Summary. The article considers the main approaches to studying the problems of protecting the economic security of an enterprise. The emphasis is on the system approach. The expediency of using the system approach for telecommunication companies as carriers of high technologies is grounded. The enterprise is considered as a complex system. It consists of the structure and processes taking place within it. The processes are informational in nature and vector oriented towards the solution of a specific problem.

Key words: system approach, simple and complex systems, hierarchy of the system, telecommunication enterprise, economic security management system, object of management.

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CLUSTER ANALYSIS OF THE EFFECTIVENESS OF TOURIST COMPANIES IN UKRAINE

КЛАСТЕРНИЙ АНАЛІЗ ЕФЕКТИВНОСТІ ТУРИСТИЧНИХ ПІДПРИЄМСТВ В УКРАЇНІ

Summary. The article deals with cluster analysis of tourist enterprises in Ukraine. The group of regions of Ukraine according to the number of tourist enterprises and the size of commission, agency, and other charges is investigated. Using the Deductor program, clusters in Ukraine are formed. Clustering, or so-called segmentation, is a selected set of data for groups of objects with similar properties, which is the basis for data analysis. For the study, the tables were saved and imported into the business analytics platform Deductor.

Key words: tourist cluster, group, association, business, tourism.

Introduction. International economic trends and especially the development of tourism in contemporary conditions distinguish the formation of new economic conditions with the innovative nature of economic relations. The most promising areas of innovative economic development of Ukraine as foreign and domestic experts say are cluster approach to structuring the economy, study strategies for national and regional economic policies, and increasing the competitiveness of products and services. Implementation of European socio-economic development strategy of Ukraine is aimed at creating competitive advantages of the country in all spheres of economic activity, including tourism industry.

Analysis of recent research and publications. The features of formation and development of tourism clusters are considered by scholars such as M. Voynarenko (Voynarenko, 2001) [2], D. Stechenko (Stechenko, 2006) [3], A. Kraynyk (Kraynyk, 2006) [5], M. Zaverych (Zaverych, 2013) [6], D. Buhalis (Buhalis, 2000) [7], A. Krajnović (Krajnović, 2011) [8], E. Michael (Michael, 2007) [9], D. Hall (Hall 2005) [10].

Given a large number of papers on the research topic, however, the question of cluster analysis of the effectiveness of tourism enterprises in Ukraine remains poorly understood which determined the choice of the publication theme.

The purpose. Cluster development as a trend increase national and regional competitiveness is one of the components of the modern innovative economy. World practice shows that clustering makes the economy and has a decisive influence on the process of strengthening competitiveness and accelerating innovation.

Results. Tourist business – a highly profitable sector of the world economy, which is growing rapidly and is one of the fundamental factors of social and cultural development. Tourism is the indisputable means of economic growth that provides increased national income for countries and improves economic performance.

Finding ways of increasing the efficiency of tourism that form the welfare of all indicators is one of the most important tasks of social and economic development of Ukraine. One way of efficient organization of tourism and obtaining competitive advantages in the market is the creation of territorial and sectoral associations – tourism clusters.

Cluster – a voluntary territorial and sectoral association of enterprises to carry out coordinated financial and economic activities, in which all members of the cluster benefit, namely, cluster formation is competitive in this segment of the market economy. The purpose of the cluster is to ensure economic development and competitiveness of products or services to its members in the markets.

Tourism Cluster – a system of intensive production and technology and information cooperation of tourism enterprises, suppliers of basic and additional services aimed at creating a joint tourist product. The tourist cluster group includes businesses concentrated geographically in the region that share tourism resources and specialized tourism infrastructure, local labour markets, carry out joint marketing and promotional information activities [1]. The aim of the association is tourism cluster capacity and capacity of partners to create innovative tourism services, tourism product diversification, its improvement, joint development, and implementation of marketing strategy, advertising, branding tourist destinations and state programs of development of tourism region and others [2].

To implement the cluster model in the tourism industry, there should be the following elements: manufacturer of tourist services; sufficient development of transport and municipal infrastructure specialists of the respective qualification management system; tourism resources; natural resources; biosocial resources; historical and architectural resources; man-made resources; resources of the event; educational, cultural, and research institutions [3]. Monitoring of international tourism clusters shows the very diverse composition of their members, the impact of which provide a variety of factors – the ethnocultural, historical, religious, climatic and landscape features, and others. Prevalence of specific groups of factors on site cluster placement can influence the efficiency of both individual members and the entire cluster.

The main advantages of cluster model of tourism is domestic enterprises, increase in economic efficiency and competitiveness of joint activities combined in the tourism cluster is relatively separated from the activities; reduction in service costs by sharing tourism resources and tourist infrastructure, expansion of competing suppliers and consumers of tourism services, development cooperation, contractual specialization; stimulating innovative development, access to innovation by increasing inter-company flow of ideas and information; forming a local branch of the labour market, allowing for the exchange of staff, their training, professional development; improving the investment attractiveness of regions; clustering of tourism with proper organization stimulates growth and development of other industries; cluster technology facilitates connections between the public and the business community in solving the economic problems of the regions.

The limits of tourism cluster are difficult to characterize on Standard Industrial Classification. Tourism cluster should be a combined element that contains the field that creates a tourist product and for enhancing its competitiveness. These limits are floating and can expand with new businesses with changing market conditions or government regulation [4]. The structure of a typical tourist cluster includes four main sectors [5]: manufacturing sector of tourist services; service sector; utility sector; a sector of the tourism cluster viability.

Manufacturing sector includes tourism enterprises that directly produce and sell travel services [6, 7]: tour operator firms and travel agencies, companies providing services to transfer; accommodation facilities, health, food and leisure travellers. Service sector combines banking and credit and insurance institutions, educational institutions, tourist profile, academic institutions and business centres, leasing companies. Utility sector, firstly, includes a variety of enterprises producing souvenirs, tourist equipment specific to certain areas of goods, and secondly, printing companies, cartographic factories, newspapers, broadcasters, thirdly, public authorities, regional development agencies, international and national funds and programs. Sector of tourism cluster viability connects the other sectors and coordinate their activities. It includes marketing, advertising and information, logistics, and legal and audit departments [8].

The interest in innovative cluster development appeared in the second half of the twentieth century. Steadily until it became an explosive nature not covered in the 1980-1990's first in North America and Europe. This interest was primarily due to merger success of Silicon Valley. Within the cluster «Silicon Valley» only for the period from 1991 to 2001, venture capital investments increased from 2 billion to 68.8 billion USD. At the beginning, clusters in the US were involved in 57% of the total working capacity of the country, and the share of GDP produced by clusters of United States was 61% [1; 2; 4].

In Europe, in terms of clustering highlights Italy and the countries of the Baltic region. In Norway, the government encourages cooperation between enterprises in the cluster «marine economy». Experts estimate that Finland is leading in terms of both research and technological cooperation. Finland's economy is fully clustered and it marked 9 clusters. In Denmark, 29 clusters operate, involving 40% of all enterprises in the country, which provide 60% of exports [2; 4]. In modern conditions of integration and globalization processes of effective clustering covered almost all the developed market economies and countries of the third world, where economic development is accelerated [9]. The process of implementing the cluster model of tourism in Ukraine is in its infancy. The founders of clustering in the country are Khmelnytskyi and Ivano-Frankivsk regions.

During the development and implementation of relevant projects to create tourism clusters, there are potential clusters in the city of Kyiv, Lviv, and Transcarpathian and Chernihiv regions. The perspective today is the creation of clusters in rural and depressed areas. The advantages of creating a cluster of rural tourism entities lies in the fact that from disparate entrepreneurs – owners of estates, local artists, representatives of the service sector, the public local government – formed associations that coordinate joint efforts by creating and implementing the tourist product of rural tourism, which ultimately leads to a comprehensive rural development through the efficient use of resources [8; 10].

To analyse and build clusters used indicators, the number of tourist activities and per 1 travel company, income from tourist services (excise and similar mandatory payments), the amount of commission, agency, and other fees, operating costs, third-party services in 2014 in the context of Ukraine's regions (Figure 1) are considered.

An analysis of the main indicators of tourism enterprises in Ukrainian regions using business analytic platform Deductor allows the group consider interdependence (Fig. 2).

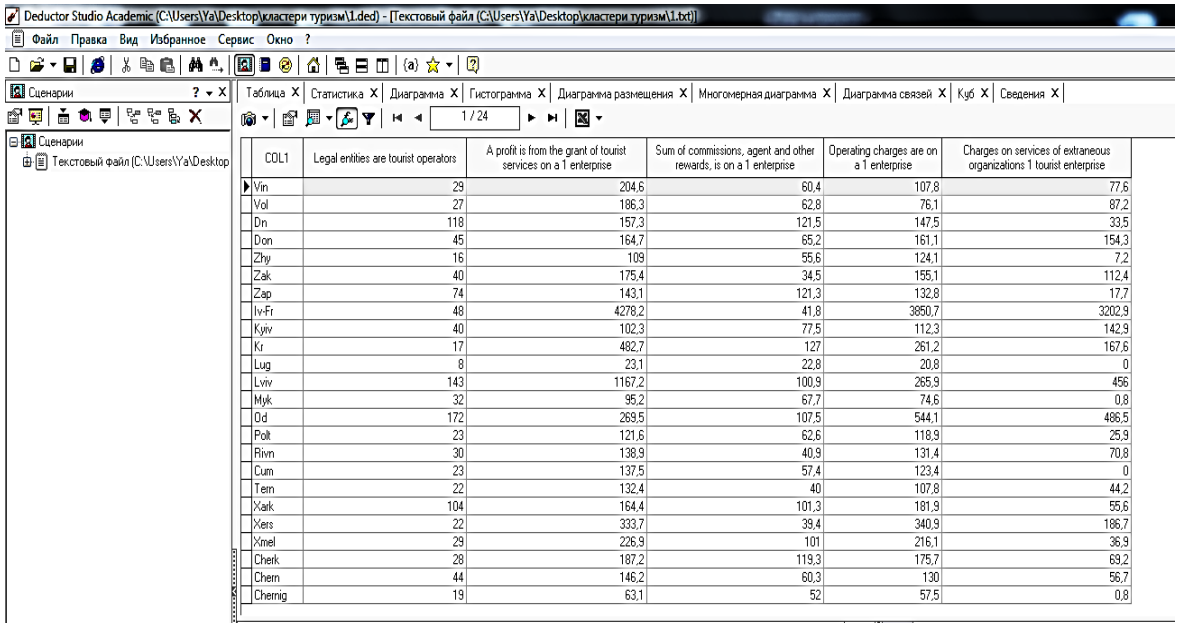
The histogram lets you graphically view the distribution of the largest in the group. Assessment of visualization data distribution as a percentage of the total number of data points to the formation of five major groups (Table 1).

In the first group traced a clear relationship between operating costs and expenses for the services of other organizations and tourism enterprises income and the amount of fees and agency fees. Tourism businesses in the context of regions and Ukraine, which formed 2, 3, 4 groups are overwhelmingly for a commission, agency, and other fees, which affects the level of income.

Clustering or so-called segmentation is a selection of the data of a set of groups of objects with similar properties that is the first step in analysing the data. The results of clustering groups introduced by the performance of tourism enterprises in Ukraine's regions are shown in Figure 3.

For the study, the tables were saved in *.txt and imported in business analytic platform Deductor. Assignment table columns for the analysis were as follows: Ukraine – information field, the rest – the input field. A number of clusters got out manually at 5 because the automatic choice among clusters was the results of a number of clusters that were equal to 30 or more.

As the number of tourism enterprises to the largest group (66.67%) included: Vinnytsia, Volyn, Zhytomyr, Transcarpathian, Kyiv, Kropyvnytskyi, Luhansk, Mykolaiv, Poltava, Rivne, Sumy, Ternopil, Kherson, Khmelnytskyi, Cherkasy, and Chernihiv regions. The second group (12.5%) is generated by travel companies, Donetsk, Ivano-Frankivsk, and Chernivtsi regions. The third group (8.33%) – Zaporizhzhia and Kharkiv regions, the fourth group (4.17%) – Donetsk region, the fifth group (8.33%) – Lviv and Odesa regions (Fig. 4).



COL1	Legal entities are tourist operators	A profit is from the grant of tourist services on a 1 enterprise	Sum of commissions, agent and other rewards, is on a 1 enterprise	Operating charges are on a 1 enterprise	Charges on services of extraneous organizations 1 tourist enterprise
Vin	29	204,6	60,4	107,8	77,6
Vol	27	186,3	62,8	76,1	87,2
Dn	118	157,3	121,5	147,5	33,5
Don	45	164,7	65,2	161,1	154,3
Zhy	16	109	55,6	124,1	7,2
Zak	40	175,4	34,5	155,1	112,4
Zap	74	143,1	121,3	132,8	17,7
Iv-Fr	48	4278,2	41,8	3850,7	3202,9
Kyiv	40	102,3	77,5	112,3	142,9
Kr	17	482,7	127	261,2	167,6
Lug	8	23,1	22,8	20,8	0
Lviv	143	1167,2	100,9	265,9	456
Myk	32	95,2	67,7	74,6	0,8
Od	172	269,5	107,5	544,1	486,5
Polt	23	121,6	62,6	118,9	25,9
Rivn	30	138,9	40,9	131,4	70,8
Sum	23	137,5	57,4	123,4	0
Tern	22	132,4	40	107,8	44,2
Xark	104	164,4	101,3	181,9	55,6
Xers	22	333,7	39,4	340,9	186,7
Xmel	29	226,9	101	216,1	36,9
Cherk	28	187,2	119,3	175,7	69,2
Chern	44	146,2	60,3	130	56,7
Chernig	19	63,1	52	57,5	0,8

Fig. 1. Table of indicators to make data-based analytical platform Deductor

Source: Developed by the author

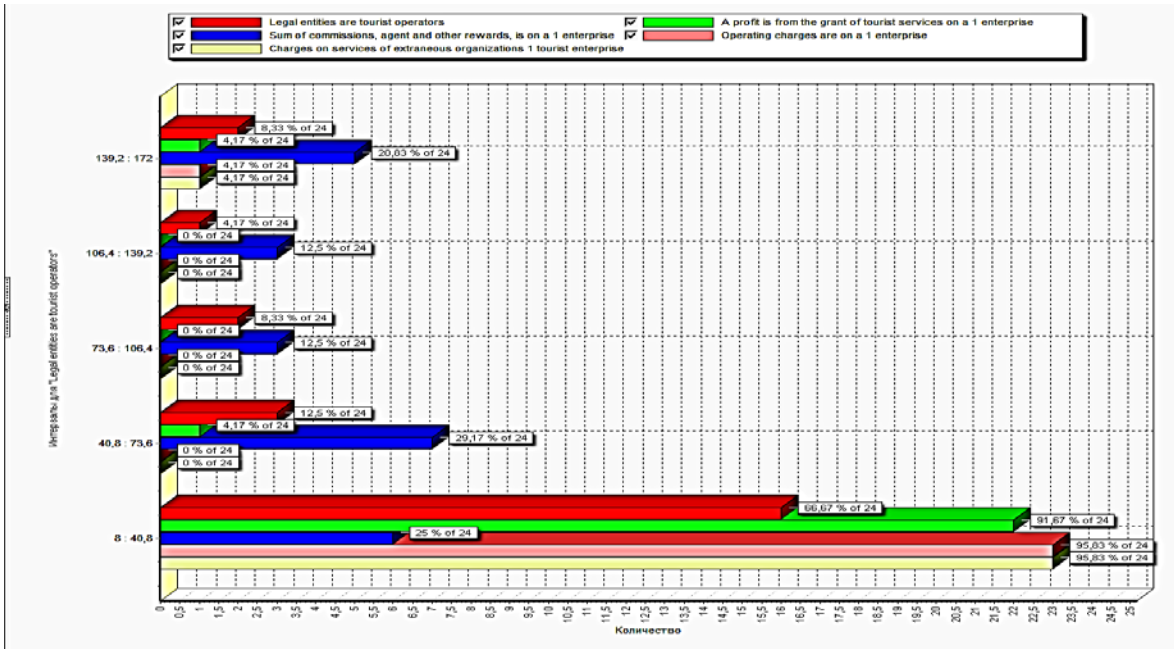


Fig. 2. Graphical representation of distribution parameters

Source: Developed by the author

Table 1

Distribution of the sample group studied parameters, %

Group	1	2	3	4	5
The value of the sample	8-40,8	40,8-73,6	73,6-106,4	106,4-139,2	139,2-172
Number of companies	66,67	12,5	8,33	4,17	8,33
Income from tourism	91,67	4,17	0	0	4,17
The amount of commission, agency and other fees	25	29,17	12,5	12,5	20,83
Operating expenses	95,83	0	0	0	4,17
The cost of third-party services	95,83	0	0	0	4,17

Source: Developed by the author

In terms of the amount of commission, agency, and other fees, the first group is 25% (Zakarpattia, Lviv, Luhansk, Rivne, Ternopil, Kherson), the second group – 29.17% (Vinnytsia, Volyn, Zhytomyr, Poltava, Sumy, Chernivtsi, and Chernihiv regions), the third group – 12.5% (Donetsk, Kyiv, Mykolaiv), the fourth group – 12.5% (Lviv, Kharkiv, and Khmelnytskyi regions), the fifth group – 20.83% (Donetsk, Zaporizhzhia, Kropyvnytskyi, Odesa regions) (Fig. 4). The level of income from tourism (without AA, excise, and similar mandatory payments) formed three groups. The first (91.67%) came tourist enterprises of Vinnytsia, Volyn, Donetsk, Zhytomyr, Transcarpathian, Zaporizhzhia, Kyiv, Kropyvnytskyi, Luhansk, Mykolaiv, Odesa, Poltava, Rivne, Sumy, Ternopil, Kharkiv, Kherson, Khmelnytskyi, Cherkasy, Chernivtsi, and Chernihiv regions. The second group (4.17%) – Lviv, the third (4.17%) – Ivano-Frankivsk region. In terms of operating expenses, two groups are formed. The lowest is 4.17% (Ivano-Frankivsk region) to the first largest – 95.83% of all other areas. In terms

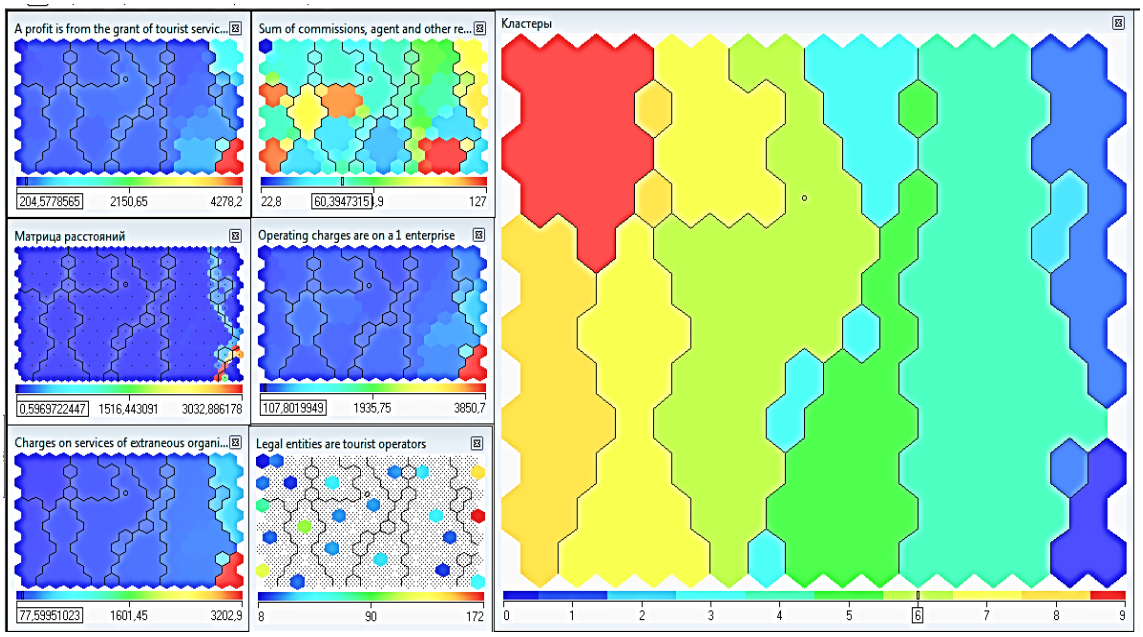


Fig. 3. Kohonen Maps

Source: Developed by the author

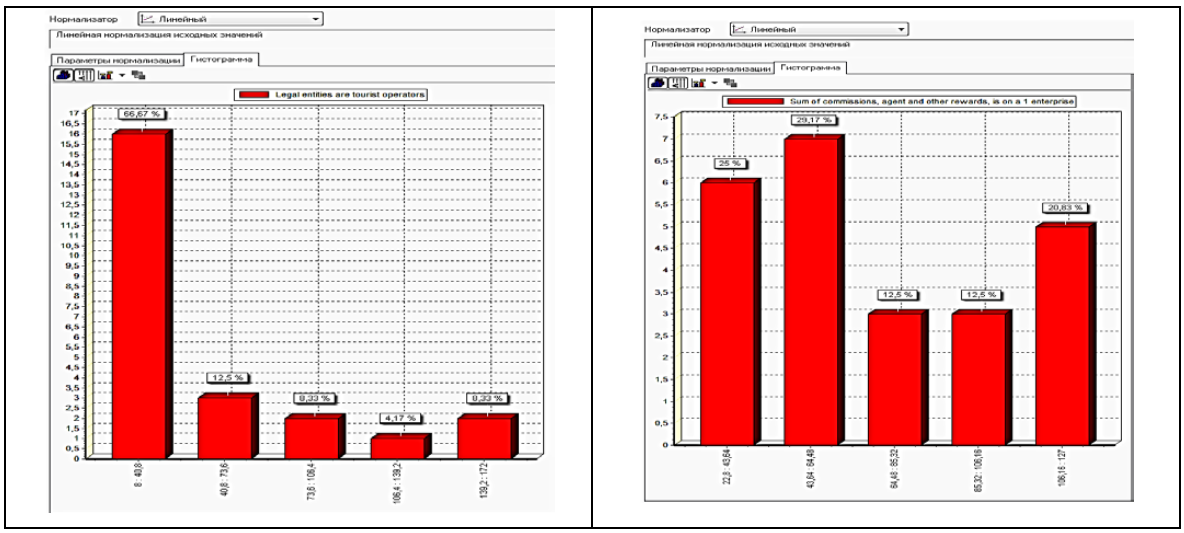
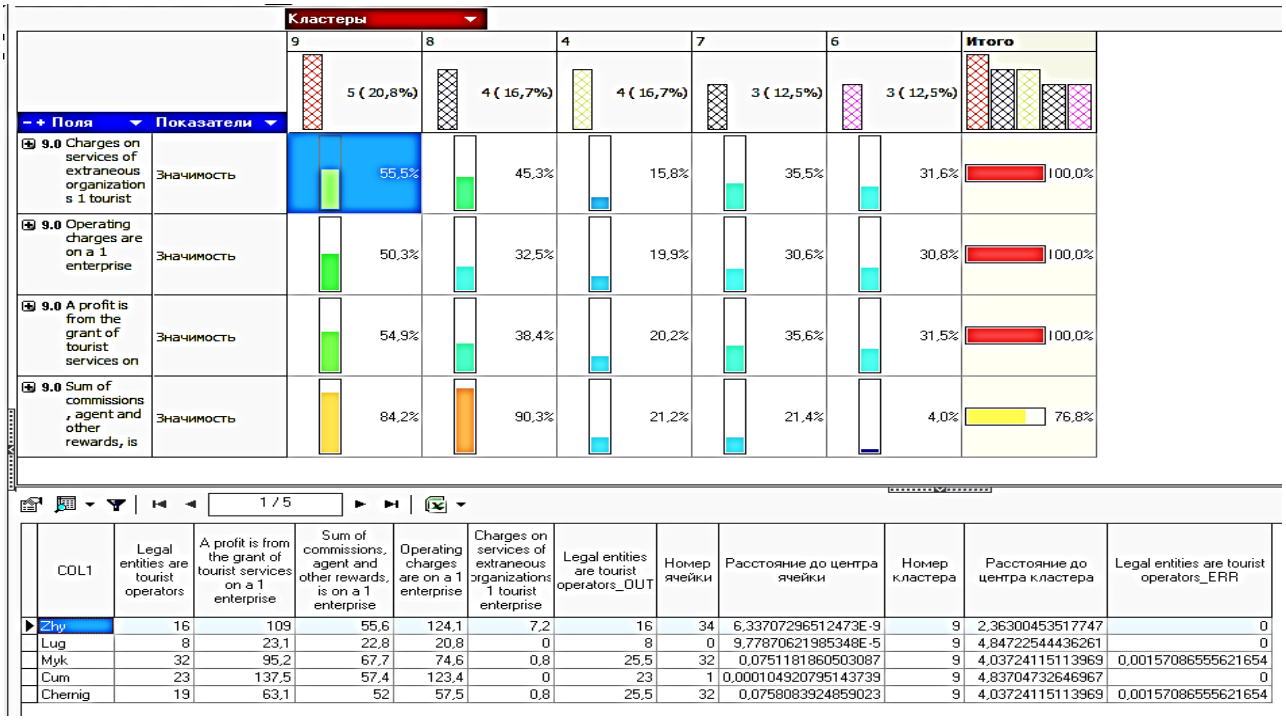


Fig. 4. Arranged regions of Ukraine by the number of tourism enterprises and the amount of commission, agency and other fees

Source: Developed by the author



COL1	Legal entities are tourist operators	A profit is from the grant of tourist services on a 1 enterprise	Sum of commissions, agent and other rewards, is on a 1 enterprise	Operating charges are on a 1 enterprise	Charges on services of extraneous organizations 1 tourist enterprise	Legal entities are tourist operators_OUT	Номер ячейки	Расстояние до центра ячейки	Номер кластера	Расстояние до центра кластера	Legal entities are tourist operators_ERR
Zhy	16	109	55,6	124,1	7,2	16	34	6,33707296512473E-9	9	2,36300453517747	0
Lug	8	23,1	22,8	20,8	0	8	0	9,77870621985348E-5	9	4,84722544436261	0
Myk	32	95,2	67,7	74,6	0,8	25,5	32	0,0751181860503087	9	4,03724115113969	0,00157086555621654
Cum	23	137,5	57,4	123,4	0	23	1	0,000104920795143739	9	4,83704732646967	0
Chernig	19	63,1	52	57,5	0,8	25,5	32	0,0758083924859023	9	4,03724115113969	0,00157086555621654

Fig. 5. The visual image of «cluster profiles» for key indicators of tourism enterprises of Ukraine

Source: Developed by the author

of costs of services and other organizations, two groups are formed: the lowest (4.17%) – Ivano-Frankivsk, the largest (95.83%) – all other regions.

Advantages of Kohonen maps are: allows you to conveniently visualize the placement of objects that have many characteristics; the principle of building Kohonen maps is convenient and meets the usual relief maps. This allows the handler to find patterns in large amounts of data [6]. It should be noted that the clustering is usually based on each attribute including Kohonen map + some common cards. It is important to understand that each of the cards each object has one and the same position (point) but different colour.

Since the process of clustering results is subjective and it depends on the initial data quality assessment process conducted by clustering depends on the goals. When clustering regions of Ukraine, 5 clusters obtained stable and reproducible results. In this study, Kohonen maps, which are shown in Figure 2, can be used for a more accurate and balanced assessment of the results of the clustering key indicators of performance in terms of tourist regions of Ukraine.

The visual appearance of profiles of clusters is built in Figure 5.

As a result, data Deductor program (version 5.3) built five clusters. The first cluster includes Zhytomyr, Luhansk, Mykolaiv, Sumy, Chernihiv region, the second – Dnepropetrovsk, Zaporizhzhia, Poltava and Khmelnytskyi region, the third – Donetsk, Kyiv, Kropyvnytskyi, Kherson, the fourth – Ternopil, Kharkiv, Chernivtsi, and the fifth – Vinnytsia, Rivne, and Cherkasy region.

Figure 5 shows the profiles of the clusters, which enable to assess the impact of each of the indicators within the cluster in terms of «significance». Lower values correspond to less impact indicator. So when analysing the profiles of clusters, one can select the optimal distribution of regional clusters.

Conclusions. The main advantages of cluster model of tourism are domestic enterprises, increase in economic efficiency and competitiveness of joint activities combined in the tourism cluster is relatively separated from the activities; reducing service costs by sharing tourism resources and tourist infrastructure, expansion of competing suppliers and consumers of tourism services, development cooperation, contractual specialization; stimulating innovative development, access to innovation by increasing inter-company flow of ideas and information; forming a local branch of the labour market.

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Анотація. У статті розглянуто кластерний аналіз туристичних підприємств в Україні. Досліджено угруповання регіонів України за кількістю туристичних підприємств і розміром комісійних, агентських та інших зборів. За допомогою програми Deductor були сформовані кластери в Україні. Кластеризація, або так звана сегментація є обраним набором даних груп об'єктів з аналогічними властивостями, що є основою в аналізі даних. Для дослідження, таблиці були збережені та імпортовані в бізнес-аналітичну платформу Deductor.

Ключові слова: туристичний кластер, група, асоціація, бізнес, туризм.

Аннотация. В статье рассмотрен кластерный анализ туристических предприятий в Украине. Исследованы группировки регионов Украины по количеству туристических предприятий и размером комиссионных, агентских и иных сборов. С помощью программы Deductor были сформированы кластеры в Украине. Кластеризация, или так называемая сегментация является избранным набором данных групп объектов с аналогичными свойствами, является основой в анализе данных. Для исследования, таблицы были сохранены и импортированы в бизнес-аналитическую платформу Deductor.

Ключевые слова: туристический кластер, группа, ассоциация, бизнес, туризм.

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ЗАГАЛЬНІ РАМКИ ІНСТРУМЕНТАРІЮ ЦИКЛІЧНИХ ІНДИКАТОРІВ У СТРАТЕГІЇ РОЗВИТКУ ПОСЕЛЕНЬ

THE GENERAL FRAMEWORK FOR THE TOOLKIT OF CYCLICAL INDICATORS IN THE DEVELOPMENT STRATEGY OF SETTLEMENTS

Анотація. У статті розглянуто порівняльний історичний дискурс, що визначає основні цикли розвитку міського та сільського поселення. Визначено основні залежності розвитку поселення та характеру циклу. Визначено ключові поняття для інструментарію циклічних індикаторів. Автор припускає зв'язок між циклічними індикаторами, технологічними укладами та поколіннями, а також класифікує ці індикатори для зручності використання у системі програмно-орієнтованого подходу до управління розвитком поселень.

Ключові слова: цикл розвитку, період розвитку, покоління, період перелому, поселення.

Постановка проблеми. У плануванні розвитку поселення важливо враховувати індикатор циклу та його різні методи впливу на інші інструменти планування. Це комплексна одиниця, яка потребує більш глибокого дослідження і класифікації.

Аналіз останніх досліджень і публікацій. Низка дослідників, серед яких, зокрема, Н.Д. Кондратьєв, Д.І. Опарин [1], В. Леонтьєв [2], Л. Гумільов [3] та ін., глибоко підійшли до досліджень циклів, розглядаючи їх як комплексну соціо-економічну величину. Однак усе ще мало досліджень стосуються циклів у розвитку поселень. Недостатньо уваги приділяється і зв'язку циклів між собою, а також їх інтеграції у програмно орієнтований підхід до управління розвитком поселень.

Мета статті полягає у тому, щоб, використовуючи метод порівняльного історичного дискурсу, звернути увагу на прояви циклів у розвитку поселень і таким чином визначити рамки різних циклів та періодів, а також вказати на характер зв'язку між ними у плануванні розвитку поселення.

Виклад основного матеріалу. Якщо простежити те, яким чином розвивається територія на нашому історичному «театрі», то можна виокремити типові етапи, помітні в період 18-21 ст., а також простежити зміну ролі міста і села у цьому процесі. На початковому етапі чітко осяжної нами історії ми бачимо напівфеодальний лад із малими роздробленими територіями; з дивно керованою, аграрно-збиральною економікою зародкового стану, з епізодичними підходами до оподаткування (що більше нагадують данину) і маленькими містами, які виконують роль незалежних торгово-посередницьких майданчиків, центрів еле-