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Studying Supply Chain and Tourism Cluster Development

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***Abstract.* Supply chain and tourism cluster are the two important ways to enhance the competitiveness of regions or industries. By discussing the differences and links between the two, this paper concludes that tourism cluster and supply chain carry features of compatibility and symbiosis. The importance of this research paper is determined by the fact that a significant number of tourism clusters established in the territory of the Russian Federation are not always successful as catalysts for the tourism sector development. This study aims to determine methods for conducting research on specialization as a factor in tourism cluster development, taking into consideration the existing research approaches and findings in this area. The systemic, structural, functional and analysis methods were used, along with a general theoretic approach to researching tourism cluster development. The selected methods made it possible to identify approaches to forming the relevant research methodologies. Based on the presented approaches, it is possible to choose research methods and the coherence of research activities in this area, with a view to identify key development indicators for tourism development and various tourism-related processes taking place within the territory of a tourism cluster. The research findings will provide necessary tools and mechanisms for developing tourism clusters based on the diversification of their specialization. The findings of the study are directed at increasing the effectiveness of decisions taken to assess and forecast tourism cluster development and can also be of use to all those interested in this field. The materials of the present study can be used by regional administrations to monitor and make effective management decisions aimed at improving regional tourism development programs. Experts and scholars could also benefit from the findings of this study to analyze and develop projections and to promote topic-related methodological approaches. The article will be of practical value for the specialists in tourism planning, tourism administration and tourism enterprise managers.**

Keywords: *tourism cluster, supply chain strategy, cooperation, specialization, diversification of specialization, tourism innovations.*

1.   Introduction

The current state of tourism in the Russian Federation requires the supply chain strategy and adoption of innovative approaches to its development [1], [2]. To deal with the main challenges for the future, including increased global competition involving not only traditional product, capital, technology and workforce markets, but also national management, innovation support and human development systems [1], the main focus has now shifted to a new model of the spatial development of the Russian economy, which includes the following: the establishment of new socio-economic development centers based on a developed energy and transport infrastructure and the promotion of enterprise cluster development improving the competitive edge of territories [1, 3], [4], [5]. The Russian Federal Target Program on the Development of Internal and Inbound Tourism in the Russian Federation for 2011-2018 has become one of such mechanisms for tourism development. Implementation of the Program's objectives is based on the cluster approach. In tourism, the notion of 'cluster' refers to a group of enterprises and organizations within a limited area which develop, produce, promote and sell tourism products and are engaged in other activities related to tourism and recreational services [3], [6]. Currently, the cluster approach has become one of the leading tourism development approaches in the Russian Federation. Many regions regard tourism as a sector or a cross-industry network that can promote economic growth. Implementation of the Federal Target Program is to be completed by 2018 and extended until 2025. In this regard, tourism cluster development has already produced some visible outcomes in the Russian regions for the further development of a competitive tourism sector. Tourism clusters meeting the requirements of the Federal Target Program have been set up in the following Russian regions: the Yaroslavl, Ivanovo, Ryazan, Rostov, Pskov, Lipetsk, Kemerovo, Tver and Vologda Regions; the Altai, Krasnodar and Stavropol Territories; the Republics of Buryatia, Kabardino-Balkaria, Adygea and some other territorial entities of the Russian Federation. Fifty-three tourism clusters were expected to be set up and to become fully operational by 2018, with forty-four of them being created and funded through the federal budget. According to the Accounts Chamber of the Russian Federation, only two out of forty-four tourism and recreational clusters have been completed as of October 1, 2017. These include the Gem Ring of the Urals and the Kezenoy-Am. As of October 1, 2017, the

technical preparedness of the remaining forty-two tourism clusters was as follows: up to 50% (in 12 clusters), from 50% to 80% (in 20 clusters) and over 80% (in 10 clusters). At the same time, construction of six clusters located in five regions (the Republics of Buryatia and Tuva, the Vologda, Kostroma and Kemerovo Regions) was not completed by the deadline established by the Federal Target Program (2014-2016). Their technical preparedness ranged from 30% to 77% as of October 1, 2017 [7]. The above data reflect the challenge of the slow and inconsistent development of tourism clusters in the Russian regions without, however, providing insights into its reasons, which require a separate study. The range of current research studies into cluster development, including in the tourism sector, is quite wide. Modern Russian research studies provide overviews on international research into the cluster development of economy [8]-[9]. The publications dealing with the cluster development theory [10]-[11] are of great importance in determining the research methodology. Porter gave the following definition of a 'cluster': "A cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities" [10]. Russian research focused on tourism cluster development in the early 21st century. The theoretical and methodological approaches to understanding tourism clusters, to studying their structure and modalities of operations are well represented. As an example, the following Russian researchers examined the structure and general modalities of operation of tourism clusters [12]-[13]. Different methods for assessing the cluster effectiveness are discussed in [14]-[15] and others. Specialization as a factor in tourism cluster development has not yet become the subject of targeted research into cluster development, although a number of scholars do conduct research in this area. Specialization of tourism clusters is almost always regarded as a factor depending on the resourcing of tourism development in a specific area, notably, on the current state of natural, cultural and historical resources. In our view, researchers underestimate specialization of tourism clusters as a factor influenced by intra-cluster cooperation. As evidenced in practice, tourism clusters, which have been set up in the regions of the Russian Federation within the framework of the Federal Target Program, show diversity in their levels of development. The integral assessment

carried out in [16] makes it possible to identify four types of clusters listed in the Federal Target Program. Type 1: Clusters with a low organizational potential having no well-known historic or cultural landmarks that would attract potential consumers. As a rule, these industry-specific and target-oriented incipient clusters or pre-clusters have extremely low spatial and information accessibility and account for only 18 per cent of the total number of clusters listed in the Federal Target Program. Type 2: Clusters with an average organizational potential having some attractive elements for potential consumers. They have average spatial and information accessibility. Their proximity to major tourism distribution channels increases the growth potential of these newly created, target-oriented and incipient clusters. They constitute 33 per cent of the total number of clusters listed in the Federal Target Program. Type 3: Clusters with a high organizational potential having either landmarks or a powerful artificial attractor that are attractive for potential consumers. They have medium-high spatial and information accessibility. These newly created or developing, within a particular period of time, clusters have high growth potential. They account, however, for a mere 30 per cent of the total number of clusters listed in the Federal Target Program. Type 4: Clusters with an extremely high organizational potential featuring, as a rule, major historic landmarks or a powerful artificial attractor. They have high spatial and information accessibility and considerable growth potential. These clusters are developing for a certain period of time and represent approximately 19 per cent of the total number of clusters listed in the Federal Target Program [16]. This study aims to determine methods for conducting research on specialization as a factor in tourism cluster development, taking into consideration the existing research approaches and research findings in this area. Current research on tourism cluster development in Russia's Central Black Earth Economic Region highlights the relevance of the present study. Research findings in this economic region may be of practical use for the regions of the Russian Federation that adopt the same approach. Examining specialization as a factor in tourism cluster development capable of affecting their effectiveness emphasizes the need for methodological approaches used to define methods, sequence and tools for conducting research in the regions as well as the processing and analysis of the data received. The

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determination of this methodology draws on the study of research undertaken in this area taking into consideration the adoption of our own approaches identified by the objectives of research.

2.   Methods and Materials

Specific areas of research determine the methodology for investigating and assessing the tourism cluster development processes and results. The Russian Federal Target Program on the Development of Internal and Inbound Tourism in the Russian Federation for 2011-2018 specifies two types of tourism clusters that are being developed in Russia with the support of the Program, namely, tourism/recreation and automobile tourism. This typology may well be interpreted as a definition, albeit a rather general one, of tourism cluster specialization. Tourism/recreation clusters are a group of interrelated recreational and cultural facilities such as collective accommodation, catering and other relevant services featuring all required infrastructure. Automobile tourism clusters comprise enterprises and organizations providing tourism and related mutually complementary services that create the normal travelling environment for automobile tourists. Automobile tourism cluster facilities are planned to be set up on federal highways with the heaviest traffic and close to popular tourist locations, including historic and cultural landmarks, nature reserves and other tourist-oriented locations. The network pattern of automobile tourism clusters will provide a convenient basis for arranging itineraries for auto-tourists and will ensure high standards of tourism services [3]. Consequently, automobile tourism clusters specialize in activities directed at meeting the needs of transit tourists. Tourism/recreation clusters are more varied in terms of specialization and are directed at satisfying the tourists' needs relating to their individual objectives and types of recreational activities. The Program also indicates that each of the clusters is an extended investment project comprising a number of projects that are functionally, organizationally and financially interrelated [3]. In our view, one of the major factors in cluster specialization is precisely the functional relationship between projects. To successfully manage tourism cluster development in the Russian Federation, it is necessary to conduct research into cluster development processes and identify factors and mechanisms that could increase the effectiveness of these clusters. Such research is

only possible, taking into consideration the experience and results of the study of clusters both in Russia and internationally. Almost all of the research studies focusing on industrial clusters look at cluster specialization in the context of their relationship with tourism. As an example, attention is given to clusters related to information technology, instrument engineering, radio electronics, means of communication and telecommunication, pharmaceutics and more. This paper regards tourism clusters as unique systems and tourism cluster specialization as industry specialization [17]. Tourism cluster specialization, however, is complex, which is attributable to tourism unique features as an industry. When investigating tourism clusters, it is necessary to start from the premise that, unlike the production of goods in the productive sphere, tourism products result from interactions between business entities belonging to various economic sectors. This is why many researchers have traditionally defined tourism as a complex cross-industry network, which includes tour operators, collective and individual accommodation and catering facilities, museums and production companies, among others. In the regions of the Russian Federation, tourism is often connected to its focus on a relatively narrow segment of consumers, which is due to the specificities of logistics and to the need to produce new products with a view to win a market share. Traditionally, Russian regions specialize in local tourist products intended for the local market segment and produced outside big companies, which are largely non-existent there. The vast majority of regional tourism service providers are not even small but micro enterprises. In this context, it is important to understand in what ways tourism cluster specialization could affect competitiveness and the creation of competitive advantages in the tourism sector. Currently, a widespread approach to the promotion of competition in the European Union is the so-called 'smart specialization'. Carayannis and Grigoroudis point out that economic development strategies based on smart specialization are devised taking into consideration the advantages offered by regions rather than the country as a whole [18]. Different regions face different challenges and have unique opportunities, which a 'smart specialization' strategy should take into account [19]. At the same time, Europeans themselves heavily stress the impossibility and even the 'hazards' of copying attractive ideas implemented in other regions,

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notably if the region, which is considering a specific strategy, differs significantly from the one in which the borrowed strategy has been initially devised. The idea is that the regional strategy should be based on the advantages and potential of a specific region. The 'smart specialization' strategy can draw on existing strategies only insofar as they have been developed for these regions and their relevance can be proven empirically [20].

2.1 supply chain and Tourism cluster

The concept of supply chain has different connotations at different times, and different scholars have different views. Domestic and foreign researchers in related fields give points of view on supply chain from different perspectives. However, an official study of the supply chain issue is generally believed to date back to the 1960s. In [6] used the system dynamics model to optimize the upstream and downstream industry dynamics. He first put forward the term supply chain, so he is considered the father of supply chain design. A lot of modern design principles on supply chain can be traced back to his production and distribution systems. In 1985, Michael Porter, a famous professor in Harvard Business School, proposed in his book Competitive Advantage "value chain" theory, which becomes the theoretical basis for further study on supply chain.

Supply chain and tourism cluster have different characteristics in terms of the form and content, specially characterized in the following areas:
(1) Supply chain is a cross-regional (even global) functional network chain, and management of supply chain is cross-cultural; tourism cluster is a type of local network, which is rooted in local culture and has similar geo-culture.
(2) Supply chain node information exchange between enterprises mainly relies on EDI technology, local area networks, and the Internet; non-coding information (or knowledge) within industrial clusters permeates in the cluster region like the air, and the transmission of information between enterprises are mostly informal.
(3) The main body of supply chain functional network is the technological node, and because of differences in specialized fields managed by these firms as chain nodes, the competition pressure within the chain is less and susceptible to "free-rider" behavior, with its innovative pressure mainly from rivals outside the chain; the main part of industrial cluster network is similar to small and medium-sized enterprises of similar industries, network competition is intense, and there is a stronger sense of innovation

3.   Results

Research on tourism cluster specialization using the case of Russia's Central Black Earth Economic Region is impossible without considering the conditions of initial development of tourism clusters. The examined economic regions include the Belgorod, Voronezh, Kursk, Lipetsk and Tambov Regions. The cluster approach to tourism development based on the public-private partnership is being developed in the Belgorod, Lipetsk and Tambov Regions. The Belgorod Region has initiated the creation of a tourism and recreation cluster (2014), and the Lipetsk Region has been developing, since 2012, the state-funded Zadonshchina Automobile Tourism Cluster and the Yelets Tourism and Recreation Cluster as part of the public-private partnership model. Furthermore, the Shukhovsky and Dobry Tourism and Recreation Clusters as well as the Ranenburg Automobile Tourism Cluster have been developed since 2013 through regional funding programs and investor funds. In 2014, the Tambov Region initiated the Rakhmaninovsky Tourism and Recreation Cluster Project. The cluster impact on regional tourism development can be observed based on a number of objective indicators such as the distribution of tourism flows across the regions.

Table1. Distribution of tourism flows across the regions

Territorial entity of the RF	2014		2015		2016	
	Targets	Actual figures	Targets	Actual figures	Targets	Actual figures
Belgorod Region	167.7	210.939	176.2	151.5	185.1	186.8
Lipetsk Region	341.7	153.88	496.5	145.3	648.4	172.4
Tambov Region	198.0	198.201	221.0	166.7	239.0	137.6

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Table2. Announced specialization of clusters being created in the Central Black Earth Economic Region based on the supply chain

#	Cluster	Specialization
1	Yelets Tourism and Recreation Cluster (Lipetsk Region)	culture
2	Zadonshchina Automobile Tourism Cluster (Lipetsk Region)	religion and pilgrimage culture
3	Rakhmaninovsky Tourism and Recreation Cluster (Tambov Region)	culture religion and pilgrimage
4	Seversky Donets Tourism and Recreation Cluster (Belgorod Region)	ethnography ecology
5	Shukhovsky Tourism and Recreation Cluster (Lipetsk Region)	culture
6	Dobry Tourism and Recreation Cluster (Lipetsk Region)	countryside
7	Ranenburg Automobile Tourism Cluster (Lipetsk Region)	culture
8	Yelets Special Regional Economic (Tourism and Recreation) Zone (Lipetsk Region)	culture
9	Zadonshchina Special Regional Economic (Tourism and Recreation) Zone (Lipetsk Region)	religion and pilgrimage culture

Based on the above, attention should be given not only to the tourism clusters established as part of the Federal Target Program, but also to the areas developed as clusters and funded through regional programs, as it is the case with the Lipetsk and Belgorod Regions. In the first place, research on tourism cluster specialization should define the availability and the extent to which a cluster has been developed. It is necessary to start from the premise that a full-scale cluster has two common features (geographical concentration and general field of activity) and three specific ones that are independent of one another (the critical mass of cluster participants, a high level of internal and external coherence between participants, and innovative activities) [21]. In identifying a cluster, it makes sense to adopt the three-stage methodological approach developed by M. Porter [10]:

1) Identification of composition of a cluster: first of all, its core – a group of similar firms or a large firm – is identified, and technological chains of related lower- and higher-ranking enterprises are lined up vertically. Then enterprises, which go through general channels or create additional products or services, are determined horizontally relative to the core. Other horizontal chains are established on the basis of using common technologies, common supplies and common production factors. Experience has shown that identifying the boundaries of a cluster is one of the most difficult challenges, which always reflects the objectives and conceptual approach of this researcher.

2) Identification of group formations inside the cluster, with special attention given to organizations

providing it with specialized skills, technologies, information, capital and infrastructure, i.e. everything that is required to obtain competitive advantages.

3) Identification of government and other regulatory bodies that affect the cluster participants' behavior (basic rules, standards and incentives on which the nature and intensity of local competition depend).

In the tourism sector, the above-mentioned three stages are distributed as follows. First, the core of the tourism cluster is a tour operator company or a pool of tour operator companies generating tourist products, and technological chains of interrelated enterprises are lined up vertically upstream and downstream. Then enterprises that create additional tourism-related products or services are identified horizontally relative to the core. Finally, additional horizontal chains are built on the basis of the use of common factors of technologies, production and supplies, and based on the data obtained, the boundaries of the tourism cluster are identified. Second, group formations of the tourism cluster are identified, notably tourism-related scientific and educational institutions that train personnel and generate tourism technologies, information, capital and infrastructure. Third, federal, regional and local tourism management bodies are identified; the legal framework and incentives are examined that influence the nature and intensity of intra-cluster competition. Many researchers characterize the determinations of a cluster's boundaries as a serious challenge. Factors enabling to decide whether an organization is participating in the regional cluster include the conformity of its field of activities to the cluster's specialization as well as the organization's

geographical location in this region. In other words, enterprises, for which tourism is not a major field of activities, for instance, medical companies, educational institutions and sports centers, and so on, may be included in a tourism cluster. Some researchers take into consideration the distances that company representatives and entrepreneurs are "ready to cover to maintain business and unformal, personal contacts and employers to commute to work in the cluster enterprises" [5]. The nature of a cluster strategy, which likewise applies to tourism clusters, is of major importance for the study of cluster specialization. As an example, the following seven characteristics were proposed in [22], whose combinations determine certain cluster strategies.

- Geographical: setting up spatial economic clusters ranging from strictly local ones (for instance, gardening in the Netherlands) to really global ones (i.e. an aero-spatial cluster);

- Horizontal: several branches/sectors can be part of a larger cluster (i.e. the mega-cluster system in the Dutch economy);
- Vertical: clusters may feature cross-industry stages of the production process. It matters which ones of the network participants are innovation initiators and end bodies within the cluster;
- Lateral: different sectors merge together to create cost-efficient cluster due to its large scale, which results in new combinations (for instance, a multimedia cluster);
- Technological: a combination of branches based on the same technology (for example, a biotechnological cluster);
- Focus-oriented: a cluster of firms concentrating round the same center (an enterprise, a research institute or an educational institution);
- High quality: the point here is not only whether but also how enterprises collaborate. Networks do not always automatically foster the innovation development process. On the contrary, it happens in the networks that innovation processes are suppressed and protective behavior is promoted. While the relationship with suppliers may stimulate innovation processes, it may also be used to shift the costs to partners and to affect them financially. In the latter case, the networks are neither stable, not stimulating [22]. Studying cluster strategies, it should be born in mind that the element homogeneity of clusters ensures a technologically closed network structure, complete with inbuilt internal stabilizers, which link its elements into a single economic organism and maintain them in a territorially-bounded cluster environment [23]. These stabilizers

promote the mobility of an innovative cluster's corporate structure, in other terms, its response to changes in the external environment, and the mobility of its boundaries, i.e. free entrance to and exit from the cluster [23]. Thus, in determining the boundaries of a tourism cluster, one must take into account their probable mobility, given that entrance to and the exit from the cluster is free. The Federal Target Program based on the public-private partnership lists specific tourism clusters with clearly defined geographical boundaries and the conditions laid down by the Russian state for the participants/investors' joining and withdrawal from the cluster. However, in the territory of tourism clusters, situations may arise in which the enterprises that do not participate in the public-private partnership in fact join the cluster cooperation [24]. The study of cluster specialization should also take into account the clusters' actual state and boundaries. When examining the specialization of tourism clusters, created both independently and as part of the public-private partnership, their state of development should also be considered. Currently, during the study of clusters as such, it is common to mention economic agglomerations, proto-clusters or potential clusters and clusters [21]. As for tourism clusters, researchers also refer to various stages of their lifecycle. For example, it is highlighted in [25] that the "pre-cluster", characterized by the formation of a regional tourism market when tourist agencies, accommodation, catering and entertainment enterprises emerge in a region. This stage is marked by a conflict-and-defensive development of tourism facilities. The pre-cluster stage is followed by the incipient cluster stage, when tourism businesses start establishing cooperating ties with each other after realizing the importance of partnerships in order to increase their own competitiveness and to ensure their survival in a market economy. The following stage is a developing cluster, characterized by emerging internal and external communication. Successful joint activities of tourism enterprises lead to the increased significance of this sphere in the regional economy and, consequently, to growing interest on the part of administrations, businesses and investors. As a result, a body is formed for coordination and further promotion of the given cluster, which involves all parties concerned. The final stages are represented by a mature cluster featuring highly coherent internal ties and a fading cluster, in which internal ties are weakened and disintegrated [25]. Research into tourism cluster specialization should comprise the stages of the tourism cluster lifecycle in the following way: the proto-cluster (the pre-cluster, the incipient cluster, the developing cluster and the fading cluster) and the

cluster as such (the mature cluster). Economic agglomeration, which is a combination of geographically concentrated organizations united by a common field of activities [21], is regarded as a mandatory requirement for the formation of proto-clusters and clusters. Investigation of the tourism clusters of a specific region should include the presence of either an economic agglomeration or a proto-cluster or a cluster and identify the current and announced specializations of this formation. Research into regional cluster specialization should be correlated with the tourism development strategy in a region, having a thorough understanding of how the cluster development strategy correlates with the region's specific aspects instead of being a mere imitation of someone else's attractive ideas. Some researchers note that smart specialization is aimed at activities rather than sectors or firms [20]. In case of tourism clusters, it is necessary not only to identify the types of tourism products, but also regard the latter as the result of activities and interaction between enterprises that are representative of different sectors. In addition, further research is needed to investigate activities directed at the creation and support of tourism-related innovative technologies as well as entrepreneurial efforts to master new fields of activity. In this regard, business opportunities in tourism that remain unused are yet to be identified. In terms of tourism cluster development, it is equally important to explore the population's interest in tourism-related business activities. To describe ongoing business activity, it is relevant to study both the tourism-related potential and business failures in the territory of a cluster, followed by an analysis of their causes and impact on tourism activity trends in the given area. The choice of parameters describing business activities in the tourism sector within the territory of a tourism cluster should take into account more than the traditional parameters such as the opportunities, prestige and popularity of tourism entrepreneurship. Special attention should be given to the skills and professional competence of those who show interest in entrepreneurship and attends colleges, universities and other educational institutions. Relating these parameters to tourism activities will facilitate the identification of possible development trends in tourism cluster specialization. The state and diversification of tourist products deserves special attention, along with the diversification of types of tourism-related business activities within the territory of a tourism cluster. Identifying the nature of intra-cluster cooperation in creating tourism products is essential for the study of cluster specialization in terms of stimulating activity in exploring various tourism activities. In terms of tourism cluster specialization, particular attention should be paid to the study of the professional training and advanced training system and of professional self-fulfillment or human capital development. Exploring the opportunities of including other sectors into the tourism sector, such as agriculture and industry, also needs careful scrutiny. Research on business activities using statistical and sociological approaches will help identify the current nature and development potential of tourism-related entrepreneurial activities within the cluster's territory. Research studies dealing with specialization point at the strategic significance of new knowledge production. Research and educational institutions, which not only produce new knowledge, but also ensure knowledge transmission to the personnel, occupy a prominent place in the cores of various clusters, including in tourism. However, knowledge production and dissemination is a very complicated process involving the State, the production industry and the society, along with research and educational institutions. A number of researchers believe that the wide range of those interested in producing and disseminating new knowledge promotes co-competition (collaboration and competition), co-specialization and co-evolution in creating, distributing and using resources which, in their turn, result in the emergence of modalities such as innovation networks and knowledge clusters. What is meant by the arbitrary production of strategic knowledge is the ability to disseminate and use certain information beyond its original subject area [18], [26], [27]. The number of research organizations carrying out research projects in the tourism sector and the range of tourism-related research areas are both important for a thorough investigation of tourism cluster specialization. A quantitative analysis of innovative developments implemented into the tourism sector can provide insights into innovation trends among tourism enterprises and, consequently, into the possible diversification of specialization [28]. In our view, the study of cluster specialization should be conducted, taking into consideration collective interaction and knowledge exchange as part of certain subsystems. These include tourism (enterprises and private entrepreneurs involved, to any extent, in the production of products and provision of services); science and education (academic institutions conducting research on the tourism sector and educational institutions involved in training and re-training of personnel in the tourism sector); management system (regional tourism management system); civil society based on the mass media and culture, both of which produce two forms of capital,

the social (traditional cultural values) and the information ones (television, the Internet, newspapers and so on). Tourism cluster specialization is closely linked to specific features of tourism resources and their use in tourism product and service development. The material for analysis and assessment is provided by data on tourism resourcing, and smart specialization principles define the research objective. At this stage, the research focuses on assessing the attractiveness and performance of the natural, cultural and historical resources of a region and their uses to develop the cluster. Attractors, which attract or are likely to attract tourists, are also identified at this stage. The main research purpose is to search for unique resources that might distinguish a tourism cluster from other similar clusters in direct competition with it. The data obtained at this stage help identify the potential specialization, that is, those tourism resource elements that are unique, widely known, unconventional and capable of distinguishing the region from a number of rival regions. The method of hierarchy analysis can be used to model the development trends of this tourism cluster specialization with consideration for various scenarios for using and accumulating tourism resources. Consequently, this method is used to determine how promising potential specialization of the tourism cluster is. As discussed above, the most effective clusters usually emerge independently and are based on entrepreneurial activities rather than on the initiatives taken by the authorities. However, the role of the Russian government in the development of tourism clusters within the territory of the Russian Federation cannot be overestimated. In most cases, government support has beneficial effects on the sector under investigation, but there are other points of view on the subject. A number of economists consider that state support only encourages the establishment of a structure, which can be nominally categorized as 'clusters' without assessing the competitiveness and real performance of such cluster systems. Furthermore, the supporters of this view provide evidence that clusters are created by businesses rather the government. Accordingly, most world known clusters did not emerge as a result of government funding programs, but rather as a response of businesses to some event, market demands, a new idea or initiatives taken by educational institutions (the most striking example may be the Silicon Valley project). The above, however, does not cancel the fact that well-thought-out government funding programs are capable of speeding up the development of the existing clusters and the creation of new ones. This said, the immense popularity of this theory often results in the dominance of the political initiative over the real economical need and rationale, which led, in the United States, to a significant number of dysfunctional government funding programs, spending of hundreds of millions of dollars and the low competitiveness of a number of clusters [5]. In examining tourism clusters within the territory of the Russian Federation, it makes sense not only to consider the list of clusters meeting the requirements of the Federal Target Program, but also to explore the possibility of establishing independent clusters in the tourism sector. In both cases, however, the role of the authorities cannot be overlooked, as they coordinate the development of tourism both at the regional and local levels. From the perspective of the present study, it is important to highlight the role of public authorities in determining cluster specialization through the promotion of certain types and areas of activity or the implementation of a specific vision of tourism specialization in the territory. At this stage, it is imperative to identify the specific aspects and properties of the regional tourism management subsystem and its interaction with cluster structures. The institutional nature of the relationship between the government and businesses involved in tourism cluster development can be regarded as a major factor influencing the specialization of clusters, its role in applying the principle of primacy to the search for opportunities, and the principle of coordination and integration of cluster interaction, as well. This study deems it important to examine the availability of public, professional and informal associations in the tourism sector, their place and role in devising a strategy to promote tourism development in the region. The suggested approach to studying the specialization of tourism clusters seeks to identify the possibility of modelling smart specialization for tourism clusters, whether established through the Federal Target Program or created independently in the regions of the Russian Federation. The objectives of this approach are as follows:

1. To determine the presence and current state of the cluster;
2. To investigate the potential of business activities in exploring new forms of tourism;
3. To examine activities aimed at supporting tourism-related innovation technologies;
4. To research the usage of unique tourism resources of a region with a view to develop the tourism cluster in the area;
5. To explore the tourism management subsystem in the region in order to keep it in line with cluster development trends that are relevant in the given area.

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Two major factors define the specialization of a tourism cluster: unique tourism resources available in the cluster's territory and intra-cluster cooperation models. Cluster specialization produces tourism products, which results from the exploration of tourism resources, is targeted at specific segments of the tourism market and can be associated with various forms of tourism. Thus, the criteria for identifying the specialization of a tourism cluster are as follows: its correlation with a form of tourism and focus on a specific segment of consumers. As the cluster develops with horizontal and vertical relationships expanding and changing, the diversification of the tourism cluster specialization becomes possible. Given that tourism agglomerations capable of growing into clusters can emerge beyond the framework determined by the Federal Target Program, the authors deem it important, for the purposes of the research, to define such agglomerations. An analysis of the approaches to the study of tourism clusters makes it possible to define the methodology and coherence of research into tourism cluster specialization. The algorithm of this study will be based on the interconnected application of techniques aimed at identifying key indicators of tourism development and the characteristics of processes in the tourism sector in the territory of a tourist agglomeration, a proto-cluster or a cluster. A tourism agglomeration is understood here as a combination of geographically concentrated enterprises and organizations belonging to different sectors of the economy, but united by their activities in the tourism sector. To study of tourism cluster specialization we will use the methods of systemic, statistical and hierarchy analyses, quantitative and qualitative research as well and expert methods for obtaining and processing information. They provided a sound basis for the development of a number of other techniques. The methodology for the study of tourism products and services offered in a certain area is used to identify the following:

- Typological features of tourism products;
- Tourism products as the outcome of the activity in the exploration of unique tourism assets;
- Presence/lack of innovative tourism products and the nature of innovations
- An agglomeration and its geographical boundaries followed by the identification of the proto-cluster or cluster).

The following group of techniques aimed at identifying competition is used to determine the following:

- Presence/lack of competition among the enterprises operating in the tourism sector, within an agglomeration (internal competition);
- Presence/lack of tourism agglomerations rivalling with the investigated ones within the economic region (external competition).

The subsequent stage is based on the use of techniques to research entrepreneurial activity in the tourism sector within the territory under study, which defines the following:

- Levels and extent of cooperation for the production of tourism products and services;
- Involvement/exclusion of non-tourism enterprises and their line of business in the tourism sector;
- Evolution of the number of enterprises and organizations involved in the tourism sector.

At the next stage the techniques for studying tourism-related scientific and innovation activities are applied in the tourism industry within the territory of the agglomeration. The study aims to produce the following outcomes:

- A list of educational and academic institutions conducting research into the field of tourism;
- Tourism-related areas and topics of the research;
- The number of ongoing academic projects directed at developing tourism in the territory of the agglomeration;
- The number of implemented academic projects directed at developing tourism in the territory of the agglomeration;
- Determination of the cluster development level in the territory: an agglomeration, a proto-cluster or a cluster.

The use of the following group of techniques makes it possible to reveal various aspects of the management subsystem and its influence on the specialization within the boundaries of a specific agglomeration/proto-cluster/cluster. The outcomes help identify the following:

- The system of territorial administration of tourism in the region and the mechanisms of its impact on tourism specialization, including within the territory of a specific agglomeration/proto-cluster/cluster;
- The informal (public and professional) system for managing tourism cluster development.

The subsequent stage is related to the application of techniques used to identify social activity in the tourism sector:

- The attitude of the local population towards entrepreneurial activities in tourism;
- Presence/lack and focus of training, re-training and advanced training programs offered to tourism employees;

- Demand of enterprises and organizations for tourism specialists;
- Presence/lack and nature of motivation to work in the tourism sector among graduates from secondary vocational schools and higher education institutions.

The research results concerning the methods for studying tourism clusters can be presented in a tabulated form (Table 3).

Table3. Use of techniques for studying supply chain and tourism cluster specialization

Methods for studying tourism clusters	Aims of using research methods to study tourism cluster specialization
typological features of tourism products	to identify specialization
tourism products as the outcome of the activity in the exploration of unique tourism assets	to identify specialization
presence/lack of innovative tourism products and nature of innovations	to determine diversification potential
identification of an agglomeration and of its geographical boundaries followed by a definition of the proto-cluster or cluster)	to identify specialization
levels and extent of cooperation for the production of tourism products and services	to identify specialization, to determine diversification potential
involvement/exclusion of non-tourism enterprises and their activity in the tourism sector	to identify specialization, to determine diversification potential
evolution of the number of enterprises and organizations involved in the tourism sector	to identify specialization, to determine diversification potential
a list of educational and academic institutions conducting research into the field of tourism	to identify specialization, to determine diversification potential
tourism-related areas and topics of research	to determine diversification potential
the number of ongoing academic projects directed at developing tourism in the territory of the agglomeration	to identify specialization, to determine diversification potential
the number of implemented academic projects directed at developing tourism in the territory of the agglomeration	to identify specialization, to determine diversification potential
determination of the level of the territorial cluster development: an agglomeration, a proto-cluster or a cluster	to determine diversification potential
the system of territorial administration of tourism in a region and its impact on its tourism specialization, including on the territory of a specific agglomeration/proto-cluster/cluster	to identify specialization, to determine diversification potential
the informal (public and professional) system for managing tourism cluster development	to identify specialization, to determine diversification potential
the attitude of the local population towards entrepreneurial activities in tourism	to determine diversification potential
presence/lack and nature of motivation to work in the tourism sector among graduates from secondary vocational schools and higher education institutions	to determine diversification potential

4. Discussion

The outlined approaches to studying tourism cluster specialization comprise the traditional understanding that it is determined by the specific aspects of tourism resources [29-31]. Tourism resources, however, identify the potential of specialization. The actual specialization depends on the activities of tourism-related enterprises located within the territory of a specific cluster. The developed approaches will help determine the specific influence of all tourism-related enterprises in the given area on the specialization of the tourism cluster. It is equally feasible to define

how diverse tourism cluster specialization will be based on the development of activities related to tourism products and services in the territory of a specific cluster. In this regard, further research is needed on specialization as a factor shaped during the intra-cluster cooperation process.

In short, the intrinsic relationship between the supply chain and tourism cluster makes it possible for both of them to co-exist in a symbiotic way and seek common development. This relationship solves such issues as insufficient resources existing in the operations of traditional enterprises and development

of regional economy, as well as paradoxes between dispersed operation and diversity from market demands. Therefore, we should make full use of the intrinsic relationship between the supply chain and tourism cluster to make an integration so as to boost industrial competitiveness, thereby making it pave the way for economic development and stepping up the competitiveness of the regional economy.

5. Conclusion

Based on the presented approaches in supply chains to examining specialization as a factor in the development of tourism clusters, it is possible to choose research methods and the coherence of research activities in this area. The research findings will foster further research that will identify necessary tools and mechanisms for developing tourism clusters based on the diversification of their specialization. The findings of the study are directed at increasing the effectiveness of decisions taken to assess and forecast tourism cluster development. Supply chain can also be of use to all those interested in tourism cluster development. The materials of the present study can be used by regional administrations to monitor and make effective management decisions aimed at improving regional tourism development programs. Experts and scholars could also benefit from the findings of this study to analyze and develop projections and to promote topic-related methodological approaches.

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