
National Strategic Documents on Cluster Policy as a Source of Challenges for Cluster Management in Poland

Submitted 18/09/20, 1st revision 12/10/20, 2nd revision 30/10/20, accepted 15/11/20

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Abstract:

Purpose: This paper is aimed to assess the evolution of Polish cluster policy, as well as, to identify the key challenges for cluster management in Poland, which result from the framework of the conditions described by the national strategic documents in the field of cluster policy. Literature review reveals a substantial shortage of publications and research in the area of the issue under discussion, and presents the relevant research gap.

Design/Methodology/Approach: So far, no document strictly dedicated to shaping the cluster policy in Poland has been developed. The following research methods were used to achieve the research goals: the desk research to identify and analyse the relevant national strategic documents, as well as the case study method.

Findings: A detailed analysis of the national strategic documents on cluster policy with particular emphasis being put on the current European Union's programming period of 2014-2020 revealed a significant number of references to strategic documents of both long- and medium-term nature, as well as, a particular inconsistency. It seems that this lack of coherence in the framework conditions for cluster management leads to negative effects of the functioning of cluster organisations in Poland.

Practical Implications: Cluster policy occupies an important place in the economic policy of the European Union. Despite popularising the idea of clusters, a document strictly dedicated to cluster policy has not yet been developed. Moreover, the provisions shaping the cluster policy in Poland are presented in many strategic documents, as a result of which implementation of the policy, employing coherent executive documents and then support instruments, becomes difficult.

Originality/Value: The value of the conducted research in relatively a new field is the identification of relevant strategic documents, the provisions of which make up the cluster policy in Poland, as well as its assessment in terms of the role and scope of impact on cluster organisations, and, consequently, the challenges for cluster management.

Keywords: Cluster management, organisation, development, government, cluster policy.

JEL classification: D21, D85, L14, L22, L26, L52, M21, O32, R11, R58.

Paper Type: Research study/Case study.

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1. Introduction

Thanks to Porter, clustering and cluster policy have been a dominant paradigm in the world of both economic development theory and practice for many years. The cluster policy, also referred to as cluster-based policy, is the strong element of the national and regional policy for many governments around the world. The policy-makers have noticed that the activity of vibrant clusters have a positive impact on economic growth and development. However, there is still not a single type of definition for cluster policy, yet. It is commonly assumed that cluster policy aims to increase competitiveness and accelerate innovations in established industry sectors by stimulating the development of clusters. Moreover, its goal is to promote and support knowledge-based network building, which in turn contributes to increased value creation and the development of innovative solutions (Barsoumian *et al.*, 2011). Initially, the dominant view was that cluster policy is a collection of instruments and measures used by the authorities at various levels to enhance competitiveness by developing new or stimulating the development of existing clusters, mainly at the regional level (Jankowiak, 2012).

The European Commission has indicated on many occasions that cluster policy should resemble the blending strategy in encouraging the development of strong and dynamic clusters. According to Njøs and Jakobsen (2016), that kind of policies for the utilization of regional specificities should be defined more widely than belonging to a particular industry or value chain. The Ketels (2009) understanding of cluster policy is still relevant today. He has repeatedly emphasised that cluster policy, which is motivated by traditional economic arguments on dealing with market failures, means all efforts undertaken by governments, alone or in a collaborative effort with companies, universities, and others, that are directed at clusters to develop their competitiveness. Smart cluster policy can provide a superior balance between impact and distortion.

However, this outcome depends on the specific nature of the public instruments used (Ketels, 2009). Polozhentseva and Klevtsova (2015), based on their own research, assumed that the clear advantage of cluster policy is that it attaches to the high importance of microeconomic component of economic development, as well as their spatial and social aspects. Properly implemented cluster policy effectively applies the public instruments to promote territorial development, which can be observed in the increasing employment, improving the competitiveness of regional production systems, revenue growth, and others (Polozhentseva and Klevtsova, 2015). Nowadays cluster policy at the regional level in many countries has been transformed from being a regional technology-driven cluster policy to a regional smart specialisation cluster-based innovation strategy (Konstantynova, 2019). It is worth noting that almost every individual national strategic document on cluster policy provides different managerial challenges for cluster organisations. Those external determinants are the drivers of changing the cluster ecosystem aimed at finding the balance not only between cooperation within-cluster but also improving

the cluster organisations performance and continuous value-creating by cluster members (Kazmierski, 2012).

Thus, it can be concluded that the cluster policy evolves over the decades. What's more, its shape is individually formulated by policy-makers in each country and as a result, it determines the specific framework conditions for the operation of clusters. This research paper is focused on cluster policy implemented in Poland.

Cluster policy in Poland was initiated in 2003 by the Council of Ministers that introduced provisions concerning SME sector cooperation links in clusters, in the scope of enhancing their competitiveness and technological product, into the National Development Plan (NDP) 2004-2006 (NDP, 2003). Moreover, the first two clusters functioning today, i.e. the Aviation Valley and Kotlarski Cluster, were created in the same year. The cluster policy in the first programming period of the European Union, i.e. the years 2007-2013, was rich in activities implemented for clusters, both in the sphere of strategic and executive activities (Frankowska and Myszak, 2018).

The current financial perspective, and thus the adopted research period of 2014-2020, are highly volatile. So far, no document strictly dedicated to shaping the cluster policy in Poland has been developed. In connection with the above, the provisions regarding the role, objectives, principles and other activities related to clustering should be looked for in the fragments of strategic documents. Hence, the main goal of the article is to assess the evolution of Polish cluster policy with particular emphasis being put on the 2014-2020 perspective, when major changes in the perception of the role of clusters in Poland were introduced, as well as, to identify the key challenges for cluster managers in Poland, which result from the framework of the conditions described by the individual national strategic documents in the field of cluster policy. Literature review reveal a substantial shortage of publications and research in the area of the issue under discussion, and presents the relevant research gap. In turn, the research problems have been formulated in the form of the following questions:

- What institutional scope of a cluster does the implemented cluster policy take into account in Poland?
- How is the role of clusters perceived by the public government in the current European Union's programming period of 2014-2020?
- What is the role and nature of public support for clusters?
- What challenges for cluster management were generated by the national strategic documents on Polish cluster policy?

The paper presents only an outline of important issues and dominant views, directly related to the research problem which response to the existing challenges created by the cluster policy in Poland.

2. The Scope and Research Methods

In order to achieve the research goal, the case study method based on the desk research was used. The choice of case study as a research method has resulted from the fact that (Mohd-Noor, 2008; VanWynsberghe and Khan, 2007; Rashid *et al.*, 2019):

- a case study is the most widely used method in academia for researchers interested in qualitative research of different problems,
- case study allow generalizations as the result of findings using multiple cases can lead to some form of replication,
- case study methodology enables researchers to conduct an in-depth exploration of intricate phenomena within some specific context,
- a case study is intended to focus on a particular issue, feature or unit of analysis,
- a case study allows the investigation of contextual realities and the differences between what was planned and what actually occurred,
- a case study enables the researcher to gain a holistic view of a certain phenomenon or series of events,
- a case study offers a means of investigating complex social units consisting of multiple variables of potential importance in order to understanding the phenomenon,
- a case study is not exclusively about the case revealing itself as it is about the unit of analysis being discovered or constructed,
- a case study can provide around picture since many sources of evidence were used.

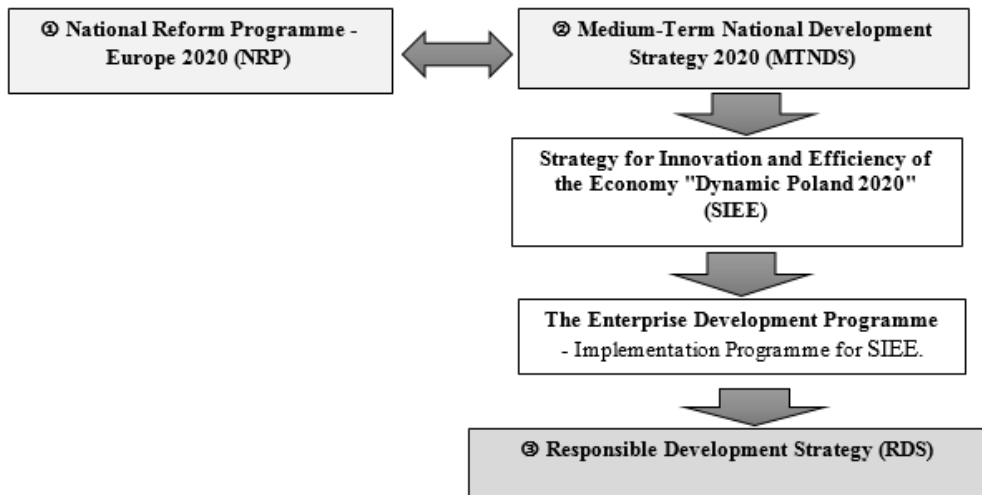
In the case study, four questions were used to reflect the specific research problems identified in the research process. The research questions, being the fundamental core, were formulated to be focused, concise, complex, and arguable.

The important stage in the research process was data collection. Despite popularising the idea of clusters, a document strictly dedicated to cluster policy has not yet been developed. Moreover, the provisions shaping the cluster policy in Poland are presented in many strategic documents, as a result of which implementation of the policy, employing coherent executive documents and then support instruments, becomes difficult. A formulated research aim required the use of desk research and case study methods. They were based on the secondary sources of information and enabled the identification, collection and, selection the relevant national strategic documents. It was followed by evaluation and presentation in chronological and synthetic order of records focusing on a cluster in the study period 2014-2020. Additionally, the empirical work was consisted of direct observation of the process of implementing the assumptions of the cluster policy, too. Thus, the source of data in qualitative research was also the own experience of the co-Authors as stakeholders of cluster policy. The case study was determined in a significant part by

the phenomenological paradigm, due to the holistic view of the studied phenomenon and the generation of knowledge-based on participant observation (the observer is a “player” in the action). The choice of this method resulted from the conviction of the Authors that the presented case concerning the implementation of cluster policy in Poland may be a source of inspiration for various cluster stakeholders and policy-makers in Poland.

The case study consists of 3 parts (Fig. 1). The first presents short information on the importance of clusters in the national Reform Programme: Europa 2020. The second part refers to the institutional conditions of cluster development in Poland defined by Medium-Term National Development Strategy along with executive Strategy for Innovation and Efficiency of the Economy - Dynamic Poland 2020, followed by the Enterprise Development Programme. The third part presents the Responsible Development Strategy that has replaced the previous Medium-term National Development Strategy.

Figure 1. *Strategic documents shaping the cluster policy in Poland (2014-2020)*



Source: Own study.

The analysis of the above-mentioned documents made it possible to conclude that in all the above-mentioned strategic documents, except for integrated strategies, the subject of clusters activity was discussed.

3. National Strategic Documents Shaping the Cluster Policy in Poland During Period 2014-2020: Case Study

3.1 Clusters in the National Reform Programme: Europe 2020

The updated National Reform Programmes (NRP) are the basic instrument for implementing the “Europe 2020” strategy adopted at the level of the Member States

in 2010. It defines how Poland will implement the commitments made in the scope of the five leading objectives of the Europe 2020 strategy by 2020 (NRP 2016/2017). However, the NRP is part of a broader initiative of the Polish government that aims at creating an effective system of shaping the country's development policy by linking the measures included in the NRP, among others, with the implementation of the country's long- and medium-term development strategy. The NRP focuses on activities that are aimed at catching up on development arrears, and building new competitive advantages (NRP, 2011).

The 2011 version of the NRP, item 2. Innovation for smart growth, subitem 2.3. New directions in the development of innovation, determined the importance of clusters as regional environments where the most interaction and cooperation occurs, also at the interface between industries and sectors in an environment characterised by a relatively high level of trust and social capital. It also indicated the need to shape an economic development policy based on clusters, which should focus on developing a selection mechanism (competition and qualitative analysis) of the most competitive clusters, including technology clusters with the greatest innovative potential, and concentration of public funds on them (including EU funds).

The NRP stated that these selected cluster initiatives should be preferred under the existing system of spending structural funds. Moreover, it was indicated that the support should be implemented both by the central and regional authorities based on regional innovation systems. The aim of this policy should be to create a high-tech sector and increase the competitiveness of the Polish economy. This could be achieved by creating an attractive offer for foreign direct investment (FDI) that would create a dynamic and innovative scientific and research base and, on the other hand, by creating a network of industry clusters with high innovative potential, which would be capable of competing on the global market on their own (NRP, 2011).

As part of the NRP, a catalogue of activities necessary to be carried out was also developed, including:

- Action 2.3.7 - Development of cluster initiatives and their monitoring, as well as the expansion of instruments supporting the establishment and internationalisation of activities of clusters and networks,
- Task 7 - Training and advisory project addressed to representatives of clusters, and aiming to raise their knowledge and skills as regards functioning and management of corporate links.

3.2 Polish Clusters Activity in the Context of the Medium-Term National Development Strategy

The Medium-Term National Development Strategy (MTNDS), also known as the National Development Strategy 2020, was the most important document in the

medium-term perspective until 2016, which specified the strategic goals of the country's development until 2020, as well as development activities, including those that could be financed under the future EU financial perspective for 2014-2020 (Ministry of Regional Development, 2012).

The MTNDS had a fundamental impact on the cluster policy in Poland, as it identified the need to create a cluster support system, and assumed an increase in the use of innovative solutions through clusters. According to this strategic document, clusters were to increase the competitiveness of Polish enterprises and lead to the merger of companies, scientific institutions and their resources, thus enabling faster introduction of knowledge to the market (Ministry of Regional Development, 2012). The National Development Strategy by 2020, apart from macroeconomic objectives, also set goals in the microeconomic dimension. It was determined that supporting the development of clusters (i.e. transforming clusters of companies into dynamic clusters with a high level of competition and cooperation, interaction and external effects) (Ministry of Regional Development, 2012) would constitute a modern instrument strengthening regional or local specialisations. Thus, point II.3.4. Increasing the use of innovative solutions (Ministry of Regional Development, 2012), was defined within the main areas of intervention, development goals and priorities, where activities for the benefit of clusters were divided into two time stages:

- Activities 2012-2015: supporting the creation of clusters,
- Activities 2016-2020: basing the functioning of clusters on a participatory market-model.

Thus, for the first time, the scope of support was separated by the maturity of cluster organisations. The implementation of the above-mentioned activities was specified in the Strategy for Innovation and Efficiency of the Economy (SIEE) and voivodeship strategies (Poland is divided into 16 voivodships).

3.2.1 Strategy for Innovation and Efficiency: Dynamic Poland 2020

The Strategy for Innovation and Efficiency of the Economy (SIEE) was one of nine strategic documents implementing the medium- and long-term National Development Strategy. The analysed strategy underlines a significant increase in the importance of organisational structures supporting scientific and entrepreneurial cooperation, such as regional and industry clusters. By referring to the cluster-based economic development policy formulated by the OECD and adopting the definition of a cluster developed by the European Commission, the SIEE assumes an active participation of clusters in increasing the innovativeness and competitiveness of the Polish economy (SIEE, 2013). This is reflected in the detailed provisions of the strategy distinguishing four specific objectives, and then the directions of activities and actions in each of the diagnosed areas. The provisions applicable to clusters are presented in Table 1.

Table 1. Detailed objectives, directions of activities and actions taking into account clusters in the Strategy for Innovation and Efficiency of the Economy: Dynamic Poland 2020

The Strategy for Innovation and Efficiency of the Economy: Dynamic Poland 2020			
Objectives	Objective 1. Adjusting the regulatory and financial environment to the needs of an innovative and effective economy	Objective 2. Stimulating innovation by increasing the efficiency of knowledge and work	Objective 4. internationalisation of the Polish economy
Activity direction	1.2. Concentrating public spending on pro-development and innovative activities	2.1. Raising the level and effectiveness of science in Poland, strengthening its links with the economy and increasing the international competitiveness of science 2.3. Supporting cooperation in creating and implementing innovations	4.2. Supporting the inflow of innovative and responsible investments, including foreign investments
Activity	1.2.3. Identifying and supporting the development of areas and technologies with the greatest growth potential 1.2.5. Supporting knowledge transfer and implementation of new/modern technologies in the economy	2.1.4. Developing research infrastructure and knowledge transfer infrastructure 2.3.3. Supporting cooperation within clusters	4.2.2. Activities for the implementation of the cluster policy in special economic zones

Source: Own study based on: (SIEE, 2013).

An analysis of the provisions concerning clusters in individual parts of the strategy is presented below. With regard to Objective 1. Adjusting the regulatory and financial environment to the needs of an innovative and effective economy, it was indicated that the basic form of implementing smart specialisation of the Polish economy will be a bottom-up form, resulting from the involvement of all stakeholders, in particular entrepreneurs, technology platforms and clusters (Activity 1.2.3). Moreover, it was found that the most important mechanism of an efficient innovation system is cooperation between the R&D sector and the economy.

Therefore, among the objectives of rational spending of public funds there can be found supporting cooperation between enterprises and cooperation of the R&D sphere with enterprises, including strengthening their cooperation with clusters (Measure 1.2.5). It is worth emphasising that the activities of the state in this area were defined primarily as ancillary (financial and technical) in relation to the role of the community of originators and organisers, as well as aiming at the sustainability of the undertakings.

Objective 2. Stimulating innovation by increasing the efficiency of knowledge and work - assumed support for the creation and use of research infrastructure within scientific and industrial centres, including clusters (Activity 2.1.4). Whereas, the broadest reference to clusters, including cluster policy, can be found in Activity 2.3. Supporting cooperation in creating and implementing innovation, where the role of clusters was defined in the context of the territorial dimension of development policy. They are defined as an effective mechanism for concentrating resources and means, as well as one of the best diagnosed methods of stimulating innovation and horizontal cooperation in the economy. In turn, the cluster policy, by creating conditions for the spread of development impulses to other areas, should allow for a more complete use of the development potential of regions. Hence, there was indicated the necessity to link the development of clusters with the development of special economic zones, due to an environment friendly to the formation of cooperative bonds between entrepreneurs located in the zones. It is worth quoting detailed provisions specifying the support for cooperation within clusters (Activity 2.3.3), which was to take place as a result of:

- concentrating the activity of public authorities in the process of creating clusters mainly on developing an appropriate institutional infrastructure in the vicinity of the cluster and offering various aid programmes aimed at supporting the formation of clusters. Only a bottom-up approach to cluster development is to be promoted;
- moving away from supporting cluster initiatives that do not develop without state support, towards precise intervention supporting higher forms of cluster linkages functioning, such as product/service internationalisation or joint research projects at the EU level;
- introducing new support instruments for the creation of cluster links within the existing SEZ;
- strengthening cooperation between clusters and science-technology parks in order to more effectively translate research results into an innovative and effective industry;
- supporting clusters by creating preferences in access to financial resources and creating technology centres, incubators for the needs of the cluster and shaping the technical infrastructure for the cluster.

With regard to Objective 4. Increasing the internationalisation of the Polish economy, the necessity to take measures regarding the future of SEZ was indicated,

in particular reformulating the cluster policy in order to accelerate economic activity in economic zones and ensure long-term benefits for the enterprises operating there (Measure 4.2.2) (SIEE, 2013).

3.2.2 Enterprise Development Programme by 2020

As already mentioned, the Enterprise Development Programme by 2020 (EDP) is an executive programme for the Strategy for Innovation and Efficiency of the Economy: Dynamic Poland 2020 (SIEE). The structure of the EDP concerns the individual goals outlined in the SIEE, proposing specific instruments and activities for their implementation (EDP, 2014). The main addressee of the EDP is the central administration and its subordinate units, as well as local governments.

Conclusions from the diagnosis of the state of innovativeness of Polish enterprises, as well as the key challenges of the following decades identified on this basis, required, as part of the new approach to supporting enterprise innovation, taking into account a wide range of instruments for direct support for enterprise development, and increasing the scope of support for cluster initiatives.

Among the support addressed to business environment institutions, a significant amount of funds was allocated to the development of national key clusters, including, *inter alia*, greater internationalization and networking of clusters and supporting the work of cluster coordinators/animators related to the marketing of cluster activities.

The main objective of the EDP was a high and sustainable increase in productivity in the enterprise sector, leading to an increase in their international competitiveness. The reference to clusters is included in Objective 2. Stimulating innovation by increasing the efficiency of knowledge and work, Priority 2.2. Cooperation for innovation, Activity 2.2.2. Strengthening and development of clusters (EDP, 2014).

The aim of the cluster policy in the planned support period was to strengthen the innovativeness and competitiveness of the Polish economy, based on the intensification of cooperation, interaction and knowledge flows within clusters, and support for the development of strategic economic specialisations (key clusters). The formulated directions and assumptions of the cluster policy provided for broad support for the existing and newly created clusters by financing cluster coordinators, including their cluster initiatives, as well as integration of the available public support around selected clusters of key importance and competitive potential for the economy (through central support) and individual regions (through regional support), which are in line with smart national and regional specialisations. Importantly, the constructed system of incentives was designed to mobilize possible bottom-up formation of cluster initiatives, but not their top-down creation. It was also assumed that the main determinant of cluster development should be private investments made by cluster entities. Public support should be limited in time and should be phased out gradually. The EDP proposes assumptions for the cluster

policy, including:

- extensive support for existing and newly created clusters by financing cluster coordinators. This type of funding was to come mainly from the regional level. With the development of the cluster (from the embryonic/incubation phase, growth, to the maturity phase), support for the coordinator should give way to direct support for the cluster actors (projects for the cluster implemented by consortia of cluster participants);
- integrating available public support around selected clusters of key importance and competitive potential for the economy (through central support) and individual regions (through regional support), in line with smart national and regional specialisations;
- spending the available support on co-financing a bundle of development projects agreed within the national key clusters;
- focusing activities at the local level, not so much on the creation of new clusters, but supporting the development of newly created clusters and/or those with relatively low potential;
- mobilising private funds - public support (regardless of the stage of cluster development) should amount to a maximum of 90%.

The types of support planned under the EDP cluster policy are presented in Table 2.

Table 2. *Planned support under the cluster policy of the Enterprise Development Programme by 2020*

Cluster policy in EDP	Types of dedicated support
Early stage of cluster development (embryonic/incubation)	<ul style="list-style-type: none"> • building competences and development potential of clusters (young clusters with little potential, mainly of local or regional importance)
Development of clusters in the growth phase	<ul style="list-style-type: none"> • increasing innovation (key regional clusters, supra-regional clusters)
Development of key clusters (KNC)	<ul style="list-style-type: none"> • investment projects, R&D, creating new products and technologies, and joining global value chains • internationalisation of clusters and cluster coordinators
Creating clusters for entities operating in the trade and services sector	<ul style="list-style-type: none"> • increasing the level of cooperation between entrepreneurs
Systemic support	<ul style="list-style-type: none"> • increasing the quality of cluster management • raising knowledge about clustering, also among administration, grants for "internationalisation" • supporting the system of selecting key national clusters • creating "supporting monitoring" of the implementation of KNC development strategies

Source: *Own study based on: (EDP, 2014).*

The EDP assigned the Polish Agency for Enterprise Development (PARP) as the

implementing institution, thanks to which it became an active actor in the cluster policy in Poland. It is also worth emphasising that the broadly formulated provisions on the development and role of clusters were justified in the report “Directions and assumptions for the future cluster policy” prepared by the Cluster Policy Group.

3.3 Cluster Activity within Responsible Development Strategy

The last and most up-to-date strategic document dealing with the subject of cluster policy in Poland is the Strategy for Responsible Development (RDS) adopted in 2016. The relatively new strategic document is, on the one hand, an update of the Medium-term National Development Strategy of 2012, but on the other, it presents a new approach to economic policy, focusing the proposed activities around five development pillars (RDS, 2016). The project indicates that the concept of concentrating support on priority R&D&I areas was initiated by the adoption of the National Smart Specialisation (NSS), and Regional Smart Specialisations (RSS) at the regional level.

However, due to the limited resources and the need to allocate them to support high added value (leading industries), important for the future of the economy, there is a need for further narrowing and thematic concentration. This means increasing the concentration of expenditure on R&D&I (research, development, innovation) on the basis of National Smart Specialisations and National Key Clusters, including the so-called first speed regimes (RDS, 2016). When analysing the provisions of the RDS, attention should be paid to the postulate of re-industrialization of the Polish economy and increasing its innovativeness and international competitiveness. With regard to the orientation of the cluster policy, Key National Clusters are indicated as a tool that activates highly innovative ventures and stimulates modern development of Polish industry.

4. Discussion

The Polish Agency for Enterprise Development (PARP) identified 134 clusters within Inventory of Polish Clusters in 2015 (Buczynska *et al.*, 2016). Cluster structures are present practically in all sectors of the economy, in services and industry, including high-tech sectors, as well as traditional ones. It is recognized that a country's support policy plays a key role in the development of cluster initiatives and organisations.

Going back to the research questions formulated in the introduction, it should be emphasised that the analysis of the collected material allows unequivocally stating that despite the lack of a dedicated strategy, cluster policy is implemented in Poland. It's shaping and implementation results from the provisions of nine medium and long-term strategic documents in force in individual periods, as presented in the synthetic overview in Table 3. The consequence of this situation are the changes in the perception, scope, and support of clusters.

Table 3. *Strategic documents shaping the Polish cluster policy: synthetic approach in three financing periods*

Strategic documents in three perspectives	Main document	The scope of cluster actors	Cluster role	The role and nature of cluster support
By 2006	The National Development Plan	SME	Increasing the product-technological competitiveness of enterprises	Bottom-up initiatives, the supportive role of the state. Support for business cooperation.
2007-2013	The National Development Plan the document Directions of Increasing the Innovativeness of the Economy for 2007-2013 The National Strategic Reference Framework 2007-2013 (NSRF) - National Cohesion Strategy	Micro, SME, large enterprises and the science sector	Participating in building the KBE (knowledge-based economy) Increasing innovativeness	Bottom-up initiatives, the supportive role of the state. Support for cooperation between enterprises, R&D projects, creating appropriate conditions for the functioning of clusters
2014-2020	National Reform Programme - Europe 2020 Mid-term National Development Strategy 2020 Strategy for Innovation and Efficiency of the	Entities of Key National Clusters	Activation of SEZ (special economic zones) Smart Specialisations ----- Internationalisation and innovation in areas with high	Bottom-up initiatives, the supportive role of the state. ----- Support for the internationalisation of clusters and

	Economy "Dynamic Poland 2020" (SIEE) Enterprise Development Programme by 2020 (EDP) Responsible Development Strategy (RDS)		added value, the so-called first speed regimes	cooperation with R&D&I and partial support for cluster coordinators, the main role of the state.
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Source: Own study.

The analysis of strategic documents reveals a growing understanding of the role, importance and complexity of clusters. This is evidenced by the fact that support was offered in individual periods for:

- the coordinator as a unit animating activities in the cluster and requiring support in professionalisation,
- cluster enterprises, as entities overcoming barriers to establishing cooperation with other entities and the R&D sector, as well as intensifying innovative activities,
- R&D units whose cooperation with cluster enterprises may increase the application nature of research, and thus strengthen the innovativeness of the Polish industry,
- local government units at the regional level, as actors ensuring an appropriate cooperation environment for cluster entities.

At the same time, it should be emphasised that despite the attempts made, a coherent set of provisions, both in strategic and executive documents, which would enable effective support of cluster organisation, was not created. Despite good intentions, not all provisions were implemented. Thus, in retrospect, the analysis of strategic documents reveals a fragmented nature of the cluster policy characterised by a lack of consistency over a long period of time. This is a significant problem for cluster organisations, but also for local government units, which received an unclear message about the role and importance of clusters. It seems that this situation results from the willingness to adjust the provisions in strategic documents to the current conditions or needs, which then change. An example may be the current perspective, where clusters were initially perceived as activators of special economic zones (SEZ), then they were "used" to identify regional smart specialisations, to be now seen as carriers of innovation in areas of high added value and tools for internationalisation. The long-term inconsistency in shaping the cluster policy is the greatest challenge for cluster management. The change in the perception of the role

of clusters was reflected in the identification of the subjective scope of clusters and the nature of their support. The implementation of the new RDS strategy resulted in a change in the approach towards clusters, for example in the form of a greater concentration of limited resources on the so-called first speed regimes, thus the Key National Clusters (KNC) have gained special importance. The current Polish cluster policy, in its present form, focuses mainly on identifying KNC and providing them with support in the field of internationalisation. Moreover, it ignores the issue of specific state aid for other clusters at different stages of development.

The great freedom in implementing the provisions of the strategy at the regional level means that the cluster policy is implemented to a very different degree. At the regional level, voivodeships focused primarily on defining regional and smart specialisations, and only some of them undertook activities related to supporting clusters and selecting key regional clusters.

Therefore, the still passive attitude of the authorities at the central and regional level is puzzling in the context of supporting the development of clusters that already have a well-formed structure and successes resulting from cluster cooperation, as well as using the strategic potential of clusters in the process of implementation of regional innovation strategies and smart specialisation. In the years 2007-2013, almost PLN 500 million was invested in the creation of cluster structures and the formation of trust capital under the three operational programs of that time - Innovative Economy, Development of Eastern Poland and Human Capital (Bembenek, 2016). It was emphasised then that clusters, as the essence of entrepreneurship and innovation, need appropriate public and institutional support. Therefore, the question arises whether the lack of any form of continuation of activities by the public partner is justified given the current scale and value of the public investment? This question is especially relevant now when the clusters are expected to move towards world-class clusters or at least National Key Clusters, and thus take active measures in the area of cluster management improvement.

5. Conclusion

A number of researchers and politicians suggest, that cluster policy usually consists of the transition from its simple to increasingly complex forms and the dynamics of cluster development in this area depends on their internal and external conditions. Cluster policy plays an important role in the economic policy of the European Union. Many European countries perceive it as a significant tool for influencing the growth of entrepreneurship, innovation and competitiveness of regional and national economies (Bembenek *et al.*, 2016; Pavelkova *et al.*, 2019). The value of the conducted research is the identification of relevant strategic documents, the provisions of which make up the cluster policy in Poland, as well as its assessment in terms of the role and scope of impact on cluster organisations, and, consequently, the challenges posed by cluster managers. Summing up, it can be stated that the Polish cluster policy is characterised by a significant number of references to

strategic documents of both long- and medium-term nature, which may indicate the understanding of the important role of clusters in the modern economy. On the other hand, there is a relatively superficial and ad hoc treatment of clusters in achieving development goals, while forgetting their importance in building inter-organisational ties and social trust in institutions. The analysis of strategic documents regarding the cluster policy, adopted in the current research perspective 2014-2020, reveals a particular inconsistency. It seems that this lack of coherence leads to negative effects of the functioning of cluster organisations in Poland, which include: preventing long-term planning of activities by cluster organisations, which in turn leads to relatively low efficiency of clusters and the waste of social capital accumulated in these organisations. This translates into lower than expected effects of cluster policy, which additionally, due to its dispersion, cannot be properly assessed.

In these difficult conditions, one of the key challenges for cluster managers is the improvement of the cluster management process, the importance of which is additionally emphasised by the actions to stimulate excellence in clusters, undertaken for several years by the European Commission. In the era of globalisation, integration and regionalisation, it was recognised that the pursuit of excellence is an imperative for the existence and development of a cluster. This is due to the fact that clusters incapable of creating value for key stakeholders are doomed to stagnation and collapse. Taking into account the cluster life cycle, the rule of entropy or trends in the world economy, it can be assumed that for most cluster organisations, improving cluster management is one of the key strategic challenges. In the global economy, the main role is played by world-class clusters that stand out efficient management and globally value chains. Contemporary challenges, related to the globalisation of the world economy, force the clusters to become more involved in network cooperation.

In the context of the presented considerations, it is noticeable that the key challenge for cluster managers is both efficient cluster management in accordance with generally accepted standards, as well as constant improvement of own competences in the conditions of a turbulent environment and knowledge-based economy. Meeting this challenge allows taking advantage of the opportunities created by the environment, implementing positive changes in the cluster and shaping the economic security of the cluster. Unfortunately, the implementation of so many tasks, which are expected not only by key cluster stakeholders, but also public partners, cannot proceed effectively without an active cluster policy. It is necessary to develop an appropriate model of the cluster policy together with the cluster community in order not to waste the intellectual and social capital of cluster organisations built over many years. It is worth adding that such works are currently carried out under the so-called Working Group for Cluster Policy in Poland.

To sum up, it can be said that the complexity of the issues raised requires further research in order to develop solutions enabling public actors to appropriately allocate limited funds for clusters, i.e. in the most effective way from the point of

view of economic, innovative and social policy under contemporary conditions.

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