cluster of Tourism” or “Cluster of Rural Tourism”.

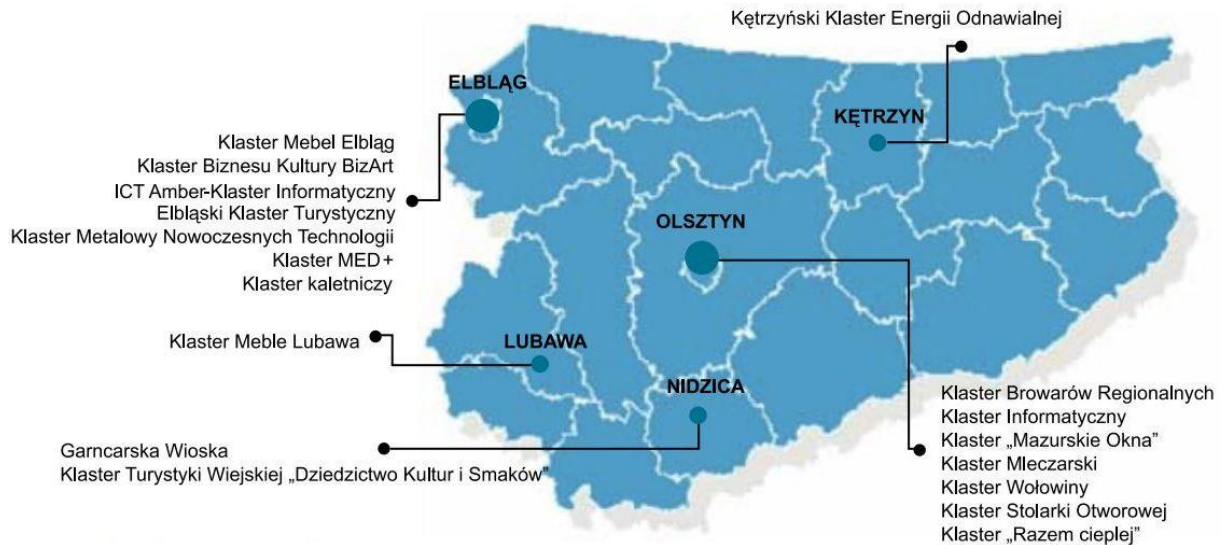


Figure 4. Clusters in the Warmia and Masuria Province

Source: Clusters in the Warmia and Masuria Province, Polish Agency of Enterprise Development 2012, p. 8.

The impact of the establishment and functioning of cluster initiatives in 2011-2013 on the development of the Warmia and Masuria region is difficult to be objectively and reliably assessed. The main obstacle is the lack of access to required data related to the functioning of clusters. Companies in clusters do not keep adequate records or do not want to share this information. Over 50 questionnaires with queries about employment, expenditure, innovation and sources of financing Research and Development were sent out, however, only one company MPEC in Morąg – which is a part of Warmia-Masuria cluster “Warmer Together” – responded.

Nevertheless, taking into account “Report on Innovation of the Warmia and Masuria in 2007”, “Periodic reports on the strategy for socio-economic development of the Warmia and Masuria by the year 2020”, “Report on innovation of Warmia and Masuria Province 2010”, a conclusion can be drawn that cluster initiatives were supposed to be and really were a driving force of the region.

Macroeconomic indicators of the region for the period 2011-2013 (Table 2) including investments, expenditures on Research and Development, and most of all, the growth of GDP and GDP per capita confirm the assumptions of the development reports. Clusters have become an important catalyst of positive socio-economic changes in the region.

Table 2 Macroeconomic indicators of the Warmia and Masuria Province in 2011-2013

| Macroeconomic indicators of the Warmia and Masuria Province | 2011 | 2012 | 2013 |
|---|-------|-------|---------|
| GDP in % | 2,8% | 2,8% | no data |
| GDP per capita in % | 0,72% | 0,73% | no data |
| Employment rate in % | 46,7% | 45,8% | 46,1% |
| Unemployment rate in % | 20,2% | 21,3% | 21,7% |
| Expenditure on R and D % | 0,48% | 0,51% | no data |
| Investment in % | 4,5% | 4,6% | no data |

Source: Own compilation based on Central Statistical Office data.

Conclusion

Over the last decades, the Polish economy has been continually developing, thus reducing the distance to other EU countries in terms of well-being and socio-economic development. However, the share of Polish regions in the GDP is uneven. There are regions in Poland which already match the level of development of the most developed regions of Europe. Unfortunately, the Warmia and Masuria Province is not one of them.

All business entities, supported by local institutions, are looking for methods to increase the profitability of their activities and sometimes to stay on the market.

Strategies for socio-economic development of the Warmia and Masuria in 2010-2020 assume that the success of the region depends on individual business investments. Therefore, these should be supported by all

local institutions, which would create conditions for economic growth based on knowledge, innovation, friendly legal solutions as well as available resources.

In the years 2010-2012 about 40 cluster initiatives were established in Warmia and Masuria region, with participation of hundreds of companies and various institutions. They were expected to be one of the main ways to change the existing socio-economic situation.

The main research hypothesis of the article was an attempt to prove that cluster initiatives can boost local Warmia and Masuria business. Unfortunately, lack of reliable information and unwillingness to cooperate on the part of cluster members did not provide clear answer. The presented research material, mainly derived from newspaper articles, various reports and CSO data allows for the assumption that better rates of the region in the period 2011-2013 compared to other regions in terms of investment, resources allocated to Research and Development, GDP growth and GDP per capita are the result of direct and indirect activities related to cluster initiatives.

In the relevant period, the number of business entities in the Warmia and Masuria Province increased from 819 to 845, where 18.57% of this number were innovative industrial enterprises; this gives the region the 5th position compared to other regions. Also, expenditures on Research and Development activities increased from 0.23% of GDP in 2008 to 0.51% of GDP in 2012. All macroeconomic indicators of the region increased in the period 2011-2013, with the exception of unemployment rate. However, the increase in unemployment in the region could be caused primarily by the crisis. It is worth mentioning that the percentage increase in unemployment rate was in fact lower than the percentage increase in unemployment rate in the country.

For a long time the need for innovation in economic and social activities has been praised both locally and worldwide and it is assumed that economic growth is directly proportional to the size of investments in innovation. However, there are more and more opinions (eg professor Christensen of the Harvard Business School) that badly invested innovations can contribute to the collapse of many businesses. A similar thing can happen with cluster initiatives which currently are created in all regions and socio-economic areas and are generally considered one of the most effective forms of activity.

A research analysis attempted in the present work confirms the assumptions made by the local authorities that clusters may contribute to development not only of companies but also a region. The biggest problem and challenge for the future will be to collect analytical data relating to the operation and most importantly the efficiency of companies and institutions that form cluster initiatives. It is essential to "force" cluster participants to provide information to designated coordinators of cluster initiatives concerning employment size, sales revenue, expenditures on innovations, sources of financing, investment, fixed and floating capital.

Processing such information would clearly answer the questions: Is the capital, which is often public, properly invested and does it bring the desired effects? Which companies and cluster initiatives should be supported? What factors contribute to the formation of clusters? Do cluster initiatives contribute to future development of other businesses and a region?

The obtained responses will allow for reliable and objective indication of the role of clusters in business and region development.

Appendix A. Supplementary material

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.14254/2223-3822.2016.14-1.3>

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