

CLUSTERING SMALL AND MEDIUM ENTERPRISES IN THE TRANSPORT INDUSTRY

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***Abstract:** Small and medium-sized enterprises are exposed to many risks which could threaten their existence. One of possible way, how to reduce these risk is clustering. The cluster initiative represents a set of activities aimed at improving the economic level and competitiveness of small and medium-sized enterprises. Besides of it, cluster initiative helps organizations which interested in cooperation obtain the necessary information. The main goal of the article is identification and analysis of structure of clusters operating in Slovakia and creating the current list of clusters. Further, the article aims at closer examination of the clustering of transport companies in the cluster and other forms of cooperation in Slovakia. On the base of the fact that here does not exist an accurate list of clusters in the Slovak Republic, we decided to create it. We faced many problems which are described in the article. In spite that the list of clusters has certain restrictions we can state that it provides a general overview about the forms of cooperation in Slovakia. We discussed and depicted the structure of clusters according to different criteria in the third part of article. Particularly we focused on forms of cooperation between small and medium-sized transport enterprises.*

***Keywords:** Cluster, Cluster initiative, Transport industry, Small and medium enterprises.*

***JEL Classification:** M21, R12.*

Introduction

Every enterprise operates in a particular environment. Enterprises are affected by this environment directly or vicariously. The enterprises are affected by various factors from internal and external environment. These factors can have a positive as well as negative character. Positive factors that affect small and medium enterprises (SMEs) are associated mainly with their indoor environment. SMEs have a simpler organizational structure, closer relationships with customers and are able to react more flexibly to market changes.

From the perspective of risk management is more important monitor the factors, whose consequences have a negative character. These factors are divided into external and internal, and are referred to as barriers to business (Mihók, 2010; Šubertová, 2009).

Internal barriers have mainly subjective character and are resulting from the personality of the entrepreneur or manager. They can be characterized as:

- Inherent barriers - They relate mainly to the psychological characteristics of the manager or entrepreneur personality. In relation to risk management is assessed mainly attitude of the entrepreneur / manager to the risk. Inherent barriers may be related to the lack of organizational skills, lack of purposefulness, inability to resolve conflicts, work under pressure ... In this category could be included lack of motivation for business development too.

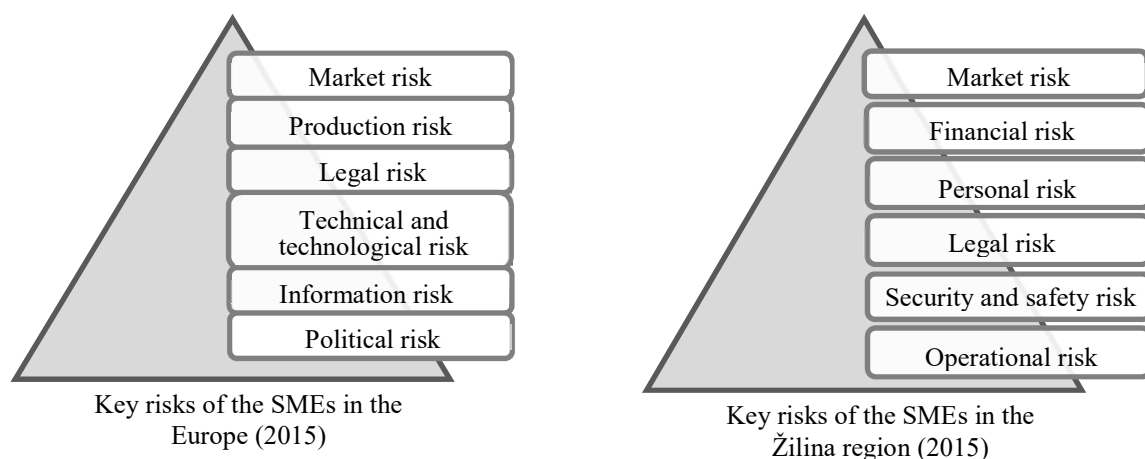
- Acquired barriers - They are associated with personality development and the acquisition of general and specific knowledge. Small enterprises have very often lack knowledge about the requirements related to business. Precisely for this reason are not able to assess market opportunities, formulate strategic goals, assess the financial return of business...

- Capital barriers - It is a lack of own financial resources for doing business, which partly result from the starting (family) capital situation They are also affected by the barriers, which are mentioned above.

External barriers have objective character. They have the same effect on all businesses. Enterprises are able to change these barriers minimally. Some barriers are active in the phase of establishment and formation of SMEs, others throughout the all enterprise life cycle. But most of them are increasing costs for SMEs.

More institutions have dealing with identification of these barriers / risks. Based on the results of their surveys (Key, 2015; Hudáková, 2015) it should be concluded, that SMEs in Europe and specifically in the Žilina region (SK), are most threatened by market risks.

Fig. 1: Comparison of risks, which threaten SMEs in Europe and in Žilina region



Source: Bobáňová, 2017

Progress but also existence of SMEs is most affected by market risks. Factors of market risks are for example price, marketing and market position. These risks are mainly associated with the price creation of raw strategic materials and exchange rates. SMEs cannot greatly influence them by their core activities. Enterprises should focus on areas that they can regulate in some way. They can strengthen their marketing strategy. It includes the creation of the company's reputation (goodwill) and prefers quality over quantity... Very important role for SMEs should be a regular market research. Thanks to research keeps up with the competition, but on the contrary, will always be one step ahead.

SMEs have limited resources. Therefore, it is very difficult for them to face these barriers, and risks. It is advantageous for them to unite and to spread risks and financial demands. The aim of this paper is to point out the most appropriate way of cooperation for SMEs and to provide SMEs an overview of the areas and potential partners in the Slovak Republic (SK) as well as in neighboring countries.

1 Statement of a problem

Enterprises, regardless of their size, can use the various forms of economic cooperation, which enable them to cope with mentioned barriers and risks. Economic cooperation can be based on a formal but also on informal basis and can be carried in one country or internationally. The biggest advantages of this cooperation are: greater certainty turnover greater possibility of access to resources, the possibility of reducing costs (Liška et al, 2004).

Economic cooperation also entails some disadvantages. For example, the problem of minor enterprises with failure to adapt to the working practices and management style of the majority society. This problem stems from different corporate cultures in cooperating enterprises.

If SMEs want to retain its legal personality and draw benefits from the cooperation it is the most appropriate forms of association in clusters. According to Porter cluster is a geographically proximate group of interconnected companies, suppliers, and related institutions in a particular field (Porter, 1998). Members of the cluster are not only SMEs, but also educational institutions, research institutes, local self-government and agencies to support development of business and of region too. Between the members are creating intense, systematic and mutually beneficial relations. These relations are creating on similar or on complementary products, production processes, technologies, demands on natural resources, on specific qualifications or distribution channels (Klastre, 2009).

The importance of clusters is in increasing productivity and competitiveness of enterprises on the national but also international level. Specifically, it is the use of results of scientific and technological development, increasing of specialization, qualification development and employment, supporting new business initiatives (start-ups), achieving economies of scale, use of a common marketing policy ... Clusters also deliver benefits to other interested participants, not only to businesses. For educational institutions they bring the possibility of dual education for practical needs as well as applied research and technology transfer into practice. For regions and local self-government in particular mean economic benefits but also the development of infrastructure (transport or information).

1.1 Forms of Cross-Border Cooperation in Cluster Area

The cluster offers a space for establishing an internationally competitive business and it is important for it to provide information about the international markets, trends and innovations. Therefore one of the important tasks, which the cluster organisation but also the companies face, is to initiate the international cooperation. The international cooperation from the point of view of the clusters can be classified into the following groups:

- The international cluster initiative.
- The domestic cluster with foreign participation.
- The cross-border cluster.
- The cross-border cooperation of clusters.

The cluster initiative is understood as an organised activity aimed at improving the level and competitiveness of the cluster organisations (Duman et al, 2009). The group

of the international cooperation can involve establishing various supporting policies, strategies, projects and institutions at the EU level, e.g. the European Cluster Alliance or European Cluster Policy Group.

A domestic cluster with foreign participation represents cooperation based on the membership or collaboration with a foreign company as well as an educational or research institution. This group can be divided into sub-groups according to the involvement of the foreign subject to the domestic cluster:

- A foreign subject is a member of the domestic cluster.
- A foreign subject is the founder member of the domestic cluster.
- The collaboration of the domestic cluster with a foreign company.

The domestic cluster with foreign participation arises on the basis of a certain legal form. In Slovakia it is predominantly an interest association of legal entities and a citizens' association. The domestic cluster with foreign participation is financed predominantly by the subsidies of the domestic country and membership fees.

The cross-border cluster arises on the basis of the calls of various programmes aimed at cross-border cooperation. The establishment of such a cross-border cluster is determined by working out a project in which the domestic and foreign subjects participate. The cooperation of the subject in the framework of a cross-border cluster is realised with the purpose to achieve the goals of the project, including building and strengthening the foreign relations. The cross-border clusters are e.g. the Hunting and Forestry Cluster of Economic Cooperation and Nature Protection in the border areas of Hungary and Slovakia; the Czech-Slovak-Polish Cluster aimed at common projects in the area of the road, railway and building construction or the Czech and Slovak Industrial Cluster of Collaboration of East Moravia and West Slovakia. The EU funds, governmental co-financing and in a smaller extent co-financing of the involved subject and partners belong to the resources of financing the projects of the cross-border clusters in comparison with a domestic cluster with foreign participation.

The cross-border cooperation of the clusters develops on the basis of the same orientation on a particular economic activity of several countries. E.g. the cooperation of the Automotive Cluster of the Slovak Republic and Moravia-Silesian Automotive Cluster or between the Slovak Plastic Cluster, Czech Plastic Cluster and the Industrial Cluster Bydgoski. There are several examples of such cluster collaboration between countries.

1.2 Support of Clusters in Slovakia

The emergence of the first Slovak clusters was mainly determined by the initiative of the Slovak companies in a certain line of business or region. The legal form of such a companies' association depends especially on the valid legislation in the particular country. The clusters in Slovakia are mainly established as interest associations of the legal entities and citizens' associations. These two preferred legal forms seem to be most suitable due to the fact that a legal basis for founding them is missing. The official means of the government support for the clusters were provided for the first time in 2012 by the Ministry of Education, Research and Sport of the Slovak Republic through subsidies aimed at the scientific and technical services (Kaliňák, 2012). The Ministry of Economy will cover the support of clusters through the Scheme for Support of Industrial Cluster

Organisations from 2018. In 2016 seven applicants obtained subsidies for supporting the industrial clusters and three ones were rejected (Zoznam, 2016). On the basis of this document only clusters with the legal form “interest associations of the legal entities” can obtain the subsidies (Schéma, 2014). A cluster with the legal form “citizens’ association” can apply for a subsidy from the Ministry of Economy based on the law No. 71/2013 Coll., about providing subsidies by the Ministry of Economy. Based on this law the purpose of the subsidy for the clusters can be support of the SMEDs, research, development and innovations or development of the industrial production and services (law No. 71/2013, Coll.). Regardless to the legal form of the tourism clusters, the subsidies are provided by the Ministry of Transport, Construction and Regional Development according to the law concerning support of tourism (law No. 91/2010, Coll.). The regional budgets, university budgets or EU structural funds can be introduced as the other possibilities of financing from the public resources. Financing from the public resources is important especially during the initial phases of the cluster life cycles. The financing of the clusters by the private sector is utilised in a smaller extent. The financial contributions of the cluster member companies, membership fees or sponsoring by the subjects that are not the cluster members belong here. Financing from the private resources is utilised during the later phases of the cluster life cycle, the membership fees are very important (Pavelková et al, 2009).

The Slovak Innovation and Energy Agency (SIEA) is providing the information support to the clusters. SIEA published an analytical study Clusters for Support of Innovations in 2009. It can be called the first publication mapping the situation with clusters in Slovakia (Duman et al, 2009). Another analytical study was published in 2015 – Cluster Policy in the Conditions of Slovakia (Balog, 2015). The list of clusters performing in Slovakia shown on the web site of the agency SIEA has not been updated since 2009 and the study Cluster Policy in the Conditions of Slovakia brings a list from 2010. The organisation European Cluster Observatory (ECO) provides more updated information, cluster and cluster policy analyses in Europe. The statistical data about clusters is available until 2011. The Cluster Union of Slovakia deals with the activities for support of the cluster policy development in Slovakia as well as with other activities. The union was established in 2010, currently there are 11 members (the clusters of different orientations) and participates in various international projects. The union currently cooperates in the framework of the project V4 Clusters Go International which is aimed at building international cluster capacities and at orientation on new markets (Únia, 2016).

2 Methods

A list of clusters active in Slovakia was created in the framework of investigating the number and orientation of the clusters in Slovakia. Based on this list the structure of the clusters was analysed. The list with the exact name and orientation of the identified clusters is not part of this article. The information for creating a list of clusters performing in Slovakia was achieved from the register of the interest associations of the legal entities and the register of citizens’ associations published by the Ministry of Interior of the Slovak Republic (Registre 2016). The password “cluster” was entered to the searching field of the registers (according to the name). This list was completed by organisations in the name of which we cannot find the word “cluster”. They are e.g. the organisations Biterap, IT Valley, Z@ict and Celim Slovakia which are shown on the

web sites of SIEA and ECO as clusters. The interest associations based on the applications for subsidies for supporting the industrial clusters approved by the Ministry of Economy of the Slovak Republic were added to the list. The Association for Development of the Region Horná Nitra and the Slovak Centre of Productivity belong to the applicants. The list of clusters can be completed also by the interest associations which have in their names words “development of the region”, as in the case of the cluster Association for Development of the Region Horná Nitra (an applicant for subsidies for a cluster). In this way it was possible to find 70 clusters, out of which 23 having the legal form “citizens’ association”.

Transport clusters were also searched in the registers of published by the Ministry of Interior. The password “transport” was entered to the searching field of the registers (according to the name). We identified 34 organizations whose activities are aimed at encouraging cooperation between transport enterprises.

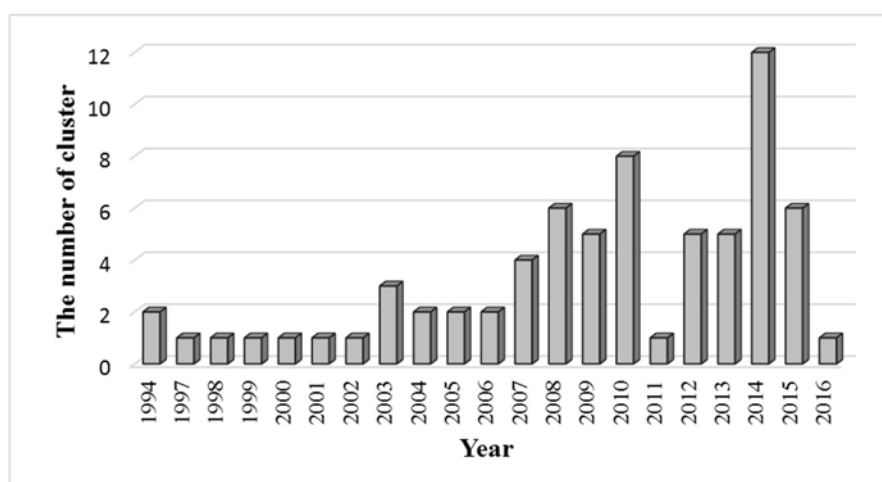
However, this list has three main restrictions. Firstly, it is not possible to say it involves all cluster organisations performing in Slovakia. This restriction results from the procedure how the list was created. Secondly, it is necessary to emphasise that if the cluster is registered in the register of interest or citizens’ associations, this fact does not automatically guarantee the cluster is active. Thirdly, the cluster organisation can have another legal form and it need not inevitably introduce the word “cluster” in its name. Last but not least, it is not possible to speak about an exact definition or a border when we can designate a given association of the companies and other subjects as cooperation without any closer specification or as a cluster. However, the list provides a general survey about the clusters in Slovakia and in this way it creates a theoretical basis for development or possibilities of development of the cluster initiative and policy in the area of the Slovak Republic.

3 Problem solving

The activities aimed at improving the level of the cluster organisations by the government, the subjects of both the public and private sector should be oriented on creating particular measures taking into account the structure of the clusters in Slovakia. The mapping activities of the clusters’ orientation in Slovakia play an important role here. The analytical study Cluster Policy in the Conditions of Slovakia (Balog, 2015) brings a list of 16 clusters which were active in Slovakia until 2010. It is necessary to find out the current number of the clusters and their orientation.

The majority of clusters in Slovakia arose in 2014. Out of 70 clusters included to the research, 12 were registered in the given year. It represents three times the amount of clusters registered during previous two years. They were mainly clusters oriented on tourism as well as associations which were not present in Slovakia at that time – transport clusters (railway and air transport) and an agricultural and food cluster.

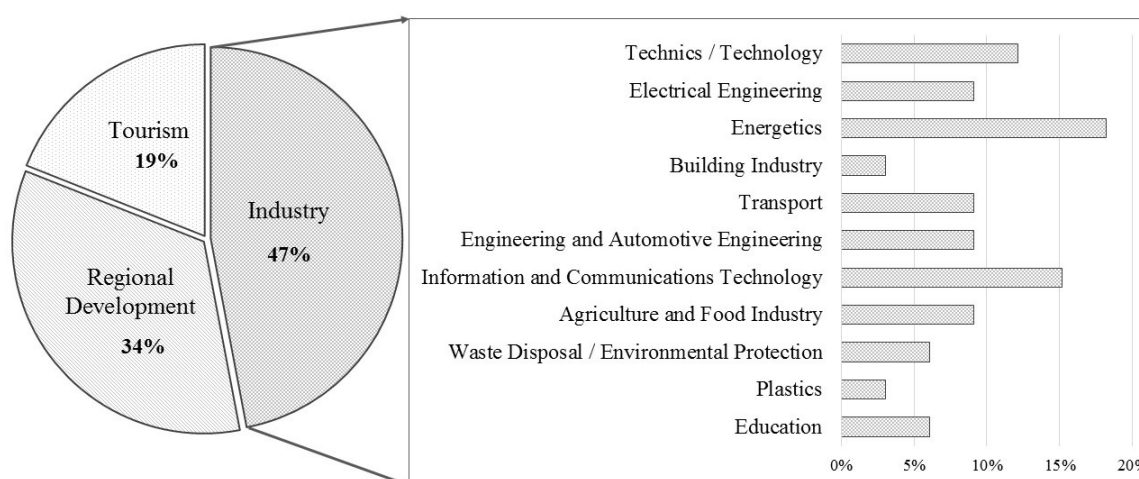
Fig. 2: Distribution of clusters in the Slovak Republic by year of foundation



Source: Authors

The aforementioned analytical studies (Duman et al, 2009; Balog, 2015) classify the cluster organisations to two groups, namely the technological and tourism clusters. In this article we use the classification into three groups – tourism, industry and region development (see the figure 3). The tourism clusters in Slovakia associate subjects aimed at tourism with their seats in a certain region or a popular tourist area. The second group – the region development – comprises those clusters which associate subjects in various lines of business in the same region. Simply said, their aim is to increase the competitiveness of the region through activities oriented on improving the economic activity, erudition, reducing unemployment, protecting the environment and supporting tourism. The industrial clusters, compared with the two aforementioned ones, associate also subjects with their seat in another region, however, with the same orientation of the economic activity – the line of business.

Fig. 3: Percentage division of clusters in Slovak Republic by area of activity



Source: Authors

Out of the 70 clusters identified, approximately 19 % are aimed at tourism, 30 % belong to the group “region development” and 51 % orient on a particular economic activity. The classification of a cluster to a particular group was carried out on the basis of the cluster’s orientation in the aforementioned registers of the Ministry of Interior of the Slovak Republic. The clusters classified to the group industry can be furthermore divided to 11 areas according to the determination of their orientation (see the figure 3).

The most clusters are focusing on energy, technology in general and information and communication technologies. In contrast, the cooperation between enterprises with a focus on education and building industry, including processing and production of plastics, has in our area each only one cluster organizations.

4 Forms of cooperation between small and medium-sized enterprises in transport

In the list of existing / potential clusters in the Slovak Republic there are also three clusters whose area of activity is related to transport. To these clusters belongs:

- Aviation Cluster Slovakia (Košice) focusing on the development of civil aviation industry.
- Slovak AeroSpace Cluster (Bratislava) focusing on aerospace research (aviation and astronautics).
- Railway transport cluster (Poprad) focusing on the rail transport and engineering production.

Mentioned clusters were incorporated in 2014 and 2016. Due to the absence of web pages and inaccessibility of information about cluster's activities it is not possible to find, if these clusters are currently inactive.

We would recommend participation in the European Aerospace Cluster Partnership (EACP) for clusters focusing on the aviation. Aim of the association is to strengthen the position and competitiveness of European companies on the global markets in sector of Aeronautics and Astronautics. The main activities of EACP are active exchange of information and knowledge in the relevant area and development of transnational cooperation between clusters. EACP is a network of European aerospace clusters, which has 36 members from 14 countries. The members of this association are also clusters of neighboring countries of Slovak Republic for example Moravian Aerospace Cluster (CZ), Hungarian Aerospace Cluster (HU) or Aviation Valley Association (PL). Slovak Republic doesn't have representative in the EACP currently (Members, 2016).

Besides of three clusters mentioned above, in the Slovak Republic exist clusters that carry out activities to support the development of transport (despite the fact they do not have the main focus on transport), for example Danube Knowledge Cluster or Slovak IT Cluster. The core activities of Danube Knowledge cluster are creation of cooperation between Slovak and foreign experts so due to the main objective is included to sector education in figure 1. The Danube Knowledge Cluster is responsible researcher of the study Analysis of the possibilities of transposition of the EU Strategy for the Danube Region in the operational program Transport (DVK, 2010). Slovak IT Cluster focuses on developing of information systems, including information systems in transport.

Based on previous findings, we should state that here is lack of clusters oriented on road transport in the Slovak Republic. Cooperation in this field is realized in various unions and associations etc., which do not have the form and characteristic elements of the cluster.

We identified 34 organizations whose activities are aimed at encouraging cooperation between transport enterprises. The most frequent is the cooperation of enterprises in the form of civil association. For example The Union of Slovak Road Hauliers (UNAS) is focusing on road freight transport and it is a member of pan-European organization UETR (Dopravcovia, 2016; European, 2016).

Fig. 4: Percentage distribution of organizations with a focus on cooperation in road transport by legal status



Source: Authors

The second preferred form is cooperation within association of legal entities. Here can be mentioned, for example, The Association of operators of public passenger transport in urban agglomerations in the Slovak Republic. Their main aim is the promotion and reciprocal assistance in ensuring services and operation of public passenger transport.

Another example of cooperation is CESMAD Slovakia. This organization has approximately 900 members, companies of national and international road transport. The aim of the organization is to support the development and prosperity of road transport in Slovakia, including the promotion the interests of their members. CESMAD Slovakia is also a member of the International Road Transport Union (IRU) (Profil, 2016). The next important organization is Association of bus transport. Members of the Association of bus transport are transport companies that doing business in the public regular passenger transport and other entities whose activities are related to public transport (Stanovy, 2014).

Small and medium enterprises focused to transport can interoperate also without membership in some association. They have the possibility to register on various websites. They mostly offer free storage and transport capacity by joining transporters, forwarders and customers. One example is the internet domain www.trans.eu. The benefits of such cooperation are economies of scale, increase the frequency of deliveries and more efficient inventory management. Cooperating companies achieve mainly reduction of transport costs, when they use common distribution facilities to send the goods or the transport of persons in the same or overlapping destinations.

Conclusion

Based on a survey focused on identification of number and structure of clusters we can say that the Slovak Republic is developing activity in the area of association of private and public sector in clusters. It was identified 70 existing or potential clusters but it is not possible to talk about the exact number of clusters. The problem is absence of legislation that would define legal form of association of organizations. Therefore, they are based in the form of various legal forms where the word “cluster” doesn’t have to be adduced directly in the business name. Selection of legal form depends mainly on

ways and possibilities of obtaining financial resources. Nevertheless it is possible to point out that the preferred legal form is interest association of legal entities and civil society organizations.

Transport companies use to reduce risks usually other forms of association, such as clusters. However, we identified three clusters focused on air and railways transport. Cooperation of road transporters is realized through membership in various unions and associations, which do not have forms and features of cluster, for example interest association of legal entities and civil society organizations, proprietor communities and labor unions and employers' organizations. It was identified 34 associations in the Slovak Republic. Transporters, forwarders and their customer also have the opportunity to cooperate without membership in these organizations through the registration on websites. As a result they do not have to bind their capital in the means of transport, which capacity would not have been fully utilized. Despite it we can conclude that cooperation of transport SMEs with educational institutions, research institutes, local authorities and agencies to support of business development in the clusters and in the above associations provides many advantages for SMEs.

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