System approach to evaluation of tourism cluster companies’ environment and performance

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Abstract. The survey is aimed to justify system approach to assess companies’ interaction and environment in tourism clusters. Intangibility of tourism product is determined by the specifics of economic entity and territorial authorities’ interaction, that makes it a prerequisite to use system approach for companies’ interaction within regional tourism cluster. The paper identifies institutional environment of business development in tourism cluster taking into account the rapid development of communication and information technologies. To achieve this goal the authors analysed the theoretical frameworks of institutional environment of tourism and the process of its formation and factors. The proposed technique is based on system approach and allows to indicate the deficiency in tourism cluster models, taking such critical issues into account as interconnection between cluster actors, regional competition policy, investment climate, development of standards and systems for the services certification, availability of qualified personnel in the region’s labour market, tourism infrastructure, financial and tax policies in the region, network of competitive local suppliers, public policies on tourism, tourism support programs and communication problems. As a result, the rationale of using system approach to evaluate effectiveness of subjects’ interaction in tourism clusters to determine weaknesses in regional tourism clusters was formed.

1 Introduction

Regional development depends on its economic growth and tourism potentials which are closely connected and contribute to the national level of the country advancement.

The tourism sector being nonhomogenic and dependable on others’ economic spheres differs a lot from another economic industries [1]. Tourism sector consists of many supportive parts of institutions such as private segment of economy and public agencies.

Using Russian and international materials on tourism studies as a base, next approaches to the term “tourism cluster” and its factors could be highlighted as follows:

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1.1 Institutional approach

According to this approach, proposed by A. Rodriguez, a territorial group of companies and institutions with vertical (companies creating tourist product) and horizontal links (infrastructure, regulatory base, information) create and implement a comprehensive tourism service that provides the basis for the cluster [2].

1.2 Cluster approach

It was developed by American scientist M. Porter in his regional competitiveness studies within the framework of a long-term study on the activity samples of a hundred of the most competitive large, medium and small companies in various industries. The well-known «competition diamond» by M. Porter presents the conditions for tourism cluster emergence based on general prerequisites, such as demand, competitive environment, existence of supporting production, and special conditions including a specific territory, the time needed and financial support, and as a result competitive advantage (qualified personnel, infrastructure, capital) being created [3].

According to this model, clusters as a stable network of tourism and recreation suppliers and consumers are formed as a result of the spread business links and the influence of large, competitive companies on their nearest environment. Participants of the tourism and recreation cluster have wide access to information on all aspects of tourism activity (resources, markets, exports, information advantage, partnerships in HORECA and transport companies, etc.).

1.3 Institutional approach

Russian professor M. P. Voynarenko points out that the formation of an effective tourism cluster requires such conditions as initiative, innovation, information, integration and interest [4].

1.4 Technological approach

Russian researchers E.G. Karpov, A.I. Tarasenok [5] rely on technological advancements of the tourist product formation and propose the following interpretation for tourism cluster: a synergy of collaborating companies, with different aims of value accumulation, united with the basic goal to maximize their income according to the particular territory advantages, including tourist attributors and infrastructure. Value accumulation includes chains of marketing channels, transport services, accommodation, food services, entertainment and consumption of complex tourist services. In applying this approach, tourism clusters can be explored as an innovative form of diversification modern and sustainable management of the territory and its economy, taking into account the characteristics of tourism services, the position and role of tour operators and travelling agencies.

1.5 Geographic approach

Researcher M. Beni argues that a tourism cluster is a group of tourist attractions in a limited geographic area, with a high level of infrastructure and services, stable political and social links and a well-functioning management system companies, included in the network of tourism services, providing strategic competitive and comparative advantages» [6; 7].
To further illustrate, establishing of tourism cluster is due to a structure of geographically localized, interconnected and mutually reinforcing enterprises, infrastructure, education centers and other organizations, aimed to fit to consumer needs for a tourist product. The main feature of the geographic concept of tourism cluster is an emphasis on the geo-referenced mix of tourism services and related industries, and their synergy, which enhances their efficiency and innovation.

1.6 System approach

S. Nordin [8] considers tourism cluster as a system consisting of territorial and historical resources of inbound tourism; complex of tourism-related companies: HORECA, transport, traditional arts and crafts, tour operators and travel agents, etc.; sectors and industries that indirectly support tourism services; territorial infrastructure; educational, consulting and financial companies; public structures affecting clusters [9].

Tourism cluster is a system, consisting of local tourism companies, HORECA and their joint activities, ensuring the competitiveness and specialization of cluster members and forming a regional tourism labor market.

Tourism companies’ cooperation and its performance within cluster is vital due to the compelling competition, challenges of environment and issues of multilevel interactions. The supporters of the economic approach to tourism sphere point out that socio-economic interpretation occurs in the most international and Russian documents, that are aimed to regulate different aspects of tourism industry. The supporters of other interpretations also base on legal acts as a criterion for theoretical and methodological studies.

2 Research questions

One of the drawbacks of the aforementioned definitions of tourism cluster is the deficiency of references to the specifics of the process of cluster formation (historical development, territorial specialization in a given activity, or as a result of a systematic effort to target it) [10].

The considered approaches to tourism cluster definition do not account for crucial changes in the tourism institutional environment within the new information and communication context such as the flights and hotel booking online, tourist information centers, companies’ and stakeholders’ cooperation and performance, public institutions’ inclusion, investment climate, etc.

Tourism cluster, according to the institutional approach, can be presented in the form of a structure of “hard” and “soft” institutions and their mechanism of interaction (table 1).

Development institutions complement each other, and economic effects, as well as companies’ performance, depend on the adaptability of tourism clusters contributors to the constant changes.

So, the scope of the institutional environment of tourism cluster consists of the following set of institutions, such as:

- Economic institutions implementing mechanism of market interaction of subjects and objects of tourism such as accommodation facilities, transportation companies, tour operators, museums, catering and related industries, etc.;
- Law institutions allowing to improve the international and Russian regulatory and methodological framework and implement national programs of education, physical culture and sport, culture and tourism, health care, economic development and innovative economy in the framework of the UNWTO, the Federal Agency for Tourism (Rosturizm), Ministry culture of the Russian Federation, etc.;
### Table 1. Structure of the institutional environment in tourism

<table>
<thead>
<tr>
<th>Institute</th>
<th>Functions</th>
<th>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>The mechanism of market interaction of tourism subjects and objects</td>
<td>Accommodation facilities, transport companies, travel agents, tour operators, tourist facilities, museums, tourists, catering and related industries, etc.</td>
</tr>
<tr>
<td>Legal</td>
<td>International and Russian legal and regulatory - methodological base</td>
<td>the United Nations World Tourism Organization (UNWTO), Federal Agency for Tourism (Rosturizm), Ministry of Culture of the Russian Federation, Federal, regional and municipal executive and legislative authorities in the field of development and security</td>
</tr>
<tr>
<td></td>
<td>Implementation of State programs for the development of education,</td>
<td>Federal, regional and municipal executive and legislative authorities in the field of development and security</td>
</tr>
<tr>
<td></td>
<td>physical culture and sports, culture and tourism, health care, economic</td>
<td></td>
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<td></td>
<td>development and innovative economy</td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>Culture, social structure, national characteristics, tolerance level</td>
<td>Russian Ministry of Culture, public, commercial and government organizations in the field of national and world culture, the population of tourist destinations</td>
</tr>
<tr>
<td>Communication</td>
<td>Information and communication technologies</td>
<td>Automated information systems “The Unified Federal Register of Tour Operators”, “Informing about the threats to the safety of tourists”, the official website of the Federal Agency for Tourism, booking systems, etc.</td>
</tr>
<tr>
<td>Scientific and</td>
<td>Educational programs and research projects in the tourism specialists</td>
<td>Public and private educational organizations that provide training for the tourism</td>
</tr>
<tr>
<td>educational</td>
<td>training</td>
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</table>

Social institutions including culture, social structure, national characteristics, level of tolerance, etc. The Ministry of Culture of the Russian Federation, public, commercial and state organizations in the field of national and world culture, the population of tourist centers are elements of this institutional subsystem;

Research and education institutions implementing educational programs and research projects in the field of training of specialists of tourist sphere, carried out by public and private educational and research organizations;

Communications institutions combining the information and communication technologies, such as: automated information systems “The Unified Federal Register of Tour Operators”, “Informing about Tourist Safety Threats”, the official website of the Federal Agency for Tourism, booking systems, etc.

Thus, communication becomes the most important element of the tourism cluster environment and its efficiency.

### 3 Purpose of the Study

The liberal model of tourism cluster assumes that the role of the governments is to remove obstacles to the natural development of the cluster, while the dirigiste model is based primarily on active government policies in tourism clusters formation and state investments.

In authors’ opinion, the main feature of the modern tourism clusters development in Russia is the direct public administration of tourism clusters’ establishment and formation, management, investment and control. For example, the Russian State Program «Economic Development and Innovative Economy» includes tourism development program with the budget investment in its infrastructure up to RUB 4.8 billion in 2020, 10 billion in 2021, and 9.8 billion in 2022 [11].
The strategy of tourism development in the Russian Federation for the period up to 2035 envisages the elaboration of tourist clusters, including construction, reconstruction and infrastructure development, as well as formation of a localized tourist product. For example, in Kabardino-Balkaria region, the construction of tourist infrastructure is based on the synergy of state-private partnership (PPS) with a distribution between private funds of 70 per cent and budget resources of 30 per cent. The investment project includes the construction of a tourist complex with a hotel, mooring facilities and sports ground on the banks of the Upper Blue Lakes in the Cherek district [12].

Thus, the basic features of Russian tourism cluster model should be considered as follows:
- geographically concentrated enterprises and infrastructure of the tourism sector, state structures that interact on the basis of public-private partnerships, associations, unions, etc.;
- benefit-sharing arising from the use of the regional resources to form a competitive sector of the economy;
- vertical links of the tourist product as a result of interaction of hotels, transport infrastructure, excursions, etc. and horizontal links between the members of the cluster that implement the process of production of tourist services;
- development of programs and direct public administration of the development of tourism cluster and focus on improving its competitiveness and meeting tourist and recreational needs.

The special federal program «Development of Domestic and Incoming Tourism in the Russian Federation (2019 -2025)» takes into account different types of tourism clusters proposed by researchers:
- by the life-cycle stage, clusters are divided into preclusters, emerging, developing, mature and shrinking clusters;
- by their specialization, clusters are divided into museum, entertainment, sports, environmental, ethnographic, sanatorium and spa facilities, etc.;
- by the resource type: water, forest, mountain and mixed clusters;
- by its size: local, regional, national clusters;
- by the form of management: corporate, public administration or public-private partnership;
- by a method of formation: target, directed action system and historical clusters [3].

However, it is worth mentioning, that this typology of tourism clusters does not take into account such criteria as inter-firm interactions within a tourism cluster and its communication system, although these characteristics of cluster affects its performance seriously.

Analyzing tourism cluster, in addition to assessing its status over a particular period and developing a relevant and sound strategy for its further development [13], it is also necessary to assess a level of interaction of cluster entities in order to take appropriate remedial actionsto identify and correct its weaknesses, communication challenges, and to offset the negative effects and their consequences to ensure the effective functioning of cluster.

The aim of the paper is to propose a technique to evaluate tourism cluster companies’ interaction, communication support, and cluster’s performance to determine certain weaknesses within regional tourism segment.

4 Research Methods

Companies’ collaboration among tourism cluster is an important condition for its competitiveness. The influence of business entities and transnational corporations is a major factor in the development of the tourism cluster economy. For example, the hotel’s
interaction with international tourist marketing and advertising networks leads to increased tourist arrivals and increased income. Thus, all the participants within the cluster are interrelated and the links between them are to take into consideration when analyzing cluster activities [14].

Cluster subjects are interconnected to support its performance as an organic system. That fact also implies that cluster members must cooperate to maximize not only their individual benefits, but the positive effects of a tourism cluster in regions and countries. For example, companies may cooperate with universities or consulting organizations to improve their productivity and efficiency [15].

In addition, a significant amount of cluster activity is carried out through the institutions of destination management (DMOs) on three levels: national, regional and local [16]. Symbiotic mix of competition and cooperation between participants contribute to the strength of tourism cluster through the cooperative competition that emerges when companies work together for their business, anticipating the benefits of knowledge transfer and gain from economies of scale [17].

The analysis of the institutional business environment structure in tourism is based on system approach. The study of sustainable tourism communications trends in St. Petersburg region were conducted on through surveys with stakeholders. The proposed methodology also employs an expert method to assess the effectiveness of tourism cluster cooperation of companies.

5 Findings

In order to identify sustainable communication trends of St. Petersburg tourism cluster at the period from 12.10.2019 to 30.11.2019 was conducted a survey of travel companies’ representatives. The survey “Communications in the tourist cluster of St. Petersburg” involved 138 respondents, which made up a sample of more than 10% of the total population (1118) of the tourism companies registered in St. Petersburg.

It was found that 100% of respondents have their own website on the Internet. The site publishes information about the tourism products’ offers, however, not every site has a user-friendly interface, that sometimes causes difficulties in finding the desired information. In addition, not all sites have a resource selection of tours and online reservations, but only submitted to the price list.

The tourism industry companies presence in the social media also covers 100%. The least attractive network to promote their services to the organization of St. Petersburg is ”Classmates” social media (Figure 1).

This is mainly due to the prevailing strong stereotypes about this network, some of which are quite reasonable and really interfere with the work of travel industry companies.

Regarding the use of messengers to inform customers, according to the respondents' answers, WhatsApp, Viber and Facebook are used more often (Figure 2).

On the question of public information and communication resources that can make the company work more efficiently, the majority of respondents cited the section "Information about the security threat" to the Federal Tourism Agency website (Figure 3).

Among the information and communication technologies contributing to the quality of tourism cluster communications services, the Internet was the top answer. Also, the respondents named such services as SSL Certificate Komodo, amoCRM, Zendesk, etc.
Fig. 1. St. Petersburg tourism companies’ engagement in social media.

Fig. 2. Preference of St. Petersburg tourism companies in using messengers.

Fig. 3. Public information and communication resources used by St. Petersburg tourism companies.
Communication (along with economic) component of the institutional environment of tourism cluster is the most important by respondents' opinion (Figure 4), and is characterized by a number of stable trends, such as rapid development of information communication due to the multiplier effect of tourist areas; growth in the number of mobile applications for booking accommodation, buying tickets, etc.; emergence of new information tourist centers; collaboration of international payment systems with airlines, hotel chains, and so on within the various customer loyalty programs; acceleration of information transmission speed to prevent danger to life, health, safety and improving the quality of tourism and recreational services [18].

![Figure 4. The most important elements of the institutional environment of St. Petersburg tourism cluster.](image)

The main factors in the formation of tourism cluster at individual and systemic levels are the indicators of the internal and regional environment, including the main resources and attractions, the management of destinations, additional features and demand conditions. According to a number of researchers in this field, it is very important to increase attractiveness of traditional tourist and recreational centers and complexes through development of additional services and, above all, entertainment industry services» [19].

The multi-factor expert assessment technique of companies’ interactions in tourism cluster and their performance based on system approach is to include the following stages:

1. Defining the borders, structures and main characteristics of tourism cluster (geographic borders of cluster, cluster frames; locality, tourist centers, key sites).
   - Indicators to assess:
     - Cluster structure (territorial and historical resources of inbound tourism; complex of tourism-related companies: HORECA, transport, traditional arts and crafts, tour operators and travel agents, etc.; sectors and industries indirectly supporting tourism services; territorial infrastructure; educational, consulting and financial companies; government structures).

2. Determining a status and a level of development of a tourism cluster.
   - Indicators to assess:
     - Variety of tourism services available;
     - Variety of offers for customers’ budgets;
     - Variety of offers for the wide range of tourists’ free time and leisure;
     - Development of hotel and catering sector;
     - Road and transportation network, diversity of transport enterprises, accessibility of cluster localities;
     - The resource component and attractions of a tourist destination;
Coherence among cluster members;  
Dependence on foreign producers, services and technologies;  
Susceptibility to innovation;  
Public policies on tourism in the region, availability of government programs to support tourism in the region.  
Communication support and facilities, omnichannel network.

3. Challenges’ and issues’ identification in tourism cluster companies’ interactions  
Indicatorstoassess:  
Anti-monopoly and competition policy;  
Comfortable investment climate and measures to attract foreign investment;  
Development and maintenance of standards and systems for the services certification;  
Training and availability of qualified personnel in the region’s labor market;  
Features of general and specialized tourism infrastructure;  
Financial and tax policies in the region;  
Value and cost of tourist product;  
A developed network of competitive local suppliers; visa policy specifics;  
Public policies on tourism, tourism support programs;  
Communication issues.  
This approach is aimed to identify weaknesses of companies’ collaboration in a regional tourism cluster. The proposed technique for assessing companies’ interaction and performance within tourism cluster would provide the following information:  
- Tourism cluster identification;  
- The main characteristics and functioning specifics of cluster;  
- Assessment of tourism cluster;  
- The identification of gaps and challenges in inter-companies’ interaction in tourism cluster;  
- Development of major events, activities and communication support.

6 Conclusion  
Multiplier effect of tourism business causes the institutional environment to develop and rearrange. These relations system forms the institutional and communication factors of tourism development in close relationship with other areas of the regional business.  
The vast majority of organizations are ready to rapidly deploy the latest technology and communication tools used in the business, thereby increasing the efficiency of their operations.  
However, it remains a critical issue of building an effective system of cooperation and online communication between enterprises of tourism industry and its partners, contractors and potential tourists and assessing its performance. This is especially true in today’s increasingly competitive market of tourism services in St. Petersburg.  
The tourism industry has been growing rapidly. In many countries and regions tourism is seen as a way to straighten their economies, which usually lack resources. Moreover, it should be taken into consideration, that tourism provides «possibility for every person to communicate with nature, variety of impressions, healing of body and temperament, education of a sense, organization and discipline, acquisition of necessary knowledge and work skills» [20]. Sustainable tourism development in the regions should aim at minimizing negative impacts and maximizing benefits [21]. In this context, the formation of tourism clusters is a long-term strategy based on system approach and constant evaluation of its performance.
References

5. A.I. Tarasenok, Geoekonomika turizma (Tourism Geoeconomics) (Novoe znanie, Moscow, 2011)
8. S. Nordin, Tourism clustering & innovation: Paths to economic growth and development (Etour, Östersund SE, 2003)
12. The KBR authorities are considering the inclusion of two tourism clusters of the region into the state program, http://cluster.hse.ru July 2019
16. N. Kim, B.E. Wicks, International CHRIE Conference-Refereed Track, 28 (2020)
20. G.K. Galiullina, S.W. Galimov, L.B. Shabanova, TISBY Newsletter, 2, 141-149 (2014)