Abstract: The period of transformation in Poland caused the increased interest in cluster policy. Initially, the focus was on their local development, but in later years the need to internationalize Polish cluster structures was increasingly emphasized. Clusters, which are a platform for cooperation and competition, have become an area of dynamic development of enterprises, and the Polish state has undertaken a number of initiatives to support them in the implementation of international initiatives. The aim of the study was to attempt to evaluate the Polish cluster policy over the 30 years of political transformation, with particular emphasis on the policy of cluster internationalization. For this purpose, the documents of the Polish Agency for Enterprise Development – Benchmarking of Clusters for 2010, 2012, 2014 and 2020 were analyzed. The author addressed the research question: Have Polish cluster structures been successfully internationalized during the 30 years of the political transformation?

Keywords: clusters, internationalization, political transformation.

1. Introduction

In 2019, exactly 30 years passed since the beginning of the political transformation in Poland. The country underwent a number of changes during that time, aimed at the transition from a centrally controlled economy to a market economy (Zagóra-Jonszta, 2017, pp. 208-209). In the socialist state, entrepreneurship was significantly limited, which made it difficult to implement grassroots initiatives. Only coming out from the centrally controlled economy enabled the development of private companies and the business cooperation between them.
The concept of clusters has been treated for years as a tool for the development of regional and local economies. Initially they were treated as production boosters, limited to a given location or region (Kowalski, 2011, p. 81). However, it was Poland’s accession to the European Union that brought about a number of initiatives, enabling the development of cluster structures on an international scale and, importantly, provided the tools and financial resources to support them. In the globalized world, companies associated within clusters must be able to cope with competition from developing and developed countries (Haberla, 2018, p. 113). It is internationalization that makes it possible to meet these requirements, enabling to raise the rank of the cluster, exchange experiences, knowledge, products and services, build strategic alliances with foreign partners and much more.

The aim of the article was to evaluate the Polish cluster policy implemented during the 30 years of political transformation. Particular emphasis was placed on the policy of cluster internationalization. The above goal was achieved based on an in-depth analysis of thematic literature studies, publications and scientific studies. On the basis of the collected materials, the author performed a cause-effect and comparative analysis of the documents created during the transformation period and reports from this period, with particular emphasis on those from the Polish Agency for Enterprise Development – Benchmarking Clusters. The author tried to answer the following research questions: Have Polish cluster structures been successfully internationalized during the 30 years of the political transformation? Thus, is it possible to assess whether individual documents have met their assumptions? The answer was given after the analysis of strategic documents related to cluster policy, including in particular the reports of internationalization and comparative studies entitled “Cluster Benchmarking” for 2010, 2012, 2014, 2018.

2. The place of cluster internationalization in strategic documents during the transformation period

What are clusters? One of the most popular definitions of clusters is the position of Porter, who defined them as “[...] geographic clusters of interconnected companies, service providers, specialized suppliers, companies operating in related sectors, as well as related institutions, [...] competing with each other, but also cooperating” (Porter, 1990, pp. 77-90). Due to the globalization processes, it has become necessary to open cluster initiatives not only to domestic but also foreign partners. Cooperation on an international scale enables better conditions for the transfer of goods and services.

The impact of participation in a cluster on the level of internationalization of the enterprise was already confirmed in the studies of such authors as: Porter (1998), Brown and Bell (2001), Sopas (2001), and Melnikas (2012). However, it is important that these activities are supported by national and EU policies.
Studies by Bembenek (2014), Jankowska (2010), Lis and Romanowska (2016), Przybylska (2005), Rymarczyk (2004) made a significant contribution to the Polish literature on the issue of internationalization of clusters. Particularly noteworthy are those by Gorynia and Jankowska (2008), in which participated representatives of the furniture, automotive and boiler industries in the region of Wielkopolska. They confirmed that functioning in a cluster influences the internationalization of the company, which in turn enables competitiveness and internationalization to influence each other.

Both before the political transformation and in its first few years, there was no coherent concept of implementing the cluster policy. There are no documents directly dealing with recommendations regarding the functioning of clusters. However, the first research on related structures was undertaken at that time.

The earliest study identified by the author in the context of cluster structures was the ‘Terza Italia’ (Third Italy) phenomenon, implemented in Poland from the beginning of the 1970s. The concept referred to then to the phenomenon of the concentration of companies in individual sectors and regions of Italy, which caused the rapid growth of small and medium-sized industrial enterprises. They were able to gain a significant position on the world markets in the segment of traditional products (PARP, 2010, p. 13).

Research on the possibility of creating clusters of small and medium-sized enterprises began in the early 1990s. Pre-accession funds were then used for the implementation of various types of programs, such as: SME Clustering & Networking in Poland, and the Polish Foundation for the Promotion and Development of Small and Medium Enterprises (PARP, 2010, p. 13).

The first comprehensive study of clusters in Poland took place in 2002. At that time the focus was primarily on identifying the existing cluster structures, taking into account the analysis of the potential, opportunities and barriers to their development in the Polish economy. Its implementation was undertaken by the Gdańsk Institute for Market Economics (PARP, 2010, p. 13).

However, the beginnings of a coherent cluster policy in Poland should be seen after 2004, i.e. from the moment of joining the European Union. At that time, the EU framework of the Lisbon Strategy was implemented, followed by the assumptions of the Europe 2020 Strategy. The initial activities were then very inconsistent, without a clear tool that would allow collecting information about the effects of the policy (Szymoniuk, 2014, p. 214). It was not clear at that point how many clusters function in Poland. According to Szymoniuk, the data were completely divergent: from the values that could be “counted on the fingers of one hand” to three-figure numbers (Szymoniuk, 2014, p. 214). In turn, the document “Clusters in Poland” describes 55 cases of the clusters which were distinguished in 2011-2012. At the end of 2015 the Polish Agency for Enterprise Development (PARP, n.d.) identified over 130 cluster structures.
Until 2014, the Program for Competitiveness and Innovation along with accompanying projects on the strategy of internationalization of world class clusters (World Class Cluster) treated the internationalization of clusters as a key focus area. It was planned to sign agreements under the European Cluster Cooperation Platform, including agreements with Japan, Brazil, Tunisia, India and South Korea. Their goal was to strengthen cooperation and development of innovation among small and medium-sized enterprises in Europe and their foreign partners.

In 2012 the TACTICS Task Force on Cluster Internationalization produced a document entitled “Where the Cluster Wind are Blowing (in Europe)” which addressed the key challenges in the context of cluster internationalization. The document presented 48 examples of instruments and activities implemented in Europe at regional and national level. Additionally, it described the current and projected future trends in the use of clusters to support innovation and economic growth at international level (www2).

In 2014 a series of changes were introduced within European Union policies and funding programs. The Competitiveness and Innovation Program (CIP) was replaced by the COSME program (implemented by the Directorate-General for Enterprise and Industry). In turn, the 7th Framework Program (FP7) was continued by the Horizon 2020 program, implemented by the Directorate-General for Research and Innovation. The new programs emphasize the importance of the best clusters recognition and their organization in the economic growth and revitalization of the economy. An important document was developed at that time, entitled “Internationalization of Clusters” (Greenhalgh, 2014). Its aim was to develop a strategy and obtain the competences necessary to operate on the international market, finance these activities (especially for SMEs), identify partners and establish international cooperation that would be commercially profitable. Decision-making processes and functional management structures in a transnational sense were also agreed (Greenhalgh, 2014, p. 15).

The document, step by step, presented also the process of transition from a cluster focused on local goals to a cluster focused on global opportunities, pointing to:

- justifying the needs of internationalization,
- assessment of readiness,
- indication of possibilities,
- developing a strategy and action plan,
- training courses,
- identification of partners,
- building trust and developing projects,
- project implementation,
- assessment of success,
- network maintenance.

The entire TACTICS project highlighted specific recommendations related to cluster internationalization, such as (Greenhalgh, 2014, p. 10):

1. Using cluster organizations as the main tool of internationalization.
2. Using cluster internationalization to accelerate the creation of regional innovation strategies for smart specialization.

3. Intensifying the creation of an international network of contacts among clusters and the mutual exchange of ideas.

4. Marketing and branding targeting and improvement.

5. Further development of the Innovation Express program (support program for the development of international cluster cooperation in the field of research, development and innovation) and its connection with the European Cluster Cooperation Platform.

3. Research methodology

During the transformation period a number of documents were created to develop and increase the level of internationalization of Polish cluster structures. Thus it seems reasonable to ask whether the previously cited assumptions of the previously mentioned documents were implemented and whether they contributed to the increase in the importance of Polish clusters in the global environment.

Enterprises undertaking international expansion should focus primarily on (Meier zu Kocker, Muller, and Zombori, 2007, p. 5):

- development of export activity,
- participation in foreign companies in the form of joint ventures,
- takeover or construction of production plants abroad,
- development of international research and development activities,
- participation in international events (e.g. trade fairs),
- study visits and participation in programs aimed at staff exchange,
- cooperation in the framework of EU projects.

Some of these indicators are taken into account in the research entitled “Cluster Benchmarking”. These are studies initiated by the European Commission with the goal to identify clusters and to benchmark particular structures with the leading cluster. Cluster-supporting policies conducted by the member states are also monitored.

The first such study was conducted in Poland in 2010. In the literature few emphasize the fact that it was a Nordic-German-Polish project (NGPExcellence), which covered all aspects of clusters’ functioning, including internationalization. This also showed that internationalization is an integral part of the process of achieving high-quality management, as well as presented different variants of cluster organizations in specific industries (Greenhalgh, 2014, p. 12).

Quantitative and qualitative methods were used in the research. The collected figures were marked on a scale from 1 to 10 to derive the mean and the benchmark value. The value of 0 is assigned to responses where the real numerical value of the index is zero, while the value of 10 is assigned to responses with the maximum values and those close to them (Haberla, 2010, p. 114). The first research methodology was developed in 2008 and on its basis the first Cluster Benchmarking was created in 2010.
It was then modified in 2010 and 2012, creating the next edition of Benchmarking in 2012. Importantly, the 2010, 2012 and 2014 editions mainly qualified clusters that participated in previous research. As many as 35 clusters participated in the third edition of the survey, of which 31 were the same entities as in the previous edition of 2012, and 20 which also participated in in the 2010 edition. The remaining ones complementing the sample were selected on the basis of the following criteria: a specific form of business, concentration around the dominant industry, durability of cooperation, geographical concentration, involvement in joint initiatives, the existence of common value chains between members, diversity of entities, implementation of joint projects, employment of a development strategy (Bembenek and Frankowska, 2015, p. 39). The methodology of Cluster Benchmarking in the 2018 edition was completely changed. It was developed at the request of PARP based on the “New Methodology of Cluster Benchmarking” as well as on the opinions posted by the members during the survey. The experience from previous editions of benchmarking studies was also used, but numerous changes were visible in the structure of individual indicators. Moreover, the report did not provide information on how many clusters were identical to the previous editions of the study, hence it was analysed separately.

Were Polish clusters successfully internationalized? The author tried to answer these questions by analysing the Benchmarking Cluster documents for 2010, 2012, 2014 and 2018. For this purpose, the sub-area “Cluster internationalization” was verified in detail.

4. Internationalization of clusters – selected results of Cluster Benchmarking in 2010, 2012, 2014 and 2018

The Cluster Benchmarking research (2010, 2012, 2014 and 2018 editions) was undergoing change. In subsequent editions, in the sub-area “Internationalization of clusters”, some indicators multiplied over the years, others disappeared completely or completely new ones appeared.

The table below lists the indicators analysed in the sub-area “Internationalization of clusters” in the above-mentioned editions of the Cluster Benchmarking study.

Three of the above-mentioned indicators for 2010, 2012 and 2014 are analogous, so they can be reliably compared. Two additional indicators were present in 2010 and one additional indicator in 2014 and were excluded from the analysis, whereas 2018 brought a complete change in the survey methodology, therefore it will be analysed separately.

Comparing the value of the benchmark in the sub-area “Internationalization of clusters” in 2010, it can be seen that it was higher than the other elements of the area “Cluster results”. The inverse relationship concerned the average for this sub-area, which in practice means that there were large differences between individual clusters in the context of their international activity.
Table 1. Indicators analyzed in the sub-area “Internationalization of clusters” in editions of the Cluster Benchmarking study

|                                      | Edition 2010                                                                 | Edition 2012                                                                 | Edition 2014                                                                 | Edition 2018                                                                                           |
|--------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Number of foreign markets (countries/continents) where companies from the cluster are present | Number of foreign markets (countries) where companies from the cluster are present | Number of foreign markets (countries) where companies from the cluster are present | Internationalization potential – services for the internationalization of clusters, representation of clusters abroad, cluster staff delegated to cooperate foreign, multilingualism of the website and cluster publications |
| Share of exports in the sales structure of the cluster products | Share of exports in the sales structure of products in the cluster core | Share of exports in the sales structure of products in the cluster core | Export and pro-export activities – the result of export activities, cluster activity on foreign fairs and foreign business trips |
| Number of formal agreements for the cluster’s cooperation with foreign entities | Number of formal agreements for the cluster’s cooperation with foreign entities | Number of formal agreements for the cluster’s cooperation with foreign entities | International activity – cooperation with foreign entities, projects international, industry events of an international nature, organized by clusters and recognizability of clusters abroad |
| Number of publications in a foreign language (industry materials, press) in the last 2 years | – | – | – |
| Number of participation in fairs, international exhibitions, and trade missions of the cluster in the last 2 years | – | – | – |
| Number of international networks/projects (thematic, sectoral) to which the cluster belongs | – | – | – |

Source: own study based on (PARP, 2010; PARP, 2012; PARP, 2014; PARP, 2018).
In 2012 the sub-area “Internationalization of clusters” was assessed the best and was characterized by the highest growth dynamics. The benchmark increased from 7.6 in 2010 to 10.00 in 2012. The averages were at a similar level (2.04 and 2.56), which means that there was an even greater diversification of the results achieved by clusters. The share of exports in the sales structure had the greatest impact on this assessment.

In 2014 the results in the sub-area “Internationalization of clusters” deteriorated. This was one of the least developed areas in the clusters. The decline was 32.5% of the 2012 benchmark value. In turn, the average for all clusters decreased by 25.0% (from 2.56 in 2012 to 1.92 in 2014).

How were the individual indicators shaped?

The first indicator in 2010 showed a large number of foreign markets in which enterprises from clusters were present. As many as 38 clusters (out of the 45 surveyed) operated at least on one additional continent, while six clusters had a global presence on six continents. They were mostly large clusters with more than 30 members, which were included in the industries with the highest level of innovation. Only seven clusters included entities operating just on the domestic market. In the report for 2012, one can only find a short statement that the number of foreign markets where enterprises associated within clusters were present, should be assessed positively.

A chart comparing specific figures for 2012 and 2014 can be found only in the next report for 2014 which shows that in 2012, 25 clusters declared their presence on at least one foreign market, and in 2014 it was also 25 clusters. However, the number...
of clusters that were not present on any foreign market increased. In 2012, there were four clusters, and in 2014 – eight.

The second indicator took into account the share of exports in the sales structure of the cluster’s products. The chart presented in the 2010 report showed that 17 clusters sold more than 10% of their products abroad. However, as many as 28 clusters admitted that their share of exports in the sales structure ranged from 0 to 10%. On average, each of the surveyed clusters sold 20% of their products abroad. The highest share of exports (over 50%) was recorded by entities belonging to the most innovative industries and those with the largest number of entities. In 2012 as many as 26 clusters sold abroad, but they exported to a smaller number of foreign markets than in 2010. In 2014 there was a decrease in the number of clusters exporting abroad (20 entities). However, when analyzing the percentage share, it should be emphasized that the average export activity increased (from 28% to 35%).

The third indicator, which was repeated in three consecutive reports, determined the number of formal agreements for cooperation between the cluster and foreign entities. These are primarily partnership-based contacts aimed at exchanging knowledge. In 2010, 22 clusters undertook such activities. On average, each of them had four such cooperation agreements, while 23 entities did not sign any contracts at that time. The year of 2012 brought an increase in the number of clusters that formally entered into cooperation with foreign entities, i.e. 67 clusters. However, just as in 2010, clusters with one cooperation agreement prevailed. More detailed source data can be found in the report for 2014, which shows that in total clusters declared having 172 contracts, which means an average of almost 5 contracts (4.91). For comparison, in 2012 there were 67 contracts (the average of almost two contracts – 1.91). It should therefore be emphasized that the significant increase in the number of contracts proves the growing internationalization of clusters.

In the report for 2018, the methodology of researching clusters changed completely. The order of the indicators listed in Table 1 is not accidental. Within each sub-area, indicators very similar to those analysed above were taken into account, however since they were greatly extended they cannot be considered directly with the previous reports. The mere extension of individual indicators proves that the entirety of activities related to the international activity of cluster members was significantly expanded.

The Internationalization Potential analysed the possibilities of clusters to support the internationalization of their members. It showed that 90% of the surveyed clusters provided services for the internationalization of associated enterprises. Moreover, in half of the clusters at least 20% of entities used the services mentioned. In the vast majority of clusters, the staff is fluent in English (38 entities), and 65% of the surveyed clusters have a website in at least one foreign language. Additionally, 95% of the surveyed entities used printed materials in a foreign language. The last analysed criteria were foreign agencies, which showed the worst results in this sub-area. At the end of 2017, only 15% of clusters used their services.
The sub-area of exports and pro-export activities showed that 36 clusters conducted foreign sales. More than half of the surveyed clusters (23 entities) took part as exhibitors in international fairs. In turn, 29 clusters participated in international trade fairs and exhibitions. Business trips abroad were organized by 77.5% of the surveyed clusters (31 entities), and half of them organized at least four such initiatives in the last two years.

In the sub-area of international activity, half of the surveyed entities concluded at least one international cooperation agreement. However, as many as 16 clusters did not conclude any such agreement; 60% of the clusters implemented international projects, and the value of these projects ranged from PLN 25,000 to over PLN 68 million. Moreover, half of the clusters organized at least one international event, while 15 entities did not organize any such event. It should also be emphasized that for around half of the surveyed entities, key information was available in the databases of international clusters.

5. Conclusion

As the presented research shows, during the period of systemic transformation, Poland undertook a number of activities aimed at the development of the internationalization of clusters. Numerous documents were published emphasizing the importance of cluster development in the international arena. After the initial stage of establishing local business connections in the first phase of the systemic transformation, the time arrived for international networking, which has been developing in the abovementioned direction.

Undoubtedly, the internationalization of Polish cluster initiatives enables a more intensive transfer of technology, knowledge and diffusion of innovation, thus influencing the dynamic development of the country.

After analysing the above reports, the conclusion can be drawn that the level of internationalization of Polish clusters has been systematically increasing in the case of most of the analysed indicators. Several of them, after the initial increase between 2010 and 2012, experienced a deterioration in the results of clusters in 2014. However, 2018 already brought a decisive development in the internationalization of clusters which has become a key area of activity in clusters, particularly evident in the increase of various types of international initiatives. The authors of the report emphasize the necessity to intensify information activities for cluster members (PARP, 2018, p. 76). It is also important to increase the number of foreign representative offices, which are currently not very popular among cluster members.

The author is aware of the limitations of this study. The reports for individual years do not provide access to detailed source data. Moreover, in some fragments there are no charts, which significantly hampers the comparability of individual documents. In such situations, the author had to rely on descriptions or look for similar information in subsequent reports. Unfortunately, the data turned out to
be inconsistent in several places. Moreover, the research samples in individual reports were not uniform and only a certain part of the research group overlapped in subsequent editions due to the liquidation of some cluster structures.

Further in-depth research on a uniform research sample is recommended, focusing on the analysis of changes which were taking place in Polish clusters at the turn of the political transformation in terms of internationalization.

However, it should be concluded that the Polish policy of cluster internationalization is being built consistently and systematically, and thus produces better and stronger results. As such, the presence of Polish cluster structures in the international arena is more and more visible and contributes to the development of the country.

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**POLSKA POLITYKA INTERNACJONALIZACJI KLASTRÓW W WARUNKACH TRANSFORMACJI**

**Streszczenie:** Okres transformacji w Polsce spowodował zwiększenie zainteresowania polityką klastrową. Początkowo skupiano się na rozwoju lokalnym, jednak w późniejszych latach coraz bardziej podkreślano konieczność umiędzynarodowienia polskich struktur klastrowych. Klastry, będące płaszczyzną równoczesnej współpracy i rywalizacji, stały się miejscem dynamicznego rozwoju przedsiębiorstw, państwo polskie zaś podjęło wiele inicjatyw mających na celu ich wsparcie w realizacji inicjatyw międzynarodowych. Celem opracowania jest próba oceny polskiej polityki klastrowej na przestrzeni 30 lat transformacji ustrojowej, ze szczególnym uwzględnieniem polityki internacjonalizacji klastrów. W tym celu przeanalizowano dokumenty Polskiej Agencji Rozwoju Przedsiębiorczości – Benchmarking Klastrów za lata 2010, 2012, 2014 i 2020. Starano się udzielić odpowiedzi na pytanie badawcze: czy w ciągu 30 lat transformacji ustrojowej udało się skutecznie umiędzynarodować polskie struktury klastrowe?

**Słowa kluczowe:** klastry, internacjonalizacja, transformacja ustrojowa.