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CLUSTER APPROACH IN CULTURAL HERITAGE TOURISM (CASE OF THE CENTRAL ASIAN SECTION OF SILK ROAD)

Modern social and economic science pays little attention to the development of tourism based on new approaches to its management and organization. As a result, the most important sector of the economy develops in practice on the basis of not always effective traditional models. The research problem of the development of a new approach to the organization of tourism products with cross-border nature is developed in this article. The purpose was to develop a methodological toolkit for the development of cross-border tourism based on the cluster approach. To achieve this goal, the study design was based on the study of tourism features that affect the planning and clustering process. The highlighted stages of clustering in the form of identifying tourism objects, designing clusters, forming cluster structures form the basis of a new socio-economic model of the tourism industry. To design a regional cross-border tourism cluster, a method is substantiated and applied to correlate all indicators of cluster tourism development to the number of cultural and historical objects. The selected 19 indicators of development are combined into 6 groups, which make it possible to comprehensively assess the cluster organization of tourism in the region. The approbation of the indicators was carried out on the example of all five countries of the Central Asian section of the Silk Road. Model calculations of the developed set of analytical cluster indicators made it possible to combine the identified objects in each region into homogeneous clusters. In this case, Ward's method was used, and the square of the Euclidean distance was used as the objective function and criterion of similarity and difference. The proposed cluster maps make it possible to activate and increase the competitiveness of the tourism product as a whole and give impetus to socio-economic development in each country of the Central Asian region.

Key words: tourism, tourism competitiveness, social and economic development of the region, the Silk Road, tourism cluster, cluster design.

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Мәдени-тарихи туризмдегі трансшекаралық кластерлерді жоспарлау, сәйкестендіру және дамыту («Жібек жолы» Орталық Азия учаскесінің мысалында)

Қазіргі әлеуметтік-экономикалық ғылым туризмді басқаруға және ұйымдастыруға жаңа тәсілдер негізінде дамытуға онша назар аудармайды. Нәтижесінде экономиканың маңызды саласы дәстүрлі салалық модельдер негізінде іс жүзінде дамиды. Бұл саланың тиімділігі мен дамуын айтарлықтай төмендетеді. Трансшекаралық сипаттағы туристік өнімді ұйымдастырудың жаңа тәсілін әзірлеудің зерттеу проблемасы осы мақалада жасалған. Мәселенің шешімі авторлардың Жібек жолы туристік өнімінің бәсекеге қабілеттілігін күрт арттыра алатын, туристердің туристік бағыт ретінде Орталық Азия аймағына деген қызығушылығын арттыратын туристік кластерлер құру туралы ұсынысына негізделген.

Осы зерттеудің мақсаты – Орталық Азия аймағы үшін негізгі туристік өнім – Жібек жолы мысалында кластерлік тәсіл негізінде трансшекаралық туризмді дамытудың әдістемелік құралдарын жасау. Мақсатқа жету үшін оқу дизайны туризмнің жоспарлау және кластерлеу процесіне әсер ететін ерекшеліктерін зерттеуге негізделген. Туризм объектілерін анықтау, кластерлерді жобалау, кластерлік құрылымдарды қалыптастыру түріндегі кластерлеудің бөлінген кезеңдері туристік индустрияның жаңа әлеуметтік-экономикалық моделінің негізін құрайды. Аймақтық трансшекаралық туризм кластерін жобалау үшін әдіс негізделген және кластерлік туризмді дамытудың барлық көрсеткіштерін мәдени-тарихи нысандардың санына сәйкестендіруге арналған. Дамудың таңдалған 19 индикаторы 6 топқа біріктірілген, бұл аймақтағы туризмнің кластерлік ұйымдастырылуын жан-жақты бағалауға мүмкіндік береді. Көрсеткіштерді апробациялау Жібек жолының Орталық Азия учаскесінің барлық бес елінің мысалында жүргізілді. Өзірленген аналитикалық кластерлік индикаторлар жиынтығының модельдік есептеулері әр аймақта анықталған объектілерді біртектес кластер-

ге біріктіруге мүмкіндік берді. Бұл жағдайда Уордтың әдісі қолданылып, ұқсастық пен айырмашылықтың мақсаты мен критерийі ретінде Евклид қашықтығының квадраты қолданылды. Ұсынылып отырған кластерлік карталар тұтастай алғанда туристік өнімнің бәсекеге қабілеттілігін белсендіруге және арттыруға мүмкіндік береді және Орталық Азия аймағының әр елінде әлеуметтік-экономикалық дамуға серпін береді.

Түйін сөздер: туризм, туристік бәсекеге қабілеттілік, аймақтың әлеуметтік-экономикалық дамуы, Жібек жолы, туристік кластер, кластер дизайны.

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Планирование, идентификация и развитие трансграничных кластеров в культурно-историческом туризме (пример центральноазиатского участка «Шелкового пути»)

Современная социальная и экономическая наука мало уделяет внимания развитию туризма на основе новых подходов к его менеджменту и организации. В результате важнейшая отрасль экономики на практике развивается на основе традиционных моделей отрасли. Это значительно снижает эффективность и развитие отрасли. Исследовательская проблема развития нового подхода к организации туристических продуктов, имеющих трансграничный характер, развивается в данной статье. Решение проблемы основывается на предложении авторов по созданию туристических кластеров, которые способны резко повысить конкурентоспособность туристического продукта «Шелковый Путь», повысить интерес туристов к региону Центральной Азии, как туристическому направлению. Целью данного исследования является разработка методологического инструментария для развития трансграничного туризма на основе кластерного подхода на примере главного для региона Центральной Азии туристического продукта «Шелковый Путь».

Для реализации цели дизайн исследования был построен на изучении особенностей туризма, которые влияют на процесс планирования и проведения кластеризации. Выделенные этапы осуществления кластеризации в виде идентификации объектов туризма, проектирования кластеров, формирования кластерных структур составляют основу новой социально-экономической модели отрасли туризма. Для проектирования регионального трансграничного туристического кластера обосновывается и применяется способ соотнесения всех показателей кластерного развития туризма к количеству культурно-исторических объектов. Выделенные 19 показателей развития объединены в 6 групп, позволяющих комплексно оценить кластерную организацию туризма в регионе. Апробация показателей осуществлена на примере всех пяти стран центральноазиатского участка Шелкового Пути. Модельные расчеты выработанного набора аналитических кластерных показателей позволили объединить идентифицированные объекты в каждом регионе в однородные кластеры. При этом применялся Ward's method, а в качестве целевой функции и критерия схожести и различия применялся квадрат Евклидова расстояния. Предложенные кластерные карты позволяют активизировать и повысить конкурентоспособность туристического продукта в целом и дать толчок социально-экономическому развитию в каждой стране центральноазиатского региона.

Ключевые слова: туризм, конкурентоспособность туризма, социальное и экономическое развитие региона, Шелковый Путь, туристический кластер, проектирование кластера.

Introduction

The cluster approach is widely developed in many industries, including tourism. However, some types and types of tourism have significant specificity. Cultural Heritage Tourism is one of these types of tourism, which has its own characteristics. These features greatly affect the process and order of the integration of tourism resources into clusters. Unfortunately, many studies on clustering are of a general nature and cannot often answer practical questions about planning and conducting clustering.

The objectives of this study were to identify those features of cultural and historical tourism, which de-

termine the procedure and procedure for planning, creating and further developing the cluster approach in the Cultural Heritage form of tourism. Planning and organization of clusters are based on a detailed study of the planning stages and the organization of the macro cluster. This approach includes the steps of identifying potential miniclusters, their comparative analysis according to the criteria and indicators of clustering, the design of clusters directly and the creation of management by macrocluster.

The practical application for the Central Asian segment of the Silk Road will allow to develop specific indicators for planning clusters in this tourism product. The proposed indicators are applicable to

any tourist product in cultural heritage tourism. On their basis, further clustering is carried out on the basis of grouping by feature set using the SPSS software package.

Literature Review

Cultural heritage type of tourism is one of the most common types of tourism. Many other important types of tourism, for example, urban, or beach tourism, largely interact and complement cultural-historical tourism (McNulty & Koff, 2014). Millions of tourists around the world are eager to see historical monuments around the world to learn more about and see the amazing history of human development.

In this connection, naturally, that in countries with a highly developed specific weight of cultural and historical tourism there is a problem of assessing the concentration and specialization of tourism, and identifying various kinds of problems in this area. This is important from the point of view of management, state regulation and further strengthening of this profitable type of tourism (Pybum, 2004).

In recent years, the cluster approach has been actively applied in tourism as the main tool for its development. In places especially popular among tourists in many countries of the world, entire industries — clusters specializing in servicing tourists, began to emerge.

The cluster approach to the organization of tourism has become one of the most popular due to the fact that clusters contribute to the efficient use of tourism resources, increase the profitability of the territory, assessment and development of clusters in tourism (Moric, 2013; Gelbman & Timothy, 2011; Sofield, 2006; Wachowiak, 2009; Timothy, 2006).

As in any industry, cluster theory and practice in tourism has its own industry specifics. The main one's is that tourist clusters, unlike clusters in other industries, are highly dependent and tied to available tourist resources of a specific territory (Novell et al., 2006). In other words, the availability of resources is primary here, and clusters can be formed and developed only if there are valuable resources from the point of view of a tourist. They can not be artificially created if there are no attractive tourist destinations that become the basis of tourist motivation. Facilities, destinations with the highest attractiveness create a "cluster core".

However, with a deeper consideration of the cluster organization, it is impossible to deny that the application of cluster theory and practice has even deeper specificity in tourism. This is due to the fact

that tourism has many types and features within each type and form of tourism. Each type and form of tourism has its own specifics. Without these features, it is impossible to automatically apply the provisions and principles of cluster theory and methodology. In this regard, cluster theory should take them into account when evaluating, analyzing, managing, government regulation, and choosing recommendations.

Unfortunately, in literature this aspect of the study and application of clusters in tourism is poorly taken into account. In most cases, clusters in tourism are studied from the point of view of the cluster organization of tourism in general. (Cluster for Competitiveness, 2009, Segarra-Oña et al., 2011)

This general approach is similar to the approach when the economy is studied as a whole, but does not have a picture by industry. It is valid for the macro level, but it is unlikely to have significant practical benefits for the management and marketing of tourism territories and destinations, which must make decisions based on an analysis of their market sector.

From this point of view, it is important to consider some features of the clustering of the cultural heritage type of tourism, as one of the main types of tourism.

Cluster concept and cluster analysis features in tourism. Cluster, by definition of the founder of cluster theory M. Porter, is a geographically concentrated group of interconnected companies, specialized suppliers, service providers, firms in some industry, as well as related organizations competing among themselves (Porter, 1998)

Porter not only proposed a new term for defining the form of organization of the industry, but also considered clusters as an object of state regulation, which contributes to improving the competitiveness of the economy. This aspect contributed to a fairly rapid popularization of clusters not only in scientific but also in administrative circles.

The following features of cluster analysis and cluster organization in tourism in general and in cultural heritage tourism form, in particular, can be distinguished.

1. Identification of potential clusters. In classical cluster theory, analysis begins with the identification of clusters. Its essence is to determine the comparative level of development of the industry within the spatial boundaries given by analytical goals. Typically, this occurs by identifying certain signs of a cluster.

In the general case, to establish whether the study area is a cluster, there are quantitative and qualitative criteria that are widely known in the literature.

The most common are the localization coefficients proposed personally by M. Porter, the founder of the cluster approach in the economy. The territorial localization of the set of economic subjects of the main and complementary industries is obviously the best identifier for the presence of a cluster.

However, in tourism, to identify signs of a cluster, you must first allocate the availability of tourism resources. They are the main condition for the development of clusters. If there are no resources, then the development of tourism in this region will be impossible (Capon, 2004).

At the same time, the territories of clusters can be tied either to the localization of tourist resources or to administrative divisions. For example, in Spain, regional clusters with the respective cores of clusters — Malaga, Cadiz, Seville, Barcelona, etc. — are traditionally distinguished. Each of them has certain regional names: Costa del Sol, Costa del Brava, etc.

Note that in some cases, tourist resources can still be created artificially. For example, in recreational tourism it is possible to create conditions for tourism by building artificial recreation places. In golf tourism, you can create conditions by building golf courses, etc. However, in the cultural-historical type of tourism, resources are created by history and a centuries-old culture, and here it is impossible to create anything artificially to attract tourists.

Thus, the identification of clusters in tourism, unlike other industries, has a peculiarity in the form of the initial identification of tourism resources, that is, the identification of potential clusters. Actually the identification of the cluster itself will be the next stage of planning cluster and study of opportunity cluster development (Ferreira, 2003).

2. Identification of tourist clusters. At this stage, it is necessary to conduct a comparative analysis of indicators characterizing the activities of tourist regions - potential clusters. The regions with the best indicators of cluster development will be determined directly from them. In other words, these indicators should show *the degree of potential realization*. The fact is that even with a huge potential, regions may not necessarily have the best indicators of cluster development, that is, they may not necessarily become clusters.

In the general case, the realization of potential is determined by both objective and subjective factors.

The objective factors hindering the realization of potential are often indicators that are independent of the organizers or management. For example, often a cultural and historical site with a good potential for tourism may be located far from the central cities. Its availability to tourists, despite its value and at-

tractiveness, turns out to be incommensurable with the costs of achieving it. (Solvell, 2003).

In this case, the competitiveness of the object is reduced due to the presence of competitive objects of the same level of attractiveness, but in a more favorable spatial position. As an example, the widespread Al-Casaba (fortress walls) in Spain, remaining from the period of the Berber conquest, can be cited. There are dozens or even hundreds of them in Spain, in almost every city and in many villages.

A significant part of them has quite high historical value and many are listed as UNESCO sights. However, tourists who arrived, for example, in Andalusia, are not able to see them all. The choice is limited to the transport and time factor in favor of Al-Casaba, most often Granada and Malaga. But at the same time, only a very small proportion of tourists will go, for example, to Iznajar, Antequera, or Ceuta, although the fortress walls in these cities are no less valuable and no less interesting. The lack of other tourist resources that enhance tourism potential, puts them in a less competitive position compared to Malaga and Granada. A tourist does not want to go 150 km to see Al-Kasaba in Isnahar, or cross Gibraltar two times to see the fortress wall in Ceuta.

Objective factors are only limitations. But both under the conditions of the existence of objective limitations and in the conditions of their absence, the degree of realization of the potential is determined by subjective factors. Such subjective factors are the state regulation of tourism and the level of tourism management in the region.

The degree of realization of the potential will be assessed by a set of cluster indicators. Such indicators are various financial indicators characterizing the profitability of tourism, quantitative indicators of tourist flows, as well as indicators of the development of related industries, such as the hotel, restaurant, retail industry, etc.

3. The cluster design stage. At this stage, measures are being developed to enhancing the clustering of tourism. As such measures can be the development of transport, hotel, restaurant infrastructure, the development of specific and highly effective marketing technologies, an increase in the package of tourist services and resources in order to increase the attractiveness of the territory.

In particular, despite the existence of restrictions in the form of transport distance, one could recommend the search for new ways to attract tourism. With the example of the mentioned city of Ceuta, the following can be suggested. In fact, crossing Gibraltar to arrive in Ceuta, the tourist is one step from

Moroccan tourist resources. The attractiveness of Ceuta can be enhanced if Ceuta's travel companies offer a short and comfortable route to Morocco. Next to Ceuta, within a radius of 50-70 km., for example, there are such beautiful cities of Morocco as Tetouan and the famous "blue city" Chefchauen. The number of tourists in Ceuta will increase significantly if one offers to visit these Moroccan cities in one tourist package.

Similarly, in the fall when the flow of tourists to Spain dries up, tourism in such destinations that did not have problems during the peak season is sharply reduced. Cities like Ronda, Cordoba are clearly experiencing a decline in tourist traffic. But tourism could be supported if the travel of tourists from cluster's nuclei — Malaga, Seville — will be supplemented with agrarian tourism. It is during the autumn and winter period that interesting rural harvesting festivals are held in the villages that surround these cities-nuclei of clusters. A tourist will not go specifically to this festival with great desire. But if you combine two proposals - a visit to Cordoba (cultural and historical tourism) and a visit to village fairs (agricultural tourism), then the flow of willing tourists will increase dramatically.

4. The stage of formation of cluster organizational structures. Clusters are not just self-organizing systems. They need not only to be identified, but also shaped, maintained and developed. As emphasized above, the fact of localization and concentration of enterprises of a particular industry in a certain territory requires the creation of effective organizational management structures within clusters and between clusters. For this purpose, organizational associations are formed in the form of corporations, consortia, and other horizontal affiliated integrated companies with multi-divisional management structures and administrative, economic, financial mechanisms of interaction and partnership.

The implementation of the above features of tourist clusters is discussed below on the example of the tourist product "Silk Road" and specifically its Central Asian segment. On the example of the Central Asian Silk Road section, the methodological techniques and problems that may appear when attempting to identify and develop clusters based on cultural and historical tourism will be considered.

The Silk Road as a tourist product and its Central Asian section. The ancient Silk Road was the first bridge between East and West and played a key role in the development of trade between the ancient empires of China, Central and West Asia, the Indian

subcontinent and Rome. But he was not just a network of trade routes. The Silk Road promoted cultural exchange between the West and the East.

The network of routes of the Great Silk Road remains one of the most famous and long routes in the world. The figure 1 shows an enlarged network of such routes.

The Central Asian Silk Road section is one of the most important sections that covers the territories of such countries as Kyrgyzstan, Kazakhstan, Turkmenistan, Tajikistan and Uzbekistan. For some of these countries, the Silk Road is the main tourism product. In these countries local microclusters in places of significant concentration of tourism and historical and cultural monuments are created. This applies for such cities as Samarkand, Bukhara, for instance.

However, so far there is no coherent cluster picture of tourism development and about problems in this area. Clusters at the statistical level have not yet been identified, there is no clear assessment of the contribution of the each territory within the route to the tourism product. Specialists also do not have the comparative characteristics of individual territories along which the Silk Road passed.

This situation greatly complicates the overall situational picture, the identification of management problems and the development of measures for the further promotion of this product in the tourism market. Perhaps this is one of the reasons that this tourism product has not yet reached a high competitive position in the market of heritage and cultural tourism and is still poorly known in the world. In most cases, it attracts those tourists who have already visited all the main destinations of cultural and heritage tourism and are looking for unexplored tourist destinations. Central Asia remains a dark spot for them and only simple curiosity pushes them to travel to the monuments of Samarkand and Bukhara.

However, even in this case, the lack of positive emotions and low organization can play a negative role, since a positive assessment of the trip after visiting it is from a marketing point of view the most important condition for the further influx of tourists. In addition, only 2-3 cities remain as famous places of interest throughout the route, while this section, according to the most conservative estimates, has at least 12 cities and 40 cultural and historical sites in them.

Thus, the relevance of the cluster development of this product is very high.

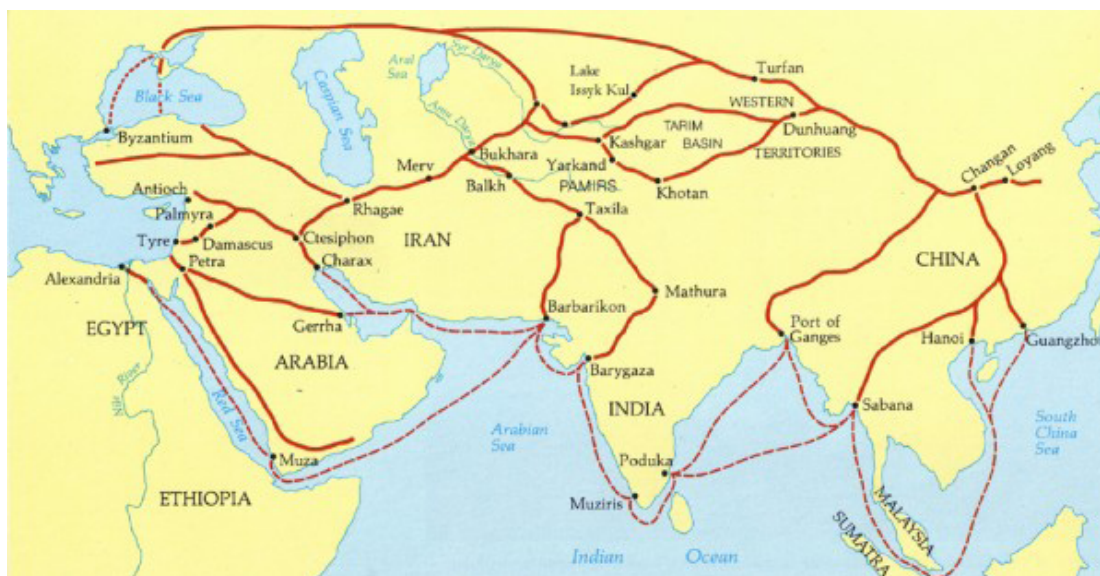


Figure 1 – Silk Road as a network of trade routes between the West and the East

<http://voices.nationalgeographic.com/2012/09/06/2012-issyk-kul-expedition-search-for-a-sunken-palace/silkroadmap/>

Materials and Methods

1. Identification of cluster potential in cultural and historical tourism

As mentioned above, the potential of cultural heritage tourism in a given region is objectively set in the form of the presence of cultural and historical objects. In essence, the available cultural and historical objects create a certain potential for the development of cultural heritage tourism. It is obvious that it is impossible to compare the potential of attraction and the scientific value of the Colosseum, or the Pantheon in Rome with the value and attractiveness of a small caravanserai in the mountains of Kyrgyzstan or the steppes of Kazakhstan.

However, the realization of the potential and the cluster level of development are ultimately determined by the quality of management and marketing, infrastructure development in the form of hotels, roads, restaurants, etc. For cultural heritage tourism it is important that this analysis allows us to estimate the level of use of tourism resources. Non-use of potential may indicate problems in the management of the tourism area and the presence of untapped reserves.

However, the methodological problem here is to determine the potential. Even to determine the number of cultural and historical sites, it is necessary to determine the criteria for selection. The potential of cultural heritage tourism will depend on this figure.

Speaking about the Central Asian section of the Silk Road, it should be noted that criteria are not used here. Each of the countries of Central Asia de-

termines the value of historical and cultural monuments according to own criteria. Therefore, it turns out that in each of these countries there are thousands of sites that are considered cultural and historical monuments. Uzbekistan names 7,000 historical monuments on its territory, Kazakhstan - about 4,000, etc. Under these conditions it is difficult to determine what is meant by them. Often these figures are voiced by archaeologists and other scientists.

Such an approach - an approach from the point of view of historians or archaeologists is absolutely unsuitable in tourism. In tourism, a customer-oriented approach should be applied. And the main customers are tourists. From this point of view, the attractiveness of cultural and historical sites can be judged by the client as a tourist. Only a tourist can say whether this object is interesting for him or not.

Thus, one of the criteria for assessing the number of cultural heritage sites can be the selection criterion for the attendance of these sites.

Another criterion, however, may be the international assessment of the cultural and historical significance of a particular object carried out by special methodologies and already available. Such estimates are made, for example, by UNESCO. Inclusion in the UNESCO list automatically means that the object has a high cultural and historical value. It has, in other words, the potential for tourists to visit it. The number of such objects is always limited and the task of management in cultural and historical tourism is to attract and acquaint humanity with such historical and cultural monuments.

2. Indicators of tourism development

Implementation of potential should be calculated in relation to the number of cultural and historical sites. In this case we are talking about indicators of cluster development. Therefore, indicators should include indicators, for example, indicators of the tourism multiplication action, indicators of the development of tourism infrastructure, etc.

These indicators will testify to the level of tourism management.

Often, in practice, one or two cultural and historical sites provide for the development of tourism to a much stronger extent than all remaining sites taken together. This happens not only as a result of lesser value of objects, but poor management. For example, in Samarkand, such an object as Registan can provide the number of tourists much more than all the other objects combined. The management factor here plays a minor role. But Registan provides the cluster effect, since multiplicatively increases interest in other objects in the area. Management must skillfully develop other destinations within the range of fast transport accessibility. This just does not happen in practice.

This effect is typical in general in the motivational scheme of this type of tourism. For example, the Alhambra in Granada (Spain) is visited mainly for the sake of the Nasrid Palace. There are long lines to visit this palace, and the tickets indicate a special time to enter in order to regulate the flow of tourists. But using the factor of the palace, the management skillfully develops tourism in the region as a whole.

As follows from the extensive literature in statistical cluster analysis, such tools are used as the index method, the analysis of absolute, relative and average values, methods of grouping and comparison. With regard to tourism, there are also systems of specific indicators, for example, the dynamics and structure of the tourist flow, the average number of days a tourist staying in the territory, the income received by enterprises of the tourism sector (total and per tourist), the number of employees employed in the tourism sector etc.

However, in this case there is a methodological task of highlighting the role of a particular type of tourism from all of these indicators. For example, the tourism region of the Costa del Sol and certain micro-sites have dozens of types of tourism. For example, in the Marbella region, beach tourism, urban tourism, golf tourism, water tourism (kayaking), wine tourism, cultural and heritage tourism are widely developed. It is very difficult to determine the contribution of each type of tourism to the creation of a cluster.

Similarly, in the Central Asian region, for example, there is the Avaza region in Turkmenistan, which is popular for the locals as a place for recreation and beach tourism. Given the general closeness of the country from foreign tourism, we can certainly assume that this region will be a tourism cluster, but the share of cultural heritage tourism in it is zero. Similarly, in Kyrgyzstan, Lake Issyk Kul is an obvious cluster, while cultural heritage tourism in the country is very poorly developed for various reasons.

The problem would be easily solved if there were statistics on the types of tourism. But modern tourism statistics do not keep separate records of tourists by types of tourism. Most often for statistics, the category of a tourist and everything related to him is important: the average time spent in the tourism zone, the average amount of expenses for the period of stay in the territory, etc.

This methodological problem can be solved in several ways.

In the first case, the territory can still upgrade tourism statistics by type of tourism. In particular, if we have data on employment and income derived from a particular type of tourism, then it would be easy to determine the contribution of each type of tourism. However, this problem requires considerable time and organizational efforts to transform statistics. The statistical agencies are poorly keeping statistics on tourism, and it is an unrealistic task to demand statistics in terms of the types of tourism.

Another way is simple data clearance. In particular, if we are talking about the allocation of clusters of cultural heritage tourism, then exclude and not take into account the territory that does not have cultural and historical monuments. Indeed, in this case, it clearly follows that tourism in the region develops due to other factors and has other source of development.

However, this option, although it seems more methodologically pure, is in fact also undesirable. On the one hand, such territories in a country where there are cultural heritage objects may turn out to be few. On the other hand, the analysis should indicate the development of tourism in general. But at the same time, the analysis should assess the impact of cultural heritage tourism and identify the contribution of this type of tourism to the general indicators of tourism.

The third seemingly simple way to solve the problem is to endow the contribution of each type of tourism to the general indicators by giving each of them a relative weight. In this case, if we want to highlight the "contribution" of cultural heritage tour-

ism, experts just give specific weight to this type of tourism in tourism statistics.

However, the disadvantage of this method is excessive subjectivity and controversial assessment. This method should not be used if there are other more or less adequate ways to assess the contribution of types of tourism.

The most appropriate method may be to relate all indicators of the cluster development of tourism to the number of cultural and historical sites.

Such an approach will comprehensively indicate the effectiveness and impact of cultural and historical sites, that is, the realization of the potential of the region in the development of cultural heritage tourism.

So grouping of cluster indicators can be carried out in the following groups.

1st group of indicators - Concentration of tourist facilities - potential competitiveness of the region;

P1 - The number of unique historical, architectural and cultural monuments in the region that are the heritage of world culture and civilization, listed in the UNESCO list

P2 - The number of monuments of cultural and historical tourism of considerable value, having a degree of recovery of not more than 50%

The second group of indicators - the concentration of the industry in the region by value and quantity indicators - the realization of potential

P3. The localization rate of tourism by employment is the ratio of the proportion of people employed in the industry to the total number of people employed in the region with the share of the same industry in the total number of people employed in the country as a whole.

P4. The coefficient of localization of income - the ratio of the proportion of income from tourism in the region's GRP with the proportion of income from tourism in the total GRP of the country

P5 Coefficient of localization of income from foreign tourists - the ratio of the share of income from foreign tourists in the income from tourism in the region with the share of income from foreign tourists in the total income from tourism in the country

P6. The coefficient of localization by the number of tourists per 1 object of cultural and historical tourism is the ratio of the number of tourists in the region per 1 object of a historical monument in the region to the number of tourists per 1 object of a historical monument in the whole country

P7 The coefficient of localization by the number of foreign tourists per 1 object of cultural heritage tourism is the ratio of the number of foreign tourists in the region per 1 object of a historical monument

in the region to the number of foreign tourists per 1 object of a historical monument in the whole country

P8. The coefficient of localization by the number of tourists per historical site listed on the UNESCO list is the ratio of the number of tourists in the region per one historical site listed on the UNESCO list to the number of tourists in the country per one historical monument listed on the UNESCO list across the country

P9 The coefficient of localization by the number of foreign tourists on one historical object listed on the UNESCO list is the ratio of the number of foreign tourists in the region per 1 historical object listed on the UNESCO list to the number of foreign tourists in the country per 1 historical monument listed on UNESCO in the whole country

The 3rd group of indicators - tourism infrastructure and tourism subjects

P10 - The number of hotel accommodations for 1 object of cultural heritage tourism;

P11 - The number of active SME in the field of tourism per 100,000 economically active population of the region;

4th group of indicators - the attractiveness of tourism in the region;

P12 - The share of investment in tourism in the total investment in the region;

P13 - The proportion of tourists visiting tourism facilities twice or more;

5th group of indicators - tourism competitiveness

P14- The number of tourists staying for 3 days or more;

P15- Percent of external tourism in the total volume of tourism;

P16- The average amount of the check, left by a tourist in the region to the average amount of the check in the country;

6th group of indicators - evaluation of the multiplicative cluster effect (development of the value chain);

P17 - Average annual (for the last 5 years) generation of the number of jobs in the field of transport services to the growth rate of the number of jobs in the region as a whole;

P18 - The average annual generation of the number of jobs in the catering industry to the growth rate of the number of jobs in the region as a whole;

P19 - The average annual generation of the number of jobs in the trade sector to the growth rate of the number of jobs in the region as a whole;

These indicators were calculated for each country of the Central Asian section of the Silk Road - Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan, Turkmenistan (Table 1)

Results and discussion

1. Data collection and analysis

The table 1 presents data from the analysis of indicators of tourism development in each of the countries of Central Asia. Data analyzed by region according to administrative division.

Data collection was the hardest part of this research, as some countries strictly regulate the availability of statistical data and published materials are available in limited editions. As a result of the tremendous work, a significant part of the data was drawn from statistical materials during 2016. However, some missing figures were calculated by indirect data from articles in the public domain.

2. Identification of clusters

Based on the selected indicators, indicators were calculated for each republic of Central Asia. Calculations were made using the SPSS package. The figures show the results of calculations.

The essence of cluster analysis is reduced to the unification of regions in fairly large groups according to the degree of their similarity. The splitting of multiple clustering objects into clusters occurs on the basis of a mathematical classification quality criterion (Gibbons et al., 2014). The clustering objects in this case are the regions. In general, the criterion for the quality of clustering should meet the following requirements:

- a) within groups, objects must be closely interconnected;
- b) objects of different groups must be far from each other;
- c) all other things being equal, the distribution of objects in groups should be uniform.

At the same time, in cluster analysis, the grouping of objects is performed not by a single parameter, but by a whole set of attributes. The advantage of cluster analysis is the absence of any restrictions on the type of objects under consideration, the absence of a priori assumptions, which allows its use for multidimensional observations. This means that as such objects objects of the most diverse nature can be used from answers in sociological studies to quantitative values.

Data types in cluster analysis can be interval, frequency, binary, etc. Variables should be measured only in comparable scales.

The clustering of the regions of the Central Asian region of the Silk Road was carried out by countries separately. Clustering was performed using the Ward's method (Solvell et.al., 2009). This method provides maximum accuracy and the division of the aggregate of regions into the most ho-

mogeneous from a statistical point of view of the group.

The square of the Euclidean distance was taken as the objective function, that is, the criterion of similarity and difference of clusters. This is the most common method, the essence of which is that the distance between two points i and j on the plane is calculated as an intragroup sum of squares using the formula:

$$D_{ij} = \sqrt{(x_i - x_j)^2 + (y_i - y_j)^2}$$

At each stage, these two clusters are combined, which leads to a minimal increase in the objective function.

The calculations were performed using the SPSS applied statistical analysis package.

3. Map clustering

Since the selected indicators are dissimilar necessary to make their standardization.

The software package SPSS offers several possibilities for standardization. Is the most suitable values of z-transform, which leads to standardization of all variables to a single band.

Below are consistent across countries data cluster calculations. The results of the cluster analysis are presented:

- 1) a summary report on observations;
- 2) matrix proximity (similarity);
- 2) the order of the table agglomeration;
- 3) The table belonging to the cluster;
- 4) the tree diagram (dendogram).

Proximity matrix provides information about the similarity or difference in terms of tourism development in the regions. The lower the value, the higher the degree of similarity of the two regions and combinations in the cluster. Conversely, the more appropriate value proximity matrix, the greater the differences between the two areas (Sarik, 2011).

The tables combining each line describes the actual step of forming clusters.

A very important issue in the behavior of the cluster analysis is the problem of choosing the optimal number of clusters. Quite often, the criterion of association (number of clusters) becomes a change in the relevant functions (Gidelines for cluster, 2013). In our case, as has already been said - it is the square of the Euclidean distance.

Process grouping is performed as a consistent increase in the minimum value of the criterion. Sharp jumps integral indicators indicate the need for exceptions to this cluster and the beginning of the formation of the next.

Table 1 - Initial data for clustering regions

	The concentration of tourism facilities		Implementation of potential							Tourism infrastructure		Tourism attractions		Competitiveness of tourism			Multiplicative cluster effect		
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19
UZBEKISTAN																			
Andijan Region	1	1	0,17	0,1	0,11	0,16	0,19	0,18	0,15	140	0,24	0,04	0,01	0,01	0,01	0,1	0,14	0,65	0,32
Bukhara Region	7	22	1,9	2,8	2,9	2,1	2,84	2,3	2,9	145	12,8	0,31	0,22	0,12	0,39	3,8	0,8	2,5	2,9
Fergana Region	2	12	1,1	1,23	0,7	1,9	0,72	0,68	1,1	30	1,18	0,11	0,06	0,02	0,12	1,1	0,5	0,8	0,7
Jizzakh Region	1	1	0,24	0,29	0,11	0,21	0,19	0,17	0,06	85	0,56	0,05	0,01	0,01	0,01	0,1	0,4	0,8	0,9
Xorazm Region	4	17	0,8	0,64	0,9	0,71	0,85	1,02	1,1	71	4,31	0,18	0,06	0,06	0,17	1,8	1,7	2,1	1,9
Namangan Region	2	4	0,19	0,12	0,05	0,14	0,18	0,23	0,11	31	0,18	0,06	0,01	0,01	0,01	0,2	0,6	1,1	0,9
Navoiy Region	2	8	0,28	0,19	0,12	0,23	0,02	0,21	0,31	56	0,98	0,04	0,01	0,01	0,02	0,1	0,9	0,6	0,7
Qashqadaryo Region	1	6	0,36	0,49	0,79	0,57	0,19	0,37	0,73	77	0,91	0,13	0,05	0,03	0,18	0,8	1,3	1,4	1,7
Karakalpakstan	-	-	0,19	0,11	0,12	-	-	-	-	-	0,4	0,01	0,01	0,01	0,01	0,05	0,9	0,7	0,4
Samarqand Region	1	17	1,9	2,4	3,1	2,87	3,29	2,9	3,8	178	8,04	0,38	0,27	0,17	0,41	3,2	2,8	3,5	2,4
Sirdaryo Region	-	-	0,11	0,08	0,03	0,18	0,04	-	-	-	0,89	0,01	0,01	0,01	0,01	0,07	0,6	0,3	0,7
Surxondaryo Region	3	8	0,28	0,33	0,13	0,34	0,27	0,41	0,28	33	0,29	0,14	0,01	0,01	0,06	0,09	0,6	1,3	1,1
Tashkent Region	2	4	0,46	0,27	0,96	0,32	0,87	0,78	0,48	43	0,33	0,07	0,01	0,01	0,03	0,2	1,3	1,6	2,1
Tashkent	-	7	1,67	2,9	2,8	3,11	2,08	-	-	426	127,11	0,03	0,31	0,23	0,38	3,6	1,3	2,3	1,8
TURKMENISTAN																			
Aşgabat	-	-	2,8	2,4	2,3	-	-	-	-	-	1,84	0,18	0,31	0,18	0,26	3,8	0,9	1,2	1,8
Ahal Province	1	2	0,52	0,62	0,45	0,9	1,1	1,2	1,15	100	0,91	0,11	0,04	0,01	0,09	0,3	0,4	0,9	1,1
Balkan Province (Abaza_	-	-	0,9	1,8	0,1	-	-	-	-	-	1,42	0,51	0,28	0,39	0,01	0,2	1,1	1,5	1,7
Daşoguz Province	1	1	1,1	1,7	0,9	0,95	1,26	1,08	1,21	110	0,38	0,09	0,17	0,04	0,06	0,3	0,8	1,1	1,2

Continuation of table 1

	The concentration of tourism facilities		Implementation of potential								Tourism infrastructure		Tourism attractions		Competitiveness of tourism			Multiplicative cluster effect		
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	
Lebab Province	-	-	0,03	0,01	0,02	-	-	-	-	-	1,91	0,02	0,01	0,04	0,01	0,01	0,3	0,7	0,9	
Mary Province	1	1	0,8	1,2	1,5	1,12	0,95	1,15	0,86	40	0,18	0,19	0,03	0,06	0,06	1,3	1,2	1,3	1,61	
TADJIKISTAN																				
Sughd (Khujand, Пенжикент)	1	5	1,8	2,3	1,8	0,5	1,5	2,0	2,4	40	0,1	0,08	0,02	0,04	0,09	0,2	0,2	1,2	1,1	
Region of Republican Subordination	-	1	0,2	0,3	0,9	0,4	0,6	-	-	10	0,12	0,03	0,02	0,07	0,05	0,1	0,2	0,3	0,5	
Khatlon	-	5	0,6	0,42	0,6	0,4	1,17	-	-	32	0,1	0,12	0,03	0,04	0,18	0,24	0,8	0,7	1,1	
Gorno-Badakhshan	-	-	0,2	0,9	1,3	-	-	-	-	-	0,2	0,03	0,04	0,07	0,21	0,13	0,9	0,2	0,4	
Dushanbe	-	-	1,3	1,9	1,4	-	-	-	-	-	12,3	0,21	0,39	0,42	0,27	3,7	1,4	1,6	1,4	
KYRGYZSTAN																				
Biskek	-	-	1,2	2,1	1,2	-	-	-	-	-	28,6	0,19	0,29	0,21	0,17	2,9	1,5	1,7	1,4	
Batken	-	2	0,2	0,1	0,28	0,1	0,05	-	-	4	0,5	0,02	0,05	0,06	0,06	0,04	0,6	0,3	0,2	
Chu	3	9	0,1	1,4	0,2	0,6	1,6	1,0	1,0	8	0,28	0,07	0,06	0,19	0,19	0,46	0,9	1,3	1,2	
Jal-al-abad	-	2	0,1	0,3	0,35	0,22	0,4	-	-	21	0,32	0,09	0,24	0,08	0,23	0,51	0,7	1,4	1,52	
Naryn (Tash Rabat)	-	2	0,1	0,2	0,02	0,07	0,05	-	-	5	0,27	0,03	0,05	0,04	0,07	0,28	0,9	0,5	0,7	
Osh	-	5	0,2	0,3	0,3	0,7	0,83	-	-	16	0,61	0,19	0,19		0,11	1,1	1,2	1,3	1,4	
Talas	-	2	0,05	0,1	0,23	0,2	0,38	-	-	17	0,15	0,02	0,06	0,06	0,04	0,05	0,6	0,53	0,49	
Issyk-Kul	-	-	3,0	3,8	2,4	-	-	-	-	-	2,1	0,48	0,38	0,48	0,42	3,9	1,3	1,7	1,9	

	The concentration of tourism facilities		Implementation of potential							Tourism infrastructure		Tourism attractions		Competitiveness of tourism			Multiplicative cluster effect		
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19
Osh sity	-	6	0,2	0,9	1,9	0,35	0,92	-	-	19	2,67	0,13	0,19	0,16	0,18	1,4	1,3	1,1	1,4
KAZAKSTAN																			
Akmolinskaya	-	-	0,1	0,7	0,15	-	-	-	-	-	6,1	0,29	0,06	0,01	0,03	0,81	3,9	0,4	0,7
Aktjubinskaya	-	-	0,03	0,01	0,01	-	-	-	-	-	8,7	0,02	0,04	0,01	0,01	0,23	0,3	0,2	0,4
Almatinskaya	3	3	0,9	1,2	0,21	0,23	0,12	0,2	0,1	764	1,75	0,08	0,03	0,01	0,03	0,13	1,4	0,4	1,6
Atyrauskaya	-	-	0,02	0,02	0,01	-	-	-	-	-	12,3	0,01	0,02	0,01	0,01	0,16	1,2	0,3	0,4
Vostochno-Kazakstanskaya	-	-	0,4	0,7	0,12	-	-	-	-	-	4,9	0,11	0,08	0,18	0,01	0,11	0,7	0,3	0,5
Jambilskaya	6	7	0,1	0,3	0,23	0,17	0,05	0,3	0,1	41	1,9	0,04	0,02	0,01	0,01	0,16	0,4	0,7	0,65
Karagandinskaya	-	-	0,3	0,35	0,18	-	-	-	-	-	13,1	0,04	0,03	0,01	0,01	0,12	1,1	0,6	0,5
Kostanayskaya	-	-	0,02	0,04	0,01	-	-	-	-	-	1,3	0,01	0,02	0,01	0,01	0,11	0,5	0,3	0,2
Kzil Ordinskaya	-	-	0,05	0,11	0,13	-	-	-	-	-	3,1	0,02	0,02	0,01	0,01	0,18	0,8	0,4	0,34
Mangistauskaya	-	2	0,19	0,58	0,16	0,05	0,4	-	-	480	2,6	0,02	0,05	0,11	0,01	0,27	0,5	0,4	0,3
Severo-Kazakstanskaya	-	-	0,03	0,05	0,02	-	-	-	-	-	2,3	0,02	0,01	0,01	0,01	0,18	0,3	0,3	0,28
Palodarskaya	-	-	0,04	0,32	0,04	-	-	-	-	-	3,0	0,02	0,02	0,01	0,01	0,17	0,4	0,5	0,3
Yujino-Kazakstanskaya	1	2	1,23	1,4	0,18	0,9	0,5	3,1	3,2	653	2,8	0,23	0,08	0,36	0,03	0,39	1,4	1,6	1,3
Zapadno-Kazakstanskaya	-	-	0,06	0,12	0,03	-	-	-	-	-	2,3	0,02	0,01	0,01	0,01	0,16	0,2	0,23	0,31
Almaty sity	-	-	-	-	-	-	-	-	-	-	27,8	0,32	0,14	0,38	0,08	3,9	2,9	2,6	3,5
Astana	-	-	1,1	1,5	4,9	-	-	-	-	-	30,4	0,14	0,32	0,36	0,15	4,2	3,7	3,2	3,4

Test results are shown in the cluster maps of each republic (figures 2-6). On maps marked increase in the level of clustering in color. The maximum level of clustering is marked dark color.

Table 2 - The order of agglomeration (clusters) in Tajikistan

Stage	Combined cluster		Coefficients	Stage cluster first appearance		Next stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	2	4	5,178	0	0	2
2	2	3	14,431	1	0	3
3	1	2	41,973	0	2	4
4	1	5	76,000	3	0	0

Table 3 - The order of agglomeration (clusters) in Turkmenistan

Stage	Combined cluster		Coefficients	Stage cluster first appearance		Next stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	1	2	14,278	0	0	2
2	1	3	36,000	1	0	0

Table 4 - Proximity matrix of Uzbekistan*

Case	Euclidean distance squared										
	1:Andj	2:Bkhara	3:Ferg	4:Jizak	5:Xrzm	6:Nmngn	7:Nvyi	8:Qsqdr	9:Smarq	10:Srhdr	11:Tskt
1:Andj	,000	114,844	17,828	1,853	30,708	9,433	5,334	11,541	129,954	9,432	13,995
2:Bkhara	114,844	,000	67,456	108,779	43,291	101,041	103,078	76,870	25,747	90,234	84,891
3:Ferg	17,828	67,456	,000	13,105	13,351	9,991	9,788	9,466	83,871	8,456	12,549
4:Jizak	1,853	108,779	13,105	,000	24,306	5,152	2,292	6,725	124,165	4,575	7,201
5:Xrzm	30,708	43,291	13,351	24,306	,000	16,577	18,308	9,416	57,969	13,322	11,914
6:Nmngn	9,433	101,041	9,991	5,152	16,577	,000	1,669	7,748	121,571	1,961	7,177
7:Nvyi	5,334	103,078	9,788	2,292	18,308	1,669	,000	6,273	120,932	2,518	6,542
8:Qsqdr	11,541	76,870	9,466	6,725	9,416	7,748	6,273	,000	83,390	5,344	3,728
9:Smarq	129,954	25,747	83,871	124,165	57,969	121,571	120,932	83,390	,000	111,292	96,374
10:Srhdr	9,432	90,234	8,456	4,575	13,322	1,961	2,518	5,344	111,292	,000	4,675
11:Tskt	13,995	84,891	12,549	7,201	11,914	7,177	6,542	3,728	96,374	4,675	,000

This is a dissimilarity matrix*

Table 5 - The order of agglomeration (clusters) in Uzbekistan

Stage	Combined cluster		Coefficients	Stage cluster first appearance		Next stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	6	7	,835	0	0	3
2	1	4	1,761	0	0	7
3	6	10	2,976	1	0	5
4	8	11	4,840	0	0	5
5	6	8	10,454	3	4	7
6	3	5	17,129	0	0	9
7	1	6	24,557	2	5	9
8	2	9	37,430	0	0	10
9	1	3	51,124	7	6	10
10	1	2	190,000	9	8	0

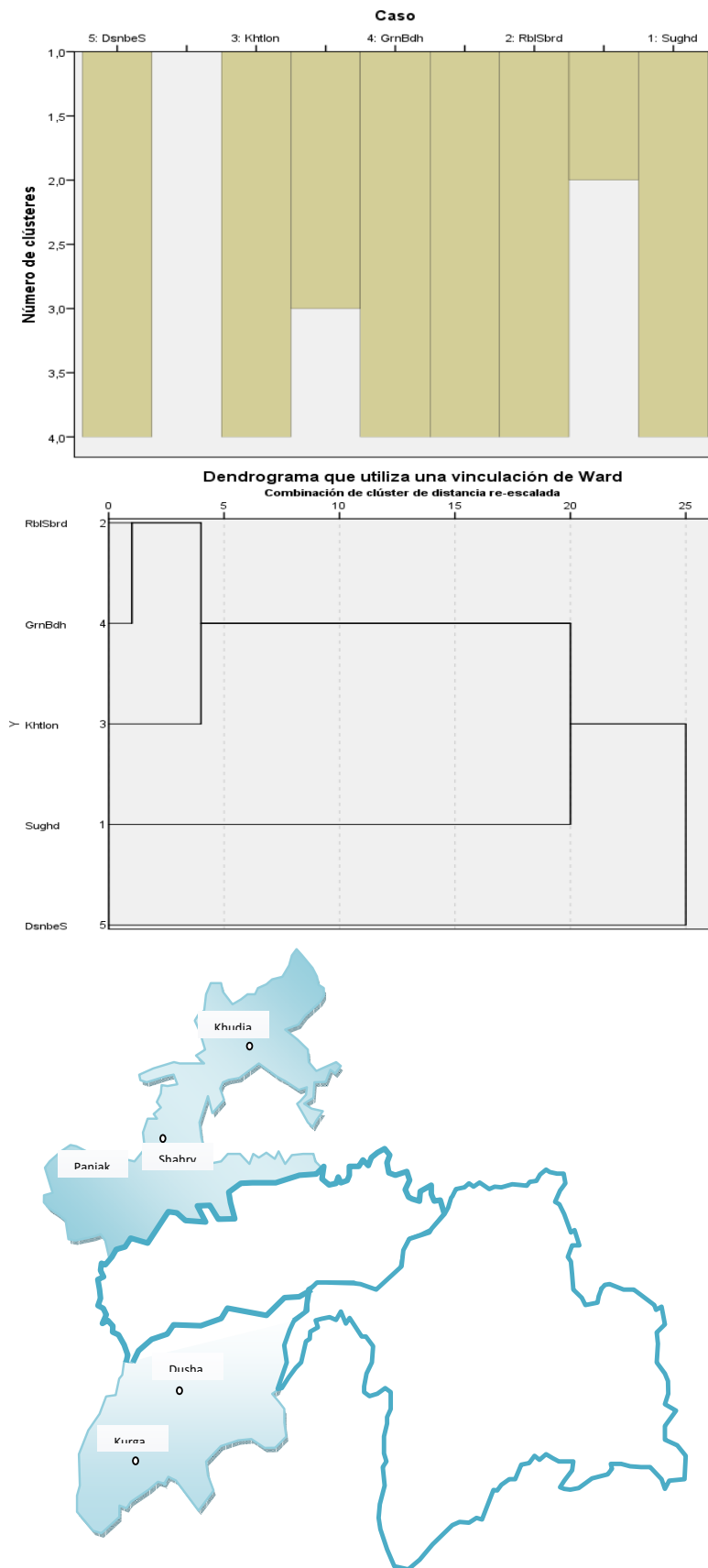


Figure 2 – Map clustering of Tajikistan



Figure 3 – Map clustering of Turkmenistan

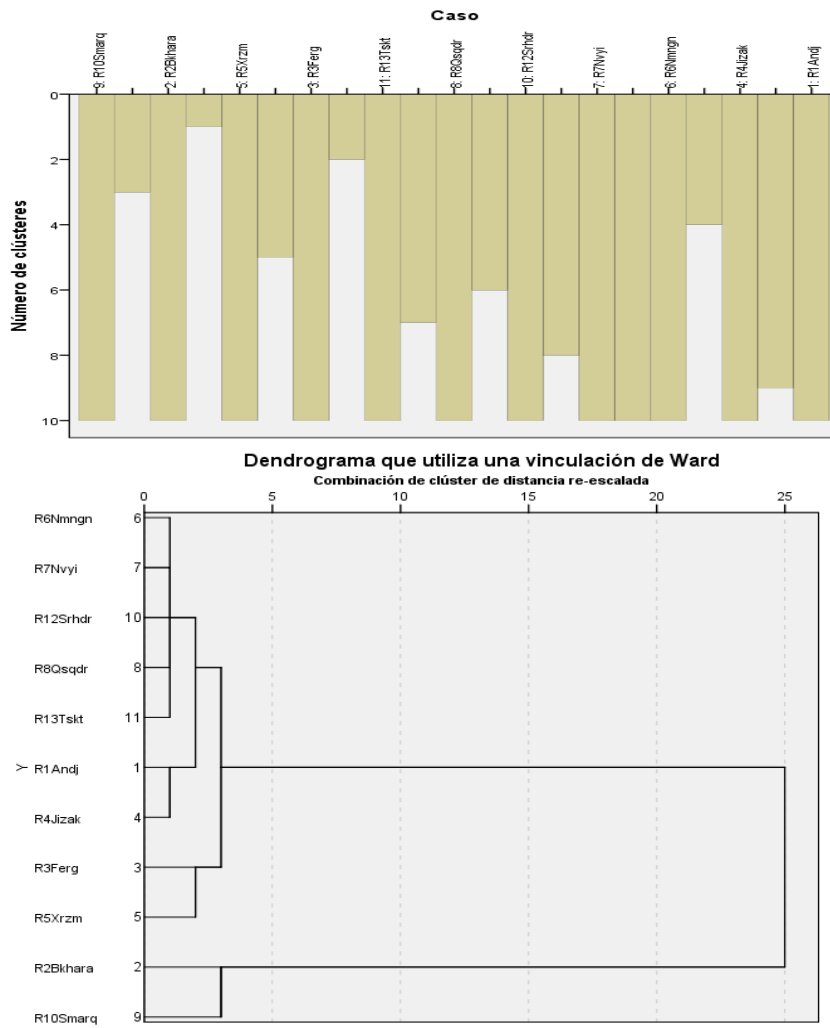


Figure 4 - Map clustering of Uzbekistan

Table 6 - Proximity matrix of Kyrgyzstan *

Case	Euclidean distance squared								
	1:Naryn	2:Batken	3:Chu	4:Talas	5:Osh	6:Oshsity	7:Jllbad	8:Bshkek	9:Issykkul
1:Naryn	,000	1,974	51,295	3,851	19,009	22,057	14,898	36,814	79,505
2:Batken	1,974	,000	55,648	3,490	25,877	28,347	19,928	45,315	88,003
3:Chu	51,295	55,648	,000	49,462	37,774	39,905	46,349	74,663	102,741
4:Talas	3,851	3,490	49,462	,000	17,473	20,463	11,997	47,069	90,038
5:Osh	19,009	25,877	37,774	17,473	,000	7,914	10,055	35,811	68,461
6:Oshsity	22,057	28,347	39,905	20,463	7,914	,000	11,292	28,238	50,692
7:Jllbad	14,898	19,928	46,349	11,997	10,055	11,292	,000	32,565	59,424
8:Bshkek	36,814	45,315	74,663	47,069	35,811	28,238	32,565	,000	29,603
9:Issykkul	79,505	88,003	102,741	90,038	68,461	50,692	59,424	29,603	,000

This is a dissimilarity matrix*

Table 7 - The order of agglomeration (clusters) in Kyrgyzstan

Stage	Combined cluster		Coefficients	Stage cluster first appearance		Next stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	1	2	,987	0	0	2
2	1	4	3,105	1	0	6
3	5	6	7,062	0	0	4
4	5	7	12,859	3	0	6
5	8	9	27,660	0	0	8
6	1	5	51,239	2	4	7
7	1	3	86,095	6	0	8
8	1	8	152,000	7	5	0

Table 8 - Proximity matrix of Kazakhstan *

Case	Squared Euclidean Distance															
	Akmol	Aktyub	Almskaya	Atyrau	VKO	Jambyl	Krgnsky	Kostany	Kzordsk	Mgstskya	SKO	Pvdrskya	YKO	ZKO	Almaty	:Astana
Akmol	,000	18,281	30,784	15,437	12,672	44,053	13,257	18,268	15,702	27,381	18,589	16,802	88,625	18,755	36,398	83,444
Aktyub	18,281	,000	29,644	,806	5,384	29,536	1,838	,825	,722	13,807	,677	,960	97,167	,715	52,623	107,968
Almskaya	30,784	29,644	,000	29,689	22,486	24,887	24,392	29,160	27,471	16,600	28,979	26,532	57,099	28,183	69,565	98,286
Atyrau	15,437	,806	29,689	,000	6,413	30,569	1,138	1,837	1,203	14,891	1,808	1,902	97,477	1,983	49,465	104,349
VKO	12,672	5,384	22,486	6,413	,000	32,115	3,841	5,731	4,900	12,955	5,649	4,270	78,455	5,246	45,443	87,893
Jambyl	44,053	29,536	24,887	30,569	32,115	,000	30,261	28,919	28,635	30,313	28,796	28,370	93,537	28,734	80,484	131,581
Krgnsky	13,257	1,838	24,392	1,138	3,841	30,261	,000	3,073	1,990	13,891	2,903	2,087	88,744	2,831	46,449	92,775
Kostany	18,268	,825	29,160	1,837	5,731	28,919	3,073	,000	,177	13,361	,075	,417	97,105	,153	58,380	114,475
Kzordsk	15,702	,722	27,471	1,203	4,900	28,635	1,990	,177	,000	13,024	,237	,300	94,629	,317	54,173	107,998
:Mgstskya	27,381	13,807	16,600	14,891	12,955	30,313	13,891	13,361	13,024	,000	13,395	12,415	67,134	13,135	63,893	108,981
:SKO	18,589	,677	28,979	1,808	5,649	28,796	2,903	,075	,237	13,395	,000	,361	96,756	,038	57,533	114,394
:Pvdrskya	16,802	,960	26,532	1,902	4,270	28,370	2,087	,417	,300	12,415	,361	,000	93,089	,297	55,568	107,997
:YKO	88,625	97,167	57,099	97,477	78,455	93,537	88,744	97,105	94,629	67,134	96,756	93,089	,000	95,966	107,591	130,593
:ZKO	18,755	,715	28,183	1,983	5,246	28,734	2,831	,153	,317	13,135	,038	,297	95,966	,000	58,280	114,101
:Almaty	36,398	52,623	69,565	49,465	45,443	80,484	46,449	58,380	54,173	63,893	57,533	55,568	107,591	58,280	,000	45,309
:Astana	83,444	107,968	98,286	104,349	87,893	131,581	92,775	114,475	107,998	108,981	114,394	107,997	130,593	114,101	45,309	,000

This is a dissimilarity matrix

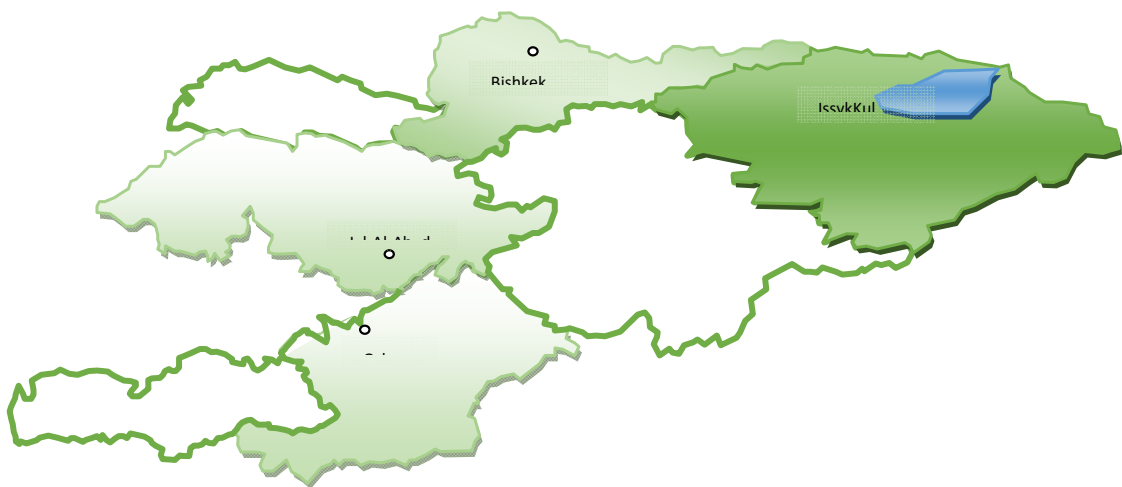
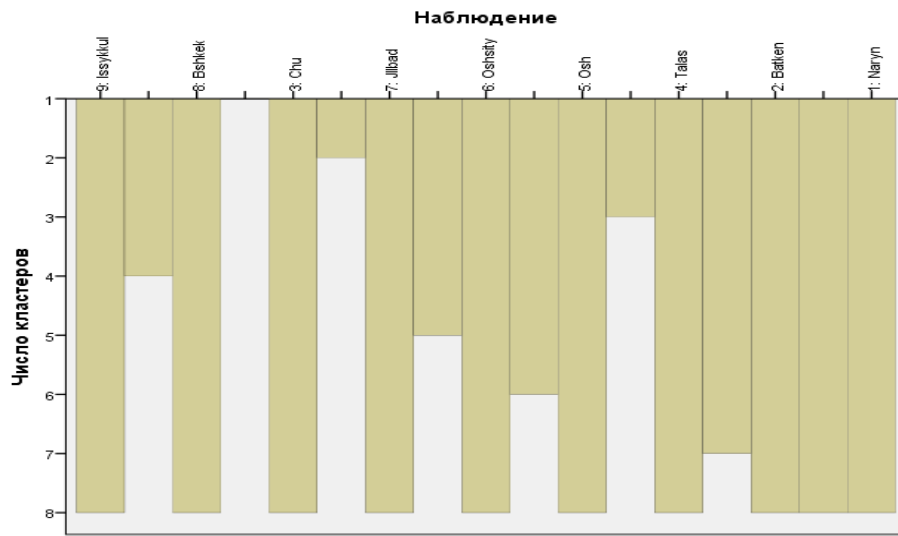


Figure 5 - Map clustering of Kyrgyzstan

Table 9 - The order of agglomeration (clusters) in Kazakhstan

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	11	14	,019	0	0	2
2	8	11	,089	0	1	4
3	9	12	,239	0	0	4
4	8	9	,475	2	3	7
5	2	4	,877	0	0	6
6	2	7	1,735	5	0	7
7	2	8	3,959	6	4	8
8	2	5	8,123	7	0	10
9	3	10	16,423	0	0	11
10	1	2	30,387	0	8	13
11	3	6	46,020	9	0	13
12	15	16	68,674	0	0	14
13	1	3	101,749	10	11	15
14	13	15	173,592	0	12	15
15	1	13	285,000	13	14	0

4. Spatial design clusters

As follows from the analysis, in the Central Asian segment of the Silk Road, the existing prototypes of clusters are of a rudimentary nature and cannot yet be called fully clusters. The only exceptions are Samarkand and Bukhara microclusters. Other regions that have sufficiently attractive tourist resources cannot boast of a high level of tourism development and are far behind these two leading regions.

Most often, the “narrow” places for the development of clusters are

- weak development of the hotel sector and lack of space during periods of high demand;
- poor transport development, leading to the shortage of tourism resources in the high season;
- undeveloped transport infrastructure, including low capacity of stations and terminals, lack of good roads.

The most significant problem for the development of cultural heritage tourism in the region of the Central Asian Silk Road is the lag in the development of transport infrastructure and roadside service. In all countries of Central Asia there are no budgetary messages in the form of budget airlines. Bus services are often not equipped with modern buses with a high level of comfort.

Low bandwidth of stations and terminals, inconsistency of infrastructure with international standards is another problem. For example, in Russia,

almost all large cities are connected with many cities of the world, which allows attracting tourists to them. In the centers of microclusters of Central Asia, with the exception of Samarkand, there are either no major airports or they are not loaded due to the lack of international flights. In particular, the airports of Shymkent, Khiva, Urgench remain unloaded, which indicates their low competitiveness as tourist destinations.

For this reason, the occupancy rate of hotels is still low, and the prices for their services are quite high. So, even in the high season, the occupancy rate of Almaty hotels reaches only 60% and decreases to 30% in winter.

Some countries of Central Asia are still characterized by a very low level of development of communications, Internet technologies, banking technologies, and currency exchange. In particular, this applies to Uzbekistan, Tajikistan, and Turkmenistan.

For the development of cultural and historical tourism, in addition to the availability of unique tourism resources, a convenient geographical location and infrastructure, a social factor is important. It is about the general social atmosphere in the region, the hospitality and friendliness of the local population to foreign tourists, foreign investments. From this point of view, these countries have the following obstacles to the development of tourism:

- lack of qualified personnel in the industry;

Cluster approach in cultural heritage tourism

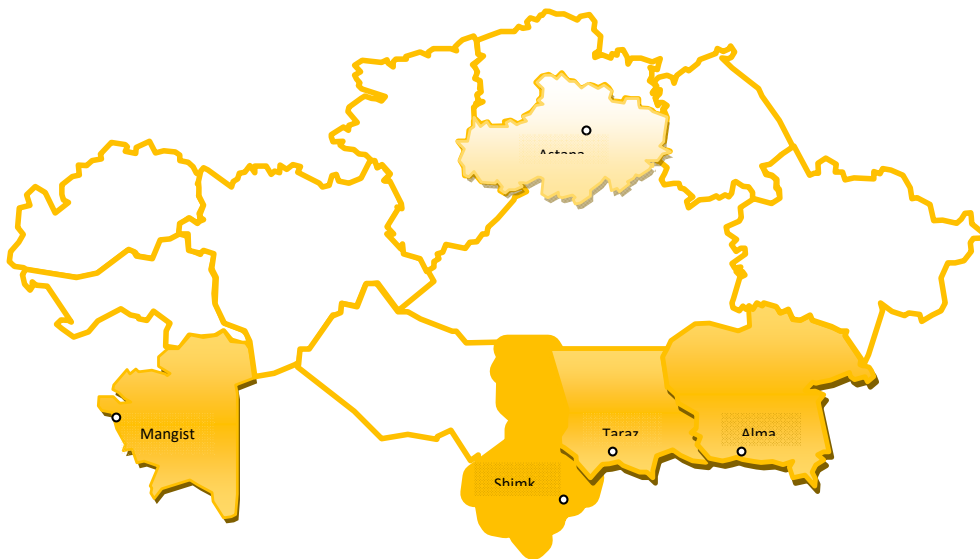
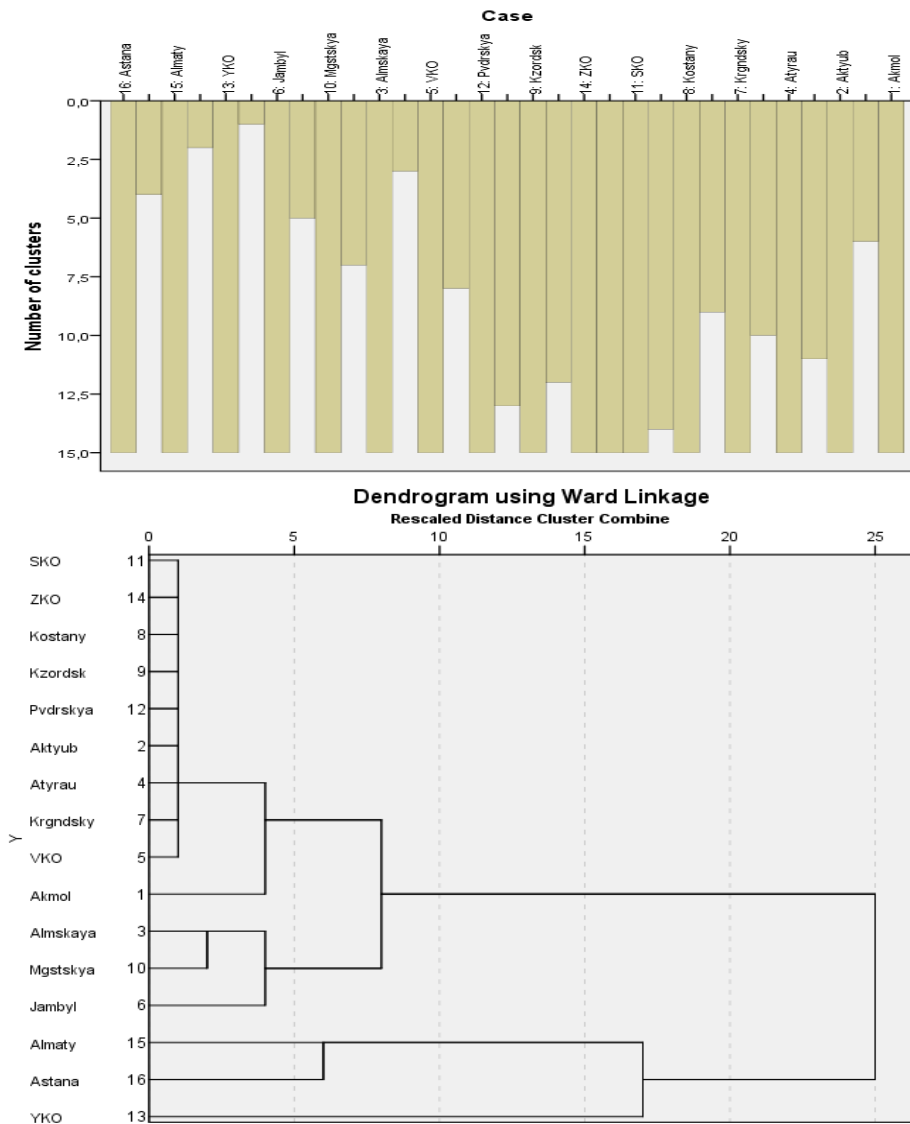


Figure 6 - Map clustering of Kazakhstan

- weak development of general and specialized infrastructure;
- weak development of private property in some countries and difficulties in obtaining cheap loans, privately owned land for the development of infrastructure facilities;
- difficulty in obtaining visas (Turkmenistan, Uzbekistan, Tajikistan);
- many administrative obstacles in the form of difficulties in obtaining a visa, compulsory escort of tourists by representatives of the state, bans on photographing, etc .;
- high level of corruption and bureaucracy, which discourages foreign tourists

At the same time, it should be noted that the cluster approach does not provide a complete picture of the situation. They show a comparative picture between regions. Indicators in this case show only the situation relative to each other. Therefore, a relative analysis must necessarily be supplemented by an analysis of absolute indicators and their dynamics. For example, indicators of the dynamics of revenue growth, attracting tourists and others will show the real attractiveness of tourism facilities.

Judging by the set of indicators given above, it should be assumed that the real clustering of tourism in the countries of Central Asia did not happen. Low levels of realization of potential for the development of tourism, infrastructure, administrative barriers and other obstacles become a brake on clustering processes.

The creation of cluster networks will lead to a sharp increase in the competitiveness of this section of the Silk Road, as a macro cluster and effective management will give impetus to the realization of the potential of tourism resources.

To this end, a number of socio-economic measures to support cluster development should be implemented:

1. Promoting the decentralization of the management of tourism resources and the development of horizontal autonomous management structures that interact according to the network principle.

2. Global strategic positioning and transition to global marketing. The cultural-historical cluster should be positioned on the world market of cultural-historical monuments and world culture. Clusters must go beyond their borders and compete in the global market.

4. Change of object of control, implying a transition from the sphere of management of the industry and companies to the management of territories

Conclusion

In recent years, there is an active development of clusters in tourism. This is facilitated by the active spread of the cluster approach, which has received significant development in industry.

At the same time, an analysis of the literature on tourism clustering showed that, more often than not, researchers automatically transfer industrial clustering methods to the tourism industry. Such blind copying is methodologically wrong. In particular, such a sub-industry of tourism as cultural heritage tourism has many features. These features both contribute to the development of clusters, and require special clustering techniques due to the strong territorial dispersion and different value of the tourism object.

The analysis showed what features should be used, how they can be affected by clustering. The designed stages of the clustering are capable of ensuring the planning of the clustering process and its organizational design.

The clustering method in cultural heritage tourism has been tested on the Central Asian segment of the Silk Road. This segment has great potential. However, its development is still significantly inhibited. Clustering will ensure a sharp breakthrough in the development of this tourist product.

The clustering of the regions of the Central Asian region of the Silk Road was carried out by countries separately. Clustering was done using the Ward's method. This method provides maximum accuracy and the division of the aggregate of regions into the most homogeneous from a statistical point of view of the group.

The square of the Euclidean distance was taken as the objective function, that is, the criterion of similarity and difference of clusters. At each step, these two clusters are combined, which lead to a minimal increase in the objective function.

The calculations were performed using the SPSS applied statistical analysis package.

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