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Cluster management standards in Poland in the context of sustainable development

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ABSTRACT

The study relates to the problem of cluster management in the conditions of sustainable development. Against the background of the assumptions and conditions for sustainable development, the specificity of the cluster activity in the conditions of the Polish economy has been presented. The objective of the paper is to characterize the cluster management standards in Poland. Such standards have been formalized and published lately with the recommendation for their application by the Polish Agency for Enterprise Development. They constitute the response to the low level of the existing cluster management and lack of the system approach to the issue of the preparation of professional coordinators, whose significance is crucial for the cluster success. In the paper, the methods of literature study and the analysis of secondary data have been applied. The paper begins with the characteristics of the principles of sustainable development and their impact on the cluster activity. It also indicates the role and significance of clusters in the contemporary economy. Subsequently, the author has conducted the analysis of cluster activities in Poland. The last part of the paper refers to the Polish standards for cluster management as well as the conclusions and recommendations.

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INTRODUCTION

The transformation of the global economy is much more intensive than it has been ever before (Hirst *et al.*, 2009). Previous changes have been due to the technological progress, lowering barriers to the flow of information, resources and humans, standardizing consumer tastes and patterns of conduct (Steger, 2017). Therefore, the changes in the world economy had to be considered as the result of the listed factors. The outcome of those changes is defined as the globalization of the world economy (Beck, 2009). Globalization has contributed to the fact that the power of impact of enterprises on societies has become even stronger than ever before. As a result of these processes, transnational corporations and large companies with a large geographical extent, whose operations have become easily noticeable and increasingly attentively observed, have been established (Rugman and Verbeke, 2004). Increasingly, it has been pointed out that in the pursuit of greater profits, corporations excessively damage the environment, violate employees' rights, and contribute to reduction in employment in the economy. These entities have been blamed for the pollution of the environment as well social effects, such as job losses or insecurity (Marrewijk, 2003). Consequently, in relation to these enterprises, the expectations concerning their participation in solving complex social problems are increasing and, most of all, they are expected to conduct their activities in the way which the society considers as responsible (Jenkins, 2005). The above circumstances amount to changes in the micro- and macro-environment of enterprises. Although it might seem that the discussed social expectations are primarily addressed to corporations, they actually relate to all enterprises, including medium and even small ones (Spence, 2007). This is due to the fact that small enterprises are often business partners of large corporations, they constitute and important link in their supply chain by performing the function of component suppliers, subcontractors and others. Corporations, while applying specific principles and standards, require the same from their contractors (Jenkins, 2008). Some enterprises use the principles of sustainable development on the basis of imitation, assuming that what is good for a large concern is also good for a smaller entity. This also applies to enterprises which no one does exert such pressure on. This is due to the fact that the enterprises including these elements in their activities have a better reputation in the market. This may become another tool for building competitive advantage in the market (Jenkins, 2006). The issues being discussed in here include the problem known as sustainable development which, in the simplest terms, amounts to including equally economic, social and environmental aspects in the development strategy by enterprises, while simultaneously operating in an ethical way and contributing to an improvement in the living conditions of the society (Kanji and Chopra, 2010). In recent decades, sustainable trends in the world economy have also included the creation and development of clusters. The cluster is a flexible form of cooperation, particularly between three groups of entities: enterprises, scientific-research units and public authorities. These structures create a specific environment characterized by appropriate conditions for cooperation, constituting a catalyzer of technological and social innovation. Clusters provide an opportunity for the development of enterprises, regions and the entire economy (Bell, 2005). The concepts characterized above are the focus of interest of both practitioners and theoreticians of management (Delgado, *et al.*, 2010). The process of the creation and development of clusters as well as the formulation and implementation of principles of cluster management are still relatively new phenomena in Poland. A growing number of studies in this area indicates increasing importance of cluster structures for the development of this country. Clusters positively affect the productivity and competitiveness of enterprises operating within its framework and thus they contribute to an increase in the competitiveness of the entire Polish economy. The above premises constitute the main reason for discussing the subject matter of this study. The objective of the present paper is to characterize the cluster management standards in Poland. For the purposes of the accomplishment of the primary objective, two additional objectives have been formulated. The first one is an attempt to present cluster activities in the conditions of the changing environment, particularly the assumptions of sustainable development, whereas the other one is to identify the effects of cluster activities undertaken in Poland. This study concerns clusters operating in Poland during 2003-2018.

Theoretical background

The principles of sustainable development and their impact on cluster activities

The concept of sustainable development is one of the most important challenges for the contemporary enterprise management. In the simplest terms, this concept implies the need to take into account equally economic, environmental and social aspects in the business activity (Bansal, 2004). The worldwide interest in the concept of sustainable development falls on the last years of the 20th century. The assumptions of sustainable development were defined for the first time in 1987 in the report by the World Commission on Environment and Development (UN) entitled "Our Common Future". In 1992, also on the initiative of the UN, the conference was held in Brazil, where there was developed a set of principles for sustainable development (Rio Declaration) and recommendations and guidelines in this area. Sustainable development is the focus of interest of many international organizations and a broad range of scientific research (Griggs, *et al.*, 2013). The concept of sustainable development primarily emphasized the limitation of natural resources, in particular in the area of the ecological system. Humankind, wishing to maintain the current level of civilization development, must take appropriate steps towards their rational use so that future generations could satisfy their needs at least at the same level as the present one. Sustainable development is, therefore, to lead to greater social cohesion and an increase in the quality of the natural environment. The concept of sustainable development is one of the concepts which indelibly changed the way of looking at the issues of management of natural resources. Until recently, economic efficiency of enterprises came to the fore and economic efficiency was mainly considered from the perspective of the current profitability of the company, the potential of the company to generate profit in the long term and an increase in the company's value. Such an approach requires the company to reduce all expenses which are not directly related to the previously mentioned objectives (Sachs, 2015). Economic rationality is, therefore, in apparent contradiction with the other areas of the concept of sustainable development. The activity in these areas is primarily the source of costs for the company. Enterprises did not initiate the discussed changes themselves. They were in a sense imposed on them. The principles of sustainable development were primarily addressed to large transnational corporations, for a number of reasons (Haugh and Talwar, 2010). The most important ones included the scale of operations, which directly translates into the amount of consumed natural resources. This obviously is also a derivative of their size and the power of impact, not only economic but also social and environmental. Over time, the largest enterprises began to inform their stakeholders on the actions taken by them within the framework of sustainable development. Another reason for adopting the principles of sustainable development by enterprises is image-building benefits. Nowadays, the enterprises applying the principles of sustainable development are not the ones to benefit from the bonus of image but, instead, the ones not using these principles are perceived worse by stakeholders. These changes do not apply only to large entities. The declarations of the application of these principles by small and medium enterprises are commonly observed nowadays (Stewart and Gapp, 2012). The reasons for this state of affairs can be at least two. The first one is the need to satisfy the requirements of the customer which is often the concern already using the principles of sustainable development. The other reason can be the imitation effect, resulting from the observation of the market and the adoption of solutions dominating in it. Irrespective of the motivation, the conditions for the operation of all economic entities have been subjected to a fundamental change over decades (Gupta and Vegelin, 2016). It seems that the period of economic rationality, understood as the most important paradigm of the company's activity is becoming the thing of the past. The issues of social justice and care for the natural environment are coming to the fore. An increase in the interest in cluster activities in the world falls just on this period.

The role and significance of the cluster in the contemporary economy

In the economic literature, the concept of cluster was used for the first time and popularized by Porter (1990), and subsequently developed (Porter, 2008). He defined the cluster as a geographical proximate group of interconnected companies, specialized suppliers, service providers, companies operating in related sectors and associated institutions (including

scientific ones), in specific areas competing with each other but also cooperating. In this sense, the cluster constitutes a new way of thinking about creating competitiveness. On the one hand, it enables and promotes cooperation between enterprises and, on the other, maintaining full autonomy and independence allows for competitive actions. There are many definitions of the cluster (Brodzicki and Szultka, 2002), e.g. the ones that concentrate on some areas of interdependent entities operating in the same or related sectors (Rosenfeld, 1997; OECD, 2000). Others emphasize interactions and functional relationships between companies and cross-sectoral dimension of the cluster (Doeringer and Terkla, 1995). Yet, others highlight the significance of social and cultural factors determining the efficient transfer of information within the cluster (Jacobs and de Man, 1996). Cluster structures are established nearly in all sectors of the economy. The differences relate to the level of innovation and technological advancement, development strategy. Different types of clusters require different competencies. In services, interpersonal skills and the ability to operate in complex structures are very important (Anderson *et. al.*, 2004). The cluster presence in the specific area may translate into an increase in productivity of local enterprises. This is due to easier access to specialized production factors. On the other hand, the accumulation of entities in the specific area stimulates innovativeness of enterprises. Clusters prevent the isolation of enterprises (Ffowcs-Williams, 2000). They also allow for making use of the advantages of a small company while simultaneously benefiting from economies of scale (Enright and Ffowcs-Williams, 2000). Increasing the competitiveness of the participating enterprises, creating innovative environments (Sipa, 2017), creating the conditions for diffusion of knowledge and conditions for emergence of social capital (Skibiński, 2017) require redefining the ways of risk management (Gorzeń-Mitka, 2018).

MATERIALS AND METHODS

In the paper, the method of literature study has been applied in order to develop the theoretical part. For the purposes of the development of the research part, the method of the analysis of documents and secondary data has been used. To this end, the studies by the Polish Agency for Enterprise Development (*in Polish:* Polska Agencja Rozwoju Przedsiębiorczości – PARP) have been primarily utilized. The studies were carried out on the basis of the data included in the reports (PARP, 2012; 2014 and 2016; SZK, 2015 and 2016). Scientific cognition requires the application of appropriate research methods. In the present paper, some of the most general methods of the processing of research material, analysis and synthesis have been used. The subject of the analysis has been the range and conditions for the application of cluster management standards in Poland. For this purpose,

Table 1: The formation of clusters taking into account the criteria of the region and time (PARP, 2016)

No.	Voivodeship	Years of cluster formation												
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1.	Dolnośląskie					■	■			■	■	■		■
2.	Kujawsko-Pomorskie				■							■	■	
3.	Lubelskie					■		■	■	■	■	■	■	
4.	Lubuskie						■		■	■				■
5.	Łódzkie					■				■	■			
6.	Małopolskie				■	■			■	■	■			■
7.	Mazowieckie					■	■	■		■	■	■	■	
8.	Opolskie											■		
9.	Podkarpackie	■				■	■	■	■	■	■	■	■	
10.	Podlaskie					■	■	■	■	■				
11.	Pomorskie					■		■			■			■
12.	Śląskie				■	■	■	■		■	■	■	■	■
13.	Świętokrzyskie						■	■	■					
14.	Warmińsko-Mazurskie									■	■			
15.	Wielkopolskie	■				■	■	■	■	■	■		■	
16.	Zachodniopomorskie		■			■				■	■			■

it has been necessary to disassemble this complex and multidimensional phenomenon into smaller components to be able to determine the existing conditions, characteristics or causal relationships. Mental analytical operations relate to deductive reasoning in here. During the research into the problem, the method of synthesis has been applied, in this case, characterized by inductive reasoning.

The overall analysis of cluster activities in poland

The number of clusters has been constantly growing in the Polish economy for several years. This is clearly indicated by the results of the research in this area carried out by Polish Agency for Enterprise Development since 2005. This is illustrated in Table 1.

Generally, there are 134 entities in Poland which, in accordance with the adopted assumptions, can be called the cluster. Apart from them, there are 106 entities in the Polish economy which have characteristics allowing for including them in potential clusters. A very significant increase in the number of newly established clusters began in 2006. Only in years 2011-2015 as many as 81 clusters were established, which amounts to more than 60% of all the clusters operating in Poland. There are a total of 5868 entities operating in clusters in Poland, which amounts to 44 objects per cluster (with the actual span of 8 to 171 entities per cluster). The ten largest clusters, in terms of the participating entities, are located in the voivodeships: mazowieckie, pomorske, śląskie, zachodniopomorskie, warmińsko-mazurskie, podkarpackie and lubelskie. Clusters in Poland are established in different industries, both in the ones of high technologies and traditional ones. This is shown in Fig. 1.

Most clusters operate in the ICT sector – 19, energy and renewable energy sources (RES) – 16, construction – 12 and medical and tourism industry – 10 each, business services and metal industry – 9 each and production technologies – 7. The most numerous group of entities in clusters are enterprises – 78%, the other participants are business support institutions, scientific units and other entities. Nearly half of enterprises participating in clusters are micro-enterprises – 47%, small enterprises amount to 27%, medium ones - 18% and large ones - 8%.

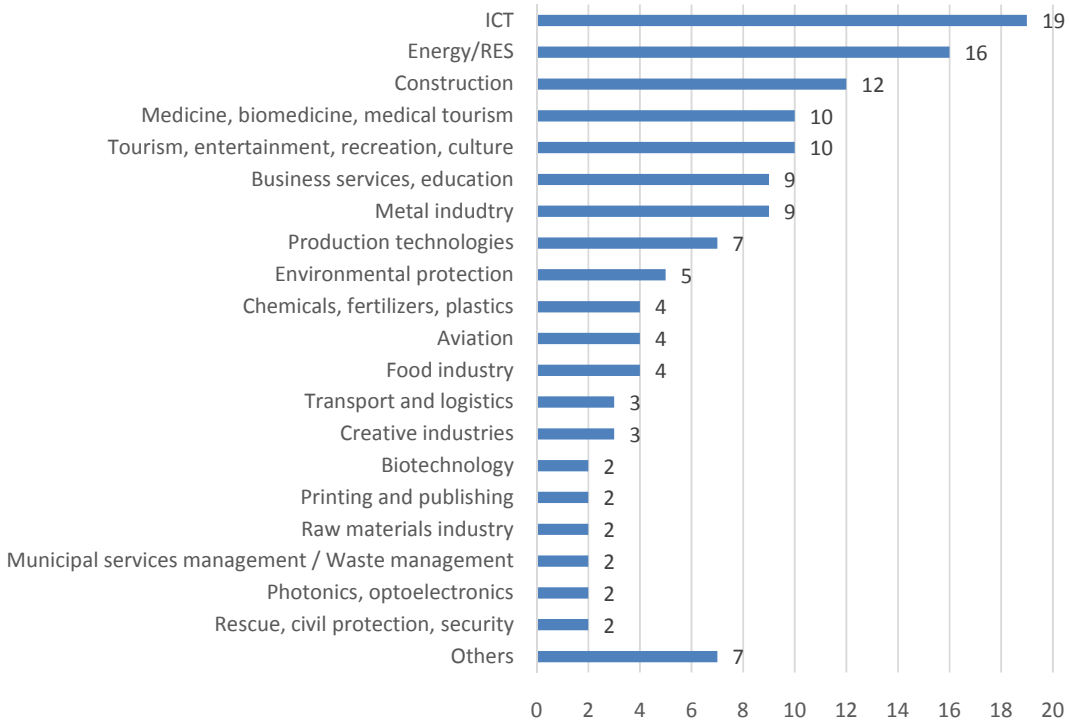


Fig. 1: The number of clusters by the economic specialization (PARP, 2016)

Table 2: Cluster management standards in Poland (SZK, 2015 and 2015)

No	Name of the standard	Standard description
1.	Organization	
1.1.	Organizational foundations of activity	
1.1.1.	Rights and responsibilities of the coordinator defined	The coordinator is considered as the most important factor of cluster development. They should have clearly defined responsibilities and powers. This range can evolve.
1.1.2.	The organizational structure of the cluster	Cluster organizational structure should establish the relationships between the coordinator, cluster members and its bodies.
1.1.3.	The coordinator has the current database of cluster members	The databases of cluster members are used by its all members. The basic information on its members should be published on its website.
1.1.4.	Preventing conflicts of interests within the cluster (optional)	It is justified to create mechanisms, approved by cluster members, which regulate the mode of solving conflicts.
1.2.	Operation strategy	
1.2.1.	Current cluster development strategy	The cluster should have the vision, mission, and operation strategy, defined: range of activity, strategic and operational goals, verified periodically. The strategy should take into account key competencies, external and internal conditions. The process of creating the strategy should be participatory in nature.
1.2.2.	The coordinator's activity is compliant with the provisions of the documents establishing the cluster and with the current strategy	The cooperator acts in accordance with the assumptions, strategy and operational plans.
2.	Resources	
2.1.	Financial resources	
2.1.1.	Financial plan	The financial plan is an estimate of revenue and expenditure of the coordinator, expenditure on investment activities and operations, expected financial results and value of assets.
2.1.2.	A permanent source of financing the cluster	A permanent source of the financing of the coordinator's activity is the funds coming from cluster membership fees, services provided for the benefit of the members and the business activity of the cluster coordinator.
2.1.3	Transparency of financial operations and compliance with the financial plan	The coordinator handles the funds in a transparent manner and compliant with the adopted plan.
2.2.	Infrastructure	
2.2.1.	Permanent access to office space	The cluster headquarters plays a representative function and contributes to building the brand. Office space should be located in the region of concentration of cluster members. The size of office space should allow for implementation of effective operations associated with the cluster functioning.
2.2.2.	Access to laboratory/research facilities by cluster members	The adequacy of equipping the cluster with laboratory/research facilities is dependent on the demand of its members and the nature of the conducted activity.
2.3.	Human resources and know-how	
2.3.1.	Availability of human resources for the coordinator	The coordinator may employ people for the implementation of tasks related to cluster operation. Cluster members may delegate own workers for these tasks in different dimensions and form of employment.
2.3.2.	The coordinator has an updated database of resources and competencies identified in the cluster	The coordinator has information on the possessed resources and competencies. The relevant information allows for identification of areas, by cluster members, in which cooperation is possible and the ones in which it is necessary to develop resources and competencies independently.
2.3.3.	The coordinator actively improves their skills and competencies related to cluster management	The coordinator must have and constantly improve skills in the area of building cooperation networks, negotiations, have analytical skills, know current legal and financial conditions for the functioning of clusters.
3.	Processes	
3.1.	Marketing and public relations	
3.1.1.	Common visual identification system	The common visual identification system is an important component integrating entities belonging to the cluster and simultaneously promoting its activity. This system should include, among others, the logo, color system, patterns of writings and presentations.
3.1.2.	The coordinator initiates and supports participation in fairs and exhibitions	The organization of fairs and exhibitions is undertaken in order to enhance competitiveness of enterprises operating in the cluster. The activity in this area strengthens collaboration between cluster members.
3.2.	Internal communication	
3.2.1.	Applying various communication tools and forms	Communication determines the proper operation of the cluster. Depending on the cluster specificity and its needs, different communication tools are used. The preferred methods are electronic forms of communication and the tools, such as newsletter, e-mail, communicators, and social networking sites.
3.2.2.	Taking actions integrating cluster members	The coordinator takes actions to integrate cluster members and increase identification with the cluster. These can be both formal meetings: meetings, visits and informal ones: thematic meetings, corporate retreats.
3.2.3.	Working groups and task forces	The coordinator can appoint thematic or working groups for the purpose of better organization of activities resulting from the cluster strategy.

Continued Table 2: Cluster management standards in Poland (SZK, 2015 and 2015)

No	Name of the standard	Standard description
3.3.	Cluster development	
3.3.1.	Monitoring and assessment of activities concerning the strategy implementation	The coordinator should actively use the methods and tools of monitoring and assessment of activities in the field of the strategy implementation and create the system allowing for the effective use of the acquired information.
3.3.2.	Taking actions aimed at acquiring new cluster members	The desirable direction of changes is a quantitative and qualitative increase, among others, by acquiring new members.
3.3.3.	The coordinator has the quality management system implemented	The quality management system is necessary to accomplish the objective associated with the expectations and requirements of cluster members, to streamline the functioning of processes within the cluster and minimize business risk.
3.4.	R+D and innovation activity, technology transfer	
3.4.1.	Supporting innovation processes in the cluster	The coordinator should actively participate in the processes associated with creating innovation by cluster entities. This may relate to information support, mediation in acquiring, implementing or selling innovative technologies, research into the demand of cluster members for innovation etc. This support may also consist in involvement in the processes of open innovation and user-driven innovation.
3.5.	Principle of sustainable development	
3.5.1.	Corporate Social Responsibility (CSR)	In their activity, the coordinator should take into account the assumptions of CSR, which means that they strive for the development of human resources, consider the environmental protection and build relationships with the environment in their everyday practice.
4	Services rendered to cluster members	
4.1.	External funding	
4.1.1.	Acquisition of external financial resources	The coordinator should play an active role in the field of acquiring external sources of financing. They should provide support in terms of information on the sources of financing, in terms of organization, concerning the technical aspect of obtaining funds and in terms of operation, during the implementation of financial projects from external sources.
4.2.	Market activity	
4.2.1.	Support for cluster members in the existing value chains	The support from the coordinator may consist in creating purchase groups, sales group, help in negotiating the terms of delivery, creating common distribution channels. This allows cost reduction and establishing real competition with entities with which individual rivalry would not be possible
4.2.2.	Assistance with bids for public procurement or tenders	The coordinator actively participates as a party in the proceedings or as an entity associating members in the field of joint participation in public procurement or tenders.
4.3.	Exchange of experience and networking/matchmaking	
4.3.1.	The coordinator conducts the activities in the area of networking and matchmaking	The coordinator actively participates in the processes of exchange of experiences within and outside the cluster and in networking and matchmaking processes.
4.4.	Human capital development	
4.4.1.	The coordinator conducts the activities for the benefit of development of skills and knowledge of the members	The coordinator actively participates in the development of skills and knowledge of the members by means of analyzing the needs, creating training plans and organizing relevant activities as well as actively searching for educational offers.
4.5.	Internationalization	
4.5.1.	The coordinator's services in the field of support for internationalization	The coordinator should encourage and support cluster members in expansion abroad through cooperation with foreign entities, assistance in the analysis and providing service to foreign markets. The coordinator may organize visits abroad, create the conditions for cluster participation in international collaboration networks.
4.5.2	Information on the cluster in foreign languages	The coordinator provides the functioning of a multilingual website including the product and service offer of individual cluster members. Its paper equivalent should be also available.
5.	External collaboration	
5.1.	Collaboration with local governments	
5.1.1.	The coordinator establishes long-lasting collaboration with local authorities	The coordinator cooperates with local authorities in the field of joint organization of events, providing opinions on plans, strategies, and joint development of documents which are of strategic importance for the region.
5.2.	Collaboration with scientific organizations and business support institutions	
5.2.1.	The coordinator establishes long-lasting collaboration with scientific and /or business support	The coordinator supports the transfer of knowledge and innovative technical and organizational solutions to cluster companies. They provide support in identifying and satisfying training and consulting needs.
5.3.	Collaboration with other cluster coordinators	
5.3.1.	The coordinator establishes long-lasting collaboration with coordinators of other clusters	The collaboration of coordinators may play a significant role in the areas such as knowledge transfer, shaping national and regional policies in the field of the cluster support system or exchange of services.
5.4.	Visibility of the cluster and its achievements	
5.4.1.	Presence in media	The coordinator constantly builds relationships with regional and local media in the field of publication of information related to the activity of the cluster, promotion of the cluster brand and its market offer.
5.4.2.	Visibility to cluster policy makers	The coordinator builds the recognition of the cluster. The presence of the cluster in professional publications is favorable for creating a positive image of the cluster.

Polish cluster management standards

The level of development of clusters in Poland is diverse. Along with their development, there is an increased need for improving the quality of cluster management processes. Cluster management standards must be understood as the principles specifying the desirable properties of cluster management and their operation, taking into account, among others, the best Polish and foreign practices (SZK, 2016). The standards are mostly addressed to cluster coordinators. They include current knowledge of the ways and systems of assessment of cluster management processes and provide appropriate tools for an efficient improvement in their activities. In order to correctly understand and interpret the categories described in the subsequent part of the study, there is the need to define the most important ones. 'Cluster', in the subsequent part of the paper, is understood as a geographic concentration of independent entities, representing a specific economic specialization, cooperating and competing with each other in a value chain. Collaboration is formalized, developed both vertically and horizontally and oriented towards the accomplishment of jointly established objectives. The cluster is the source of benefits and creates a new value for all types of entities participating in it, such as enterprises, universities and other scientific units, business support institutions, public administration and other supporting organizations (Hołub-Iwan and Wielec, 2014). 'Cluster initiative' is an organizational form bringing together key cluster players for the benefit of its development, including a certain partnership formula, which is to agree on and subsequently to implement activities relevant to the development of the specific concentration of companies and supporting institutions (PARP, 2012). 'Cluster coordinator' is a legal person who organizes and animates the development of interactions, relationships, flows of knowledge and cooperation within the cluster and also provides specialized services for the benefit of companies and other entities operating in the specific concentration. The coordinator represents the cluster in external relations, deals with current cluster administration and performs other functions essential for its proper functioning. At the initial stages of cluster development, this function is often performed by a natural person referred to as an animator, a coordinator or a cluster manager (Hołub-Iwan and Wielec 2014). The cluster management standards in Poland include five areas: organization, resources, processes, services for cluster members, external collaboration. The names of individual standards and their range is presented in Table 2.

Table 2 presents only the name of the standard and its range. On account of the nature of the present study and the resulting constraints, the issues such as the objectives/functions of the standard, the way of the evaluation of meeting the standard or recommendations as to the application of the specific standard depending on the stage of cluster development have been omitted in here. Irrespective of this, the analysis of the table allows for the observation that the Polish standards for cluster management have five main areas distinguished, in which there have been additionally identified sub-areas. Each of these standards has the description of the standard which constitutes its justification. The analysis of the titles and contents of the standards allows for the conclusion that the standards comprehensively present the problem of the role of the coordinator in cluster management and constitute a valuable source of information on the desirable changes on their side.

CONCLUSION

The research carried out by PARP indicates a low level of cluster management in Poland and lack of the system approach to the issue of preparation of professional coordinators whose significance is crucial for the cluster success. This has been the contribution to the creation of *Cluster management standards*, whose first edition was published in 2015. The Polish standards have five main areas distinguished in which coordinators implement their tasks resulting from the vision, mission, goals and strategies of clusters they manage. The standards, in the field of organization, determine some basic organizational and legal requirements for cluster operation. In the field of resources, they relate to financial, infrastructural and human resources. In the field of processes, they describe the issues related to the current functioning of the cluster and the processes taking place within the cluster. In the area of operations for the benefit of the cluster, they define the activities of the coordinator in the field of acquiring external funds, supporting research and development activities, supporting market activities in the area of a value

chain or supporting internationalization processes. The last area included in the standards is the collaboration of the cluster with the environment, including local authorities, scientific units, business support institutions and other clusters. The range of the considerations included in the study does not exhaust the issue of the standardization of the cluster activity. Due to a very short time that has passed from the moment of the implementation of the standards, the conclusions concerning their effectiveness cannot be formulated yet. When such research is carried out, this will be the moment when the standards can be subjected to correction. Further research by the author will attempt to determine the impact of standards on the performance of clusters.

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CONFLICT OF INTEREST

The author declares that there is no conflict of interests regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancy have been completely observed by the authors.

ABBREVIATIONS

ICT	Information and Communication Technologies
PARP	Polska Agencja Rozwoju Przedsiębiorczości (Polish Agency for Enterprise Development)
RES	Renewable Energy Sources
SZK	Standardy Zarządzania Klastrem (Claster Management Standards)

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