Natural recreational resources as a factor of health & wellness tourism clusters formation and development

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Abstract. The paper considers abilities of natural recreational resources transformation to the basic for domestic tourist clusters formation, defines a cluster as a methodology for the development of globally competitive regional (national) health and wellness tourism (HWT) systems that have the potential both to stimulate the economic system of the home country and to integrate themselves into cross-border tourist flows and industry investments. Based on the analysis of the best practices in the formation of HWT clusters, their main types, features of organization and functioning are identified, geographical, social, and economic conditions for the implementation of clustering strategies in various countries and regions of the world are given.

1 Introduction

The supranational nature of health problems, and the inability of an individual country to adequately fight diseases in the face of a strong interconnectedness of world processes, suggests an increase in international integration in the global health system.

One of the most important problems facing both modern healthcare systems and consumers of health and wellness services (HWS) is related to the fragmentation of receiving HWS and, as a result, the loss of continuity of treatment.

The existing problem is manifested in the lack of coordination between health care institutions of different types and levels, duplication of services, as well as their inconsistency with the real needs of patients.

One of the effective models of integrated care that allows solving the problems of fragmentation in the global market of health and wellness services is clusters, which are formed on the basis of local systems for the provision of medical services and have a high potential for integration both into the internal socio-economic space of the country and into the structure of the world market of health tourism.

The purpose of the presented study is to analyze the world experience in the formation and development of health and wellness tourism clusters, propose an author’s classification

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of their models and determine the conditions (geographical, social, economic, infrastructural) for their implementation in the post-COVID dynamics of world health in particular, and the life of society in general.

2 Literature review

The problem of repositioning countries in the structure of the world market and the international division of labor through the effective exploitation of renewable natural and recreational resources and the potential of skilled intellectual labor, the development of competitive regional clusters, concentrating around the system of production and sale of medical and recreational services, which have their own potential for inclusion in global production distribution networks, has an interdisciplinary character.

The problems of defining tourism clusters as complex systems operating within the framework of national and regional economies that can effectively connect to international flows of tourists and industry investments are highlighted in the works [1, 2].

Descriptive analyze of Tourism Cluster Theory was conducted by [3], who considered definitions, essential basic factors and characteristics that determine conditions and chances of creating a tourism cluster system, technology, innovation and creative innovative ideas, marketing, operating mode as most significant factors of tourism clusters formation. The competitiveness of tourist clusters, the conditions and factors of their global expansion have been studied [4, 5]. An assessment of state support measures and incentives for the development of tourism clusters was carried out in an in-depth study [6].

Interactions within clusters (between enterprises, government, members of the public) have been studied in detail [7], between tourism and hospitality enterprises within a single cluster [8].

The topical issues of integrating tourism clusters into the regional economy, their essence stimulating national or regional efficiency have become a research problem [9-11].

The studies of the problems of formation of tourist clusters are of great theoretical and practical interest in certain countries of the world, for example, in Thailand [1, 11], Romania [13, 14], Serbia [15], Brazil [16], Montenegro [17], Portugal [18].

M. Porter [19] defines a cluster as “a group of geographically neighboring interconnected companies and related organizations operating in a certain area”, prioritizing industry and geographical, but not organizational and economic unity. Enright M.J. [20] singled out types of cluster policy based on the level of state participation: catalytic (the state unites cluster members, but limits their opportunities); supporting (the state acts as an active investor in the cluster); directive and interventionist (the state regulates the development of the cluster and the relationship of its members strictly and limitedly, respectively).

Rosenfeld S.A. [21] identified the types of relationships within the boundaries of the cluster: horizontal; vertical and diagonal (between industries, enterprises, suppliers and various "clearance centers" – headquarters, colleges, trade associations or research laboratories, as well as equipment manufacturers).

Michael [11] defined a tourism cluster as a group of tourist attractions located in a limited area and characterized by the presence of highly developed infrastructure and services, social and political cohesion, and the presence of a connection between production processes and associative culture, as well as excellent network management of companies that bring competitive strategic advantages.

M. Monefort (cited: [22]) considers that a tourism cluster is a complex group of various elements, including services provided by tourism companies or businesses (accommodation, travel agencies, water, and theme parks, etc.).

Obviously, within the framework of these approaches, clustering is perceived exclusively from the production side. In our opinion, the consumer should be at the heart of the tourism
cluster, and the cluster structure should be focused on the maximum satisfaction of its needs, including at the expense of foreign contractors.

We propose to define a "medical tourism cluster" as a system of commercial and non-commercial economic agents concentrated in a territory with a resort and recreational potential and a developed medical infrastructure, united by functional dependence, using in their activities innovative scientific developments necessary to provide competitive medical care and form conditions for rehabilitation, restoration of consumers.

Schematically, a cluster structure of this type can be represented as follows (Fig. 1):

![Fig. 1. Components of a tourism cluster with a health and wellness component (compiled by the authors).](image)

As it can be seen from the diagram, for the development of a cluster with a health and wellness component, it is not enough just to have medical and service institutions located in a territory with natural and recreational potential; it also requires the high-tech infrastructure facilities that provide research in promising areas of treatment and rehabilitation.

Actively developing health tourism can become a channel that ensures the flow of economic resources (foreign currency and taxes), innovations, and qualified labor resources into the corresponding tourism and health cluster zone.

The need to use the cluster approach is justified by the presence of distinctive features inherent only in tourism activities: the diversity of goods and services consumed by tourists; the uniqueness of the ownership of tourist and recreational resources; the growth of competition in the global market of health and wellness tourism services and the complication of the structure of the provision of HWS, which requires coordination of efforts, including the presence of a "decision-making center".

The clustering process will allow the regions to obtain such advantages in the world market of medical and health tourism as foreign economic (image, world recognition of the quality of the health care system of the region (country); economic (budget revenues; income from the sale of medical and health and wellness services); social (accessibility of healthcare, increasing employment of the population, reducing socio-economic and political tensions).

The process of clustering in HWT will accelerate the technological development of the health and wellness resorts, the biomedical technology industry, pharmaceuticals, tourism and hospitality.

3 Typology of clusters in the Industry of health and wellness tourism

The author's analysis of the existing integrated systems for the provision of HWS and medical care made it possible to identify three types of global (highly integrated into the structure of the world market for health tourism) cluster structures based on HWT:

- clusters of high-tech medicine;
- clusters of global biomedical research;
- clusters of international medical tourism.

The global clusters of high-tech medicine include those located in the United States, Germany and the Republic of Korea (Biomedical clusters in the world ...) (Table 1).
Table 1. Features of clusters of high-tech medicine (compiled by the authors).

<table>
<thead>
<tr>
<th>Home country</th>
<th>Cluster</th>
<th>Socio-economic features</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>Medical Alley</td>
<td>It includes the world-renowned Destination Medical Center, as well as more than 1000 medical companies (Data from: <a href="https://medicalalley.org/medical-alley/">https://medicalalley.org/medical-alley/</a>)</td>
</tr>
<tr>
<td>Germany</td>
<td>Health Capital Berlin Brandenburg  Cluster Gesundheitswirtschaft</td>
<td>The cluster includes 21,000 companies, 380,000 employees, more than 130 hospitals and 35,000 beds. Charité – Universitäts medizin Berlin (Data from: <a href="https://www.healthcapital.de/das-cluster/standort/">https://www.healthcapital.de/das-cluster/standort/</a>)</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>Daegu Medical Cluster</td>
<td>The industrial cluster where the development of new drugs and medical devices is carried out, 5 medical colleges, Haani University and 12 general hospitals, 7500 medical experts work (Data from: <a href="https://www.exco.co.kr/en/brochure/Daegu_Medical_Tour.pdf">https://www.exco.co.kr/en/brochure/Daegu_Medical_Tour.pdf</a>)</td>
</tr>
</tbody>
</table>

The state plays an important role in the development of cluster structures of this type, most of which were created at the initiative of authorities at different levels and on the basis of public-private partnerships.

For example, the Health Capital cluster, bringing together representatives of business, science, healthcare and politics, fulfills the master plan for the Berlin-Brandenburg region, and facilitates the transfer of knowledge between research and industrial structures. The activity of the cluster is co-financed by the European Regional Development Fund (Data from: https://www.healthcapital.de/das-cluster/clustermanagement/).

A similar mechanism guarantees the functioning of the Life Science Nord cluster (Hamburg and Schleswig-Holstein), which includes approximately 500 companies, universities and research institutes (Data from: https://lifesciencenord.de/en/about/the-association.html).

The German experience of HWT clustering is largely determined by the territorial proximity, the potential for interaction between highly specialized medical organizations, the centralization and consolidation of additional activities (purchases, supplies of medicines, medical equipment).

Global clusters of high-tech medicine attract not only foreign patients, but also highly qualified specialists, turning into a portal for connecting the territory to the production and distribution structures of the global HWS market.

The second group of clusters based on health and wellness tourism includes centers of global biomedical technologies operating in Europe and Asia (Data from: https://cluster.hse.ru/mirror/pubs/share/259071328) (Table 2).

Cluster structures of the second type are actively involved in international programs and provide innovative health and wellness services.

The third group includes clusters of international medical tourism. Today, this category includes large clusters in some countries of Europe and Latin America (Data from: https://cluster.hse.ru/mirror/pubs/share/259071328), which, although they have a low system efficiency rating health care, but occupy a significant share of the world market of health and wellness tourism.

Table 2. Structure and features of biomedical technology clusters (compiled by the authors).

<table>
<thead>
<tr>
<th>Home country</th>
<th>Cluster</th>
<th>Socio-economic features</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>Cambridge Biomedical Campus</td>
<td>17,500 employees, world's leading biomedical center</td>
</tr>
<tr>
<td>Home country</td>
<td>Cluster</td>
<td>Socio-economic features</td>
</tr>
<tr>
<td>--------------</td>
<td>---------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Denmark/ Sweden</td>
<td>MediconValley</td>
<td>350 biotechnology, medical and pharmaceutical companies, 4 global pharmaceutical research and development companies, 44,000 employees, 28 hospitals, 7 science parks (Data from: <a href="https://www.cphhealthtech.com/about">https://www.cphhealthtech.com/about</a>)</td>
</tr>
<tr>
<td>Spain</td>
<td>Health Cluster of Castilla y León</td>
<td>28 participants: 7 SMEs, 2 large companies, 18 research organizations, universities and technology centers, and 1 civil society representative (Data from: <a href="https://clustercollaboration.eu/content/health-cluster-castilla-y-leon-biotech">https://clustercollaboration.eu/content/health-cluster-castilla-y-leon-biotech</a>)</td>
</tr>
<tr>
<td>Italy</td>
<td>Advanced Life Science in Italy – Italian Technological Cluster (ALISEI)</td>
<td>1,789,000 employees and 5,537 companies (Data from: <a href="https://www.clusteralsei.it/en/">https://www.clusteralsei.it/en/</a>)</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Health Valley Netherlands</td>
<td>250 regional, national and international partners (Data from: <a href="https://www.healthvalley.nl/nl/over-ons/">https://www.healthvalley.nl/nl/over-ons/</a>)</td>
</tr>
<tr>
<td>Turkey</td>
<td>Istanbul Health Industry Cluster</td>
<td>200 companies, 22 research centers, 14 research and production associations and 2 public organizations (Data from: <a href="https://i-sek.org/isek-hakkinda/">https://i-sek.org/isek-hakkinda/</a>)</td>
</tr>
<tr>
<td>France</td>
<td>Medicen Paris Region</td>
<td>510 contributors who find innovative healthcare solutions, including 430 start-ups, small and medium business in medical technology field, health product manufacturers, and major national health research and institutions in the Île-de-France region (Data from: <a href="https://medicen.org/a-propos/le-pole-medicen/">https://medicen.org/a-propos/le-pole-medicen/</a>)</td>
</tr>
<tr>
<td>Japan</td>
<td>KOBE Biomedical Innovation Cluster (KBIC)</td>
<td>A network platform that brings together innovative enterprises and institutions in a wide range of medical, pharmaceutical and biological fields, 370 companies, universities, research institutes and specialized hospitals, 11,000 employees, including more than 2,700 researchers and more than 3,400 health professionals (Data from: <a href="https://www.fbri-kobe.org/kbic/english/about/">https://www.fbri-kobe.org/kbic/english/about/</a>)</td>
</tr>
</tbody>
</table>

Their feature is a predominantly private initiative of creation, with minimal organizational and stimulating participation of the state or local authorities. Most often, these clusters are the result of cooperation between clinics, consultation centers, tourism and hospitality enterprises, as well as specialized companies (for example, suppliers of medical equipment, spa treatments, medicines, etc.) (Table 3).

### Table 3. Clusters of international medical tourism.

<table>
<thead>
<tr>
<th>Home country</th>
<th>Cluster</th>
<th>Socio-economic features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td>Mental Health Cluster of Catalonia</td>
<td>22 participants, anti-stress programs, anti-aging, health at any age (Data from: <a href="https://pemb.cat/en/strategic-projects/mental_health_cluster_of_catalonia/35/">https://pemb.cat/en/strategic-projects/mental_health_cluster_of_catalonia/35/</a>)</td>
</tr>
<tr>
<td>Colombia</td>
<td>Medellin Health City</td>
<td>30 participants, specialization in dentistry and cosmetology (Data from: <a href="https://drprem.com/medical-tourism/medical-tourism-in-colombia/">https://drprem.com/medical-tourism/medical-tourism-in-colombia/</a>)</td>
</tr>
<tr>
<td>Country</td>
<td>Cluster Name</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Lithuania</td>
<td>Lithuanian Medical Tourism Cluster (LitCare)</td>
<td>3 HWS groups: medical diagnostic and treatment center, International dental clinic &quot;Pro-Implant&quot;, Rehabilitation and wellness Centers &quot;Eglėssanatorija&quot; (Data from: <a href="https://www.litcare.com/members">https://www.litcare.com/members</a>)</td>
</tr>
<tr>
<td>Poland</td>
<td>Polish Innovative Medical Cluster PIKMED</td>
<td>45 representatives of small and medium businesses, 18 large companies, 11 research organizations, universities, technology centers (Datafrom: <a href="https://clustercollaboration.eu/content/polish-innovative-medical-cluster-pikmed">https://clustercollaboration.eu/content/polish-innovative-medical-cluster-pikmed</a>)</td>
</tr>
<tr>
<td>Serbia</td>
<td>WellnessSerbia</td>
<td>38 members: 24 small and medium businesses, 1 large company, 4 research organizations, universities, technology centers and 9 other members (Data from: <a href="https://clustercollaboration.eu/content/wellness-serbia">https://clustercollaboration.eu/content/wellness-serbia</a>)</td>
</tr>
<tr>
<td>Romania</td>
<td>Health Romania</td>
<td>20 members: 15 small and medium businesses, 4 large companies, 2 research organizations. The total number of patients is 3.92 million people (Data from: <a href="https://clustercollaboration.eu/cluster-organisations/health-romania-medical-cluster">https://clustercollaboration.eu/cluster-organisations/health-romania-medical-cluster</a>)</td>
</tr>
<tr>
<td>Croatia</td>
<td>Kvarner Health Tourism Cluster</td>
<td>32 medical, educational and tourism organizations, as well as hotel complexes (Data from: <a href="http://www.kvarnerhealth.com/members">http://www.kvarnerhealth.com/members</a>)</td>
</tr>
</tbody>
</table>

### 4 Conclusions and recommendations

After a comparative analysis of the features of the above types of clusters, we can conclude that the most promising, with the ability to accumulate global competitive advantages, integrate into transnational flows of tourists and highly qualified doctors (medical technicians), and a stimulator of the growth of the quality of medical care within the home country are clusters of high-tech medicine (Table 4), since they concentrate the interests of a large number of medical industries, high-tech areas of activity, the best specialists, getting the opportunity to meet the changing needs of modern patients.

**Table 4. Comparative analysis of HWT cluster types (compiled by the authors).**

<table>
<thead>
<tr>
<th>Field of Activity</th>
<th>Cluster types</th>
<th>Mission</th>
<th>Competitive Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Global clusters of high-tech medicine</td>
<td>Intersectoral interaction (e.g. medicine + industry)</td>
<td>High demand for specialized services (despite high cost)</td>
</tr>
<tr>
<td></td>
<td>Clusters of biomedical technologies</td>
<td>Treatment and rest</td>
<td>Research base</td>
</tr>
<tr>
<td></td>
<td>Clusters of international medical tourism</td>
<td></td>
<td>Combination of uniqueness of services, price and quality</td>
</tr>
</tbody>
</table>

In addition to the three analyzed categories of cluster structures, one can also distinguish HWT cluster models that differ in the principles of organizing cooperative ties between participants:
- model 1 with full coordination of participants from the authorities, maximum public funding of the project;
- model 2 based on the integration of scientific organizations and business structures under the partial control of the state;
- model 3 based on the creation of a partnership network of various participants with private initiatives only.

The ratio of selected models and groups of clusters based on HWT is presented in Table 5.

Based on Model 1, cluster priorities are associated with increasing the competitiveness and investment attractiveness of their home regions through the concentration of public resources in healthcare.

According to Model 2, the activity of clusters is focused on the implementation of the results of clinical trials into practice, while using government support.

Model 3 requires participants to actively interact, aimed at minimizing the costs of providing interconnected services.

Table 5. Correlation between models and groups of HWT clusters (compiled by the authors).

<table>
<thead>
<tr>
<th></th>
<th>Global clusters of high-tech medicine</th>
<th>Clusters of biomedical technologies</th>
<th>Clusters of international medical tourism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Model 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target Model 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target Model 3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The variety of types and models of HWT clusters determines the differentiation of their practices, however, key factors of their competitiveness can be identified:

- effectiveness of internal communications (implementation of projects at the intersection of sciences, interaction of companies of various industries);
- the process of making general decisions (within almost all clusters, the process of making managerial decisions is initiated by the management company with the participation of an expert council);
- support by the authorities of interregional cooperation;
- recognition of cluster structures at the national level and international marketing support;
- communication between doctors and patients, including foreign ones.

For example, as part of the ProVa Health program, approved in 2017, new products and technologies are tested in real life. During the project, experience is transferred to improve the business models of laboratories. Moreover, small and medium businesses from the entire Baltic Sea region get access to such experience (Data from: https://clustercollaboration.eu/cluster-organisations/latvian-health-tourism-cluster).

Summing up, we can conclude that the challenges facing the global health system encourage countries around the world to develop integrated systems for the provision of medical care, based, among other things, on the HWT. The analysis of the world experience of clustering in the field of HWT allowed us to identify clusters of high-tech medicine, biomedical technologies and international medical tourism, which differ significantly in the starting conditions for their implementation, requirements for the quantity and quality of implementation factors, the specifics of intra-cluster interactions, cluster members, prospects and priorities for long-term growth of competitiveness.

So, if in the advanced HWT clusters of the EU countries the main indicators of success are effective communication and interdisciplinary interaction in the field of research and science, then in the Asian clusters an important factor in competitiveness is the comfort of conditions for medical start-ups. For clusters of international medical tourism, the support of authorities remains extremely important.
5 Recommendations

Clustering is a process of formation, development and integration into the world tourist flows of state (municipal) institutions, private enterprises, specialized research and educational centers, concentrated in a limited area and united by functional dependence. The cluster can effectively integrate into the world economic space and respond flexibly to market dynamics, concentrate the competitive advantages of the region as much as possible, and in the future, due to the synergistic effect, ensure the positioning of the country as the center of the international HWT.

The formation of national health and wellness clusters can overcome such problems of HWT as the lack of favorable conditions for investment in health and wellness tourism infrastructure and measures of anti-crisis state support for the industry.

The emergence of innovative health and wellness products created with the participation of international operators within the framework of regional cluster structures will make it possible to develop new foreign sales markets, thereby increasing the industry's competitiveness in the health and wellness services market, integrating it into international tourist and service flows.

The modern types of HWT clusters, which differ significantly in the strategy of their own implementation and promotion in the domestic and world markets, but can be used in conditions of significant interregional differentiation, include the following:

- clusters of high-tech medicine. They act as a kind of poles of attraction for foreign patients and highly qualified specialists, whose development is possible in geographical proximity to large cities that not only have a consistently high demand for specialized medical services, but are also associated with global passenger and tourist flows;

- clusters of biomedical research, which, being participants in international programs, provide innovative health and wellness services, including using the unique recreational resources of the region. The inclusion of HWT in clusters of this type is acceptable for the purpose of effective commercialization of innovative methods and treatment protocols, as well as leveling possible shortcomings in the service in potential tourist destinations traditionally close to national research centers, and not to large areas with developed tourism and service areas;

- international clusters of streaming health and wellness tourism, which are the result of cooperation between health and wellness resorts, clinics and a competitive tourism industry. HWT in such cluster structures should not only ensure the all-season growth of inbound and local tourist flows in the region, but also stimulate the development of HWSs focused on new consumer groups;

- regional clusters of express HWT, based on the short-term programs and health care facilities for tourists, implemented, for example, within the framework of vaccination, medical commission, etc. The effective development of the medical infrastructure in the host territory is carried out through various marketing activities.

References


