

CDSSES 2020**IV International Scientific Conference "Competitiveness and the development of socio-economic systems" dedicated to the memory of Alexander Tatarkin****ROLE OF TOURIST TECHNOLOGY PLATFORMS AFTER THE PANDEMIC**

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Abstract

The study aims to develop the hypothesis of a very likely post-pandemic transformation of the tourist sector of the world economy. It will shift the core of regional tourist products reproduced to improve human immunity, society, preservation, and strengthening of human health. The research uses integrated, interdisciplinary, and platform approaches. This will be the inevitable growth in demand for this kind of products not only from the part of the local population but also from world tourist flows. The authors find out that this requires a comprehensive solution to several problems: the development and implementation of a set of measures to significantly change the entire structure of the annually reproduced volumes of tourist products to saturate the new configuration of demand from the tourist flows in the attractive tourist spaces; significant transformations in the sectoral structure of the tourist sector of the world and domestic economy to increase the share of products that ensure the preservation and expanded reproduction of human potential. It is concluded that the achievement of a high technological level of reproduction of regional tourist products in the country's tourist space and its regions and firm preservation of the technological independence of the country's economy is currently feasible only based on a modern platform approach.

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1. Introduction

Currently, the world economy's tourist sector, which until recently provided almost 10% of global GDP annually, is facing a crisis for the first time in 70 years due to the impact of COVID-19, which has significantly undermined its development. According to the World Tourism and Travel Council (UNWTO), the losses in 2020 may amount to 2.1 trillion US dollars. The world market, which is estimated at about 9 trillion US dollars, can drop by almost a quarter. The coronavirus pandemic has put 75 million jobs at risk by now.¹ On the other hand, the number of people, suffered from Covid-19 around the world is already approaching to 800 thousand, and the number of cases is almost 23 million.² The situation in Russia alone is also not developing in the best way.

It is obvious that under these circumstances, the attempts to revive the development of tourism on the basis that has developed in recent decades may turn out to be unproductive. It is required to work out the contours of a new paradigm for the development of the tourism sector of the world and domestic economy, which would be able not only to provide tourists with entertainment and recreation, but to focus the regional tourism products reproduction on the improvement of human immunity, preservation and improvement of its potential, as well as on the transformation of the regional tourist spaces into the oases of health promotion, development of the physical, spiritual and intellectual forces of society.

2. Problem Statement

The discussions on the development of tourism, including in Russia, in proportion to the growth of the tourist flow volume in the world at a rate consistently exceeding the world economy's growth rate, have been going on for several decades. The State Council of the Russian Federation under the President of Russia's direct leadership alone considered measures to develop the tourism and resort sector several times over the past 20 years: in 2004 in Gelendzhik, in 2017 in Altai, and then in Crimea. This suggests the importance and growth of problems and, to a large extent, their complexity, which implies the need to increase scientific research in the field of tourism.

Over the past few months, foreign and domestic scientists have been actively raising questions about the changes that have occurred and are threatening in all aspects of life in the post-pandemic period (Chang et al., 2020; Gursoy & Chi, 2020; Gössling et al., 2020; Simonyan & Saryan, 2020), among other things reaffirming that the crises accelerate technological innovation and change (Colombo et al., 2016), calling the future development stage a new struggle for survival the best in the world or the postmodern evolution of humanity (Sharfuddin, 2020), which provides us with the opportunity to take a new direction, moving forward, moving on to a more sustainable path (Ioannides & Gyimóthy, 2020).

Indeed, the socio-economic, cultural and psychological consequences for various stakeholders in the tourist sector are objective and many of them are quite predictable (Table 1). The pandemic has had a significant impact not only on tourist businesses, but also on global travel patterns, transforming the

¹ Latest research from WTTC shows a 50% increase in jobs at risk in Travel & Tourism. (2020, August 25). <https://www.wttc.org/about/media-centre/press-releases/press-releases/2020/latest-research-from-wttc-shows-an-increase-in-jobs-at-risk-in-travel-and-tourism/>

² Latest data on coronavirus worldwide. Distribution table and map. (2020, August 25). <https://meduza.io/feature/2020/03/05/poslednie-dannye-po-koronavirusu-vo-vsem-mire-tablitsa>

demand (Miles & Shipway, 2020), including reorienting tourists to eco-friendly and green tourism (Zhu & Deng, 2020). The pandemic literally "spurred" the digitalization of the economy, predicting in a special way the future transformation of the entire tourism sector and its opportunities in this direction (Mou et al., 2020).

Among practical recommendations, American scientists Jamal and Budke (2020), when considering issues and problems arising in connection with the current outbreak of a new type of coronavirus, pointed to "... close collaboration and cooperation between the tourism stakeholders (including service providers and destination management organizations) and public health authorities ... " (p. 181), aiming at the need to unite the efforts of all stakeholders to solve problems at the local, regional and global levels.

The scientists from Sweden Ioannides and Gyimóthy (2020) note that "COVID-19 offers public, private, and academic actors a unique opportunity to design and consolidate the transition towards a greener and more balanced tourism" (p. 1).

The researcher from Australia Sigala defines the special role of scientists in this process, believing that COVID-19 can become a transformational opportunity for the tourism sector of the global economy, recommending that tourism institutions change their standards and indicators to motivate and assess the purpose, role and impact of research in the field tourism (Sigala, 2020).

Table 1. Current and predicted consequences of tourism development from the impact of the pandemic (compiled by the authors)

Impact	Current consequences from the pandemic	Predicted consequences
Impact on demand	Threat to the life and safety of tourists. Cancellation of tourist trips. Monetary losses. Travel restrictions and bans. Loss of benefits and points for travel loyalty. Negative impressions of tourists upon returning home. Quarantines and social distancing.	Changes in the structure of demand. Growth of interest in domestic tourism and local recreation. Growth of demand for products that increase immunity, form a healthy lifestyle. Growth of demand for organic products and green tourism. Individualization and customization of demand. Increased demand for online sales. Growth of demand for virtual events, festivals, entertainment. Reassessment of what is necessary for happiness. Restructuring of tourist priorities.
Impact on offer	Decrease in turnover, revenue and profit. Increased costs of measures to ensure additional security in the provision of services. Monetary losses. Unemployment growth. Replacement of business travels with meetings on virtual platforms. Cost optimization in enterprises. A global slowdown in travel leading to reduced pollution, overtourism.	Acceleration of technological innovation and change. Growth of technology platforms. Business focus on reducing carbon dioxide emissions and promoting natural and healthy products. Improvement of safety and health management system for tourists and employees. Working out the safety system in relation to each tourist product, hygiene standards. Integration and implementation of various technologies in the provision of

Impact on state and regional tourism policy	Changes in the visa regime. Expansion of e-government services. Virtualization of teaching and learning processes. Support activities for vulnerable industries, including tourist enterprises, restaurants, etc.	services. Expansion of e-commerce. The introduction of a new health insurance against coronavirus, a vaccination certificate. Compliance with the principles of responsible tourism when planning the arrangement of tourist areas. Formation of an eco-oriented tourism economy. Changes in health insurance. Tightening of visa regimes. Expansion of interaction with partners, stakeholders of the destination in the field of tourism.
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Summarizing the results of studies conducted by foreign and domestic scientists on this issue, presented in Table 1, it can be concluded that the 2020 pandemic has a significant impact on both the state of supply and demand, and on state and regional policy in the field of tourism. Obviously, in the post-pandemic period, digital technologies will receive a particularly powerful impetus for development, which will be even more closely integrated into the public administration system, the entire tourism sector of the economy, including the healthcare sector, the system of ensuring the safety of tourists, etc. Regional tourism products will be more diverse, environmentally friendly, highly technological.

Therefore, the vector of tourism development in the coming years should be aimed not only at revivification of the tourism sector, but also at the need to transform its tourist spaces into a kind of oases for the preservation and development of human potential, free from threats, such as pandemic. For this purpose, it is required not only to increase the expanded reproduction of popular tourist food ensembles in all areas of development of tourist spaces, but also to improve the entire management system of their development, including an increase in the technological level of reproduction of tourist products on the scale of regions, countries, and this present time on the scale of the continents as well.

3. Research Questions

How to make sure that regional tourism products not only provide for the sustainable development of a particular region, but are actively used in the direction of improvement of human immunity, society, preservation and strengthening of people's health?

4. Purpose of the Study

4.1 Give a reason for the hypothesis about the very likely transformation of the tourist sector of the world economy after the pandemic in favor of the creation and reproduction of high-tech regional tourism products and the shift of their core towards the improvement of human immunity, society, preservation and strengthening of people's health.

4.2 Consider the tourism sector as a complex holistic self-developing system, relying on a modern platform approach and research results in the field of synergetics, the theory of self-organization of complex systems in order to substantiate the need to develop and implement a new paradigm of the management system for the development of the domestic tourist sector, including for solving social problems.

5. Research Methods

The article is based on an analysis of studies conducted by foreign and domestic scientists, as well as the materials presented on the Internet, considering the problem of the impact of the coronavirus pandemic on the development of tourism in the world. Moreover, the authors rely on interdisciplinary, systemic and platform approaches, considering the tourism sector of the economy and the tourism technological platform as self-developing systems that can independently overcome and adapt to global crises, such as pandemics, use technological trends of the world economy in favor of solving not only commercial, but also the social problems of society.

6. Findings

The authors put forward a hypothesis about the tourist sector as a complex integral open system, which, in their opinion, at the present stage of its development already possesses the basic properties of self-development. The authors propose to embed these properties in the foundations of creating modern tourist technological platforms capable of ensuring sustainable reproduction of highly competitive regional tourist products in demand after the pandemic. The advancement of this hypothesis is due to the following.

First, the huge quantitative changes in the tourism sector over the past decades could not but lead to serious qualitative changes in it. In just over half a century, the tourist sector has grown from several tens of millions of tourists a year to the volume of tourist flows that have already exceeded the population of our planet. Moreover, the essence of these changes is that tourism has transformed from the sphere of recreation and entertainment for a small group of wealthy people into an independent diversified sector of the world and domestic economies, aimed mainly at the preservation and development of human potential, primarily in advanced, developed countries. It is no coincidence that up to 80-95% of the population of these countries, including with the active support of the state, is annually involved in the tourism and resort sector in these countries, developing social tourism. At the same time, it covers more than 60 industries and spheres in the tourism sector.

Secondly, the tourism sector, as the economic basis of the tourism sector, has been formed and uses in its own interests a huge resource, material and infrastructural base, based not only on the steady increase in the scale of use and consumption of the most diverse resources of the planet, but also the technologies for transformation of these resources into tourist products demanded by tourists, the volumes of which amount to trillions of dollars.

Thirdly, a very complex structure of the tourism sector has taken shape and is steadily developing. At its foundation there are hundreds of thousands of enterprises and firms operating at the *micro-level* of the tourist sector and creating a gigantic variety of local tourism products, in which about 300 million people were employed before the pandemic, serving already multibillion-dollar tourist flows annually spreading in the space-time coordinates of regions and countries.

At the *meso-level* in the tourism sector, huge ensembles of enterprises have already formed within the framework of key areas of tourism development, starting with hotel, restaurant chains and ending with tourism development management structures at the regional, country levels. At this level, the regulation

of the reproduction of large-scale and diversified regional and country tourism products, as components of the GRP of regions and countries take place, which are generated by demand from tourist flows in the space of their residence.

At the *macro-level*, the tourist sector is represented by the international tourist structures of the continental level (Schengen tourist zone, North American, tourist component of the Great Silk Road, etc.), including a number of tourist associations at the *UN level*. Currently, all these elements of the tourist sector as a system actively interact and influence each other in the mode of both network and spontaneous interaction. This process is very complex and includes both periods of orderly development and periods of growth of asynchronous crisis events in certain tourist spaces of countries or regions.

All this leads to the fact that the tourist sector has clearly acquired the integral properties of a complex system and begins to develop mainly due to its internal factors, that is, self-develops. At the same time, while simultaneously being a subsystem in larger systemic formations, such as the world economy, society as a whole, the ecology of the planet, naturally experiencing both non-specific and possibly specific impacts, but no longer losing its integrity and its internal sources of development.

It is fundamentally important that a key role in the process of self-development of the system is played by its *meso-level*, at which the formation of the so-called *order parameters* takes place, "when its structures arise and begin to form," during which the process of self-organization actually occurs" (Deryabina, 2019, p. 82). In other words, the process of structuring any system inevitably means rearrangements in its microelement base (at the *micro-level*), during which all its unstable, weakened elements are cut off. It is important to consider that the *order parameters* cannot be chosen arbitrarily, they must correspond to the "nonlinear nature of the system". In the case of an arbitrary change in parameter values, the steady state of the system may become unstable (Deryabina, 2019, p. 82-83).

In our opinion, in relation to the tourism sector, to a certain extent this kind of order parameters can be reflected in the competitiveness indicators of the regional tourist products. At the same time, by their nature, these parameters are quite capable of "subjugating" the processes of self-organization of the system, thereby realizing the "principle of subordination according to Haken", which "forms the basis of a synergistic approach to the analysis of the evolution and self-organization of complex systems" (Deryabina, 2019, p. 82). The main list of parameters in relation to the tourist sector that can become the pivot points of the structural framework at the *meso-level*, in our opinion, can be represented in the form of a certain reproductive matrix (Figure 1).

This diagram presents eight interrelated and mutually conditioning groups of indicators. Their understanding and grouping were the results of our research on the system of competitiveness indicators of annually reproduced regional tourist products, which are an organic component of the GRP generated by tourist flows drawn into the region's space. At the same time, this system of indicators turned out to be consonant and, with a certain degree of approximation, it clearly reflects such deep properties of self-developing systems as order parameters. On the one hand, the architecture of the structure of the tourist sector as a system is clearly visible in them. On the other hand, in the space of the tourism sector of the region, a system of certain reference points clearly reveals itself, capaciously saturated with large information nodes of interconnections, revealing the prospects for comprehensive and effective regulation

of the development of the tourism sector of the regional economy, primarily tourism and resort specialization.

In this regard, the diagonal interconnections of the reproduction matrix shown in Figure 1 are characteristic. In particular, the diagonal a-b-f-h shows the interconnection of the resource base of the regions with the list of sectors of the tourism sectors of the regional economy involved in the reproduction of regional tourism products, the level of strategizing of their development and indicators of the quality and efficiency of the system management of the development of the tourism sector. At the same time, the diagonal c-d-e-g shows that the interdependence of demand from tourist flows is linked with the efficiency of use of the tourist potential of the region involved in the reproduction of regional tourist products, the supply of their volumes, which ensures the satisfaction of demand from tourist flows and a modern platform approach for the implementation of such tasks, which are being implemented in the currently developed tourist technological platforms.

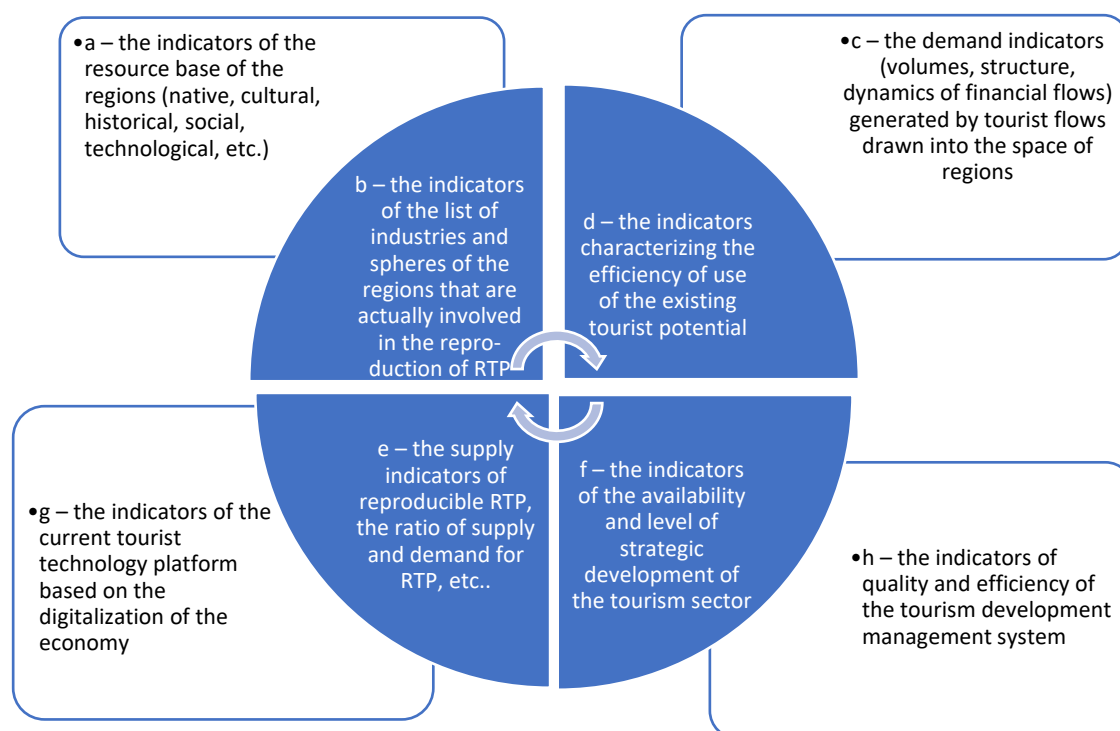


Figure 1. The diagram of formation of the parameters of self-organization order of the regional tourist sphere in the course of reproduction of competitive regional tourist products in demand by tourist flows (compiled by the authors)

Moreover, it is fundamentally important to note that the platform approach that originated in Europe at the beginning of the second decade of this century (Sharafutdinov et al., 2020), as one of the modern ways of mastering and developing tourist spaces, works well where and when it is based on constantly updated latest achievements of information and digital technologies. Without this, it is no longer possible to achieve key indicators of the competitiveness of reproducible regional tourism products, since their reproduction is based on the avalanche-like generation of huge amounts of data, the need for their structuring, compression, generalization and evaluation in order to obtain new information and, to increase based on it the “new value” in the sphere of the tourism sector of the economy.

At the same time, to obtain it, it is required not only to properly structure and compress the resulting information, but at the same time to find the ways to flexibly optimize the configuration of interests of all key participants in the reproduction of regional tourism products inherent in it. From these positions, tourist technological platforms begin to act as increasingly subtle and effective instruments of human participation in the development of the tourism sector as a self-developing system, emerging by the modern theory and practice of tourism development. In its most general form, the model for the formation of such a tourist technological platform can be represented in the form of a modern intersectoral technological system capable of annually ensuring a sustainable reproduction of competitive regional tourism products. Functionally, this kind of regional tourist products depends on eight main order parameters, which manifest themselves in the corresponding system of indicators of its competitiveness shown in Figure 1. In this case, in the most general form, this kind of model of a tourist technological platform may have the following form.

TTP ↔ RTP (a, b, c, d, e, f, g, h), where

↔ is a sign of mutual dependence;

TPP is a tourist technological platform that can ensure sustainable reproduction of competitive regional tourism products, the competitiveness indicators of which in the context of the platform approach can adequately reflect the images of the emerging parameters of the order of the tourism sector as a self-regulatory system;

RTP means highly competitive regional tourism products that are annually reproduced in the tourist space of the regional economy, involving in them domestic and inbound tourist flows. Moreover, primarily due to the transformation of these spaces into oases of recovery and strengthening of human immunity through the use of the latest achievements of medicine in combination with the healing forces of nature. It would be appropriate to note here that under the influence of the pandemic, the sanatorium and resort complex of Russia can receive a powerful impetus for its revival and development, primarily on the basis of a new information and technological base;

a – a group of indicators characterizing the existing tourist resource base of the regions (natural, cultural, historical, social, economic, technological, etc.) involved in the annual reproduction of RTP without exceeding the recreational capacity of the regions;

b – the indicators of the list of industries and spheres of the regional economy, certain shares of products of which are actually involved in the reproduction of RTP. At the same time, there should be adequate statistical visibility of the emerging volumes and structures of RTP in the composition of gross regional products (RTP / GRP);

c – the indicators of demand (volumes, structure, dynamics of financial flows) generated by the tourist flows involved in the space of the regions. At the same time, in the composition of the aggregate demand, both during the pandemic period and especially after it, the demand for health-improving, improvement of human immunity tourist products will rapidly increase;

d – a group of indicators characterizing the efficiency of use of the existing tourist potential of the region (the degree of knowledge of the tourist resource base of the regions, the share of its involvement in the reproduction of RTP, the depth and ecological purity of the processing of the resource base of the regions in the direction of identifying and developing the healing and health properties of nature, etc.);

e – the indicators of the supply of reproducible RTP. The steady growth of the importance of health-improving immune-strengthening tourist products in the context of the growing share of environmentally friendly tourist spaces is important. In this case, supply indicators should be given in the demand/supply ratio, and also correlate with the surplus (deficit) of the balance of payments in the tourism sector, arising from the dynamics of the ratio of internal-inbound-outbound tourist flows and the financial flows generated by them;

f – the indicators of the availability and level of strategic development of the tourism sector, based on comparison with the leading tourist and resort regions of the world in terms of the average consumption of high-quality tourism products of an immuno-strengthening nature, indicators of human development and levels of economic development;

g – the indicators of the quality and efficiency of the management system for the development of the tourism sector (the degree of achievement of strategic objectives, the adequacy of the lists of flagship projects to the implementation of the strategic objectives of tourism development); the presence of a system for training and retraining of tourism personnel etc., adequate to these objectives. (Sorokin et al., 2017);

h – the indicators of the current tourist technological platform based on the digitalization of the regional economy, including the economy of tourism, covering, structuring and adequately compressing the entire information field of the tourism sector to the level of crystallization of the system of indicators of the competitiveness of the RTP.

7. Conclusion

Summing up some of the issues raised in this article, the following main provisions should be emphasized.

1. The colossal damage caused to the tourism sector by COVID-19 posed some new problems to its economic foundation – the tourist sector of the economy. The issues of strengthening immunity, preserving and developing human potential, primarily, on a new technological basis, capable of significantly increasing the efficiency of tourism development management systems, turned out to be in the thick of it.

2. In the changing picture of the world in the light of a synergistic approach, it is quite obvious, that huge quantitative changes in the tourism sector have led to such qualitative changes that have influenced its formation as an independent, open, complex, self-developing system that occupies an increasingly important place in modern social reproduction. This system's role is associated with the formation and steady growth of socially necessary free time, through which the average level of consumption in society is increasingly being formed, which is increasingly shifting into the free space-time coordinates of human existence is, into the sphere of tourism.

3. The order parameters in the field of tourism simultaneously act as a kind of deep generator of structuring massive information arrays generated by the process of reproduction of regional tourism products in the framework of tourism sectors of the economy, and as an objective basis for the formation of a system of indicators of the competitiveness of regional tourism products. At the same time, in the coming years, the formation and growth of the significance of the health factor will be one of the key

order parameters of self-development of the regional tourism sector and on this basis, the entire system of indicators and assessment of the competitiveness of regional tourist products will be improved. In turn, all this should be incorporated into the reference points of the technological framework and architecture of tourist technological platforms. Thus, endowing them with the ability to regulate the development of tourism in the regions, and thus inscribing, embedding purposeful human activity in the process of self-development of the tourist sector, as a complex integral system.

4. The ability of tourist technological platforms to organically integrate into tourism management systems in many regions of the world, and first of all in Russia, given its huge relatively poorly developed areas, largely depends on the development and use of modern information technologies, as well as the nature of the tourist sector as a self-developing system, digitalization of its information arrays and mathematical tools for their processing.

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