RELATIONSHIP OF INVESTMENT IN INNOVATION AND LOGISTICS ACTIVITY IN THE CONDITIONS OF THE EXPERIENCE ECONOMY DEVELOPMENT

Olesia Iastremska, https://orcid.org/0000-0003-1865-0282
Ph.D., Associated Professor, Simon Kuznets Kharkiv National University of Economics, Ukraine
Hanna Strokovych, https://orcid.org/0000-0002-5092-9059
Dc.Sc., Associated Professor, The Real Estate College of Israel, R.E.S. GROUP, Israel
Fuad Gasimov, https://orcid.org/0000-0002-3961-6246
Ph.D., Azerbaijan State University of Economics (UNEC), Republic of Azerbaijan
Corresponding author: Olesia Iastremska, Iastremska.o@gmail.com
Type of manuscript: research paper

Abstract: *The urgency of solving this scientific problem is determined by the need to take into account the features of the experience economy development, which have both a rational and emotional nature, and their manifestations and transmission and considering information in the virtual space. Also, by analysing and basing on the effectiveness of business entities at all economic levels - macro and meso- and by functional directions, one of which is logistics activity, which should be characterized by innovation in relation to the real space of its manifestation through the value of transportation indicators. The purpose of the article is to determine the influence of investments in intangible assets as the basis of innovative development on the efficiency of logistics in the modern conditions of the development of the economy of experiences in real and virtual space. The study of this complex issue in the article is carried out in the following logical sequence: based on the analysis of the latest publications, the main directions of research are determined according to the triad «economy of experiences, virtual space, logistics activity in real space taking into account the use of innovations based on investment in intangible assets» based on the use of the Internet resources, i.e. in virtual space, the flow of logistics activities taking into account the use of innovations and investments in intangible assets as their basis in real space; with the use of economic-mathematical methods of descriptive statistics and the built multifactorial regression model, the relationship between the efficiency of enterprise activity and the use of the Internet by real and potential consumers (in the virtual space), i.e., the importance of the Internet for ensuring the success of business activities in general and logistics in particular, was proven; with the use of cluster analysis, the intensity of the use of the Internet in the regional aspect was determined in order to strengthen the influence on the formation of positive impressions about the economic activity of economic entities; on the basis of statistical analysis, the main trends of changes in values in the real space of indicators of logistics activity were determined: turnover of wholesale trade, export and import, volumes of transportation by rail, road transport, air transport, pipeline transport and volumes of investments in tangible and intangible assets as a basis for the development and implementation of innovations; with the use of multidimensional factor analysis, latent factors influencing logistics activity and investment in intangible assets were identified; modelling of the relationship between investment volumes in intangible assets and indicators of logistics activity - exports, imports, volumes of transportation by railway and motor vehicles using multifactorial regression analysis was carried out; taking into account the identified dependencies, proposals were developed for the activation of logistics activities in the context of investing in innovations in the conditions of the development of the economy of experiences. The presented proposals are characterized by scientific novelty and practical significance. The study empirically confirms and theoretically proves the expediency of considering the triad «economy of experiences, virtual space, logistics activity in real space, taking into account the use of innovations based on investment in intangible assets» in order to achieve the successful functioning of economic entities of different economic levels. The results of the conducted research are of practical interest for managers of the macro-, meso- and microeconomic levels in the process of making management decisions in various functional areas, in particular logistics, regarding the activation of their activity to ensure its innovative orientation in the conditions of the development of the economy of experiences.*

Keywords: economy of experiences, influencing logistics activity, innovations, intangible assets, investment, virtual and real space.

Introduction. Modern economic relations have entered a new stage of development – the economy of experiences, which is characterized by active manifestations of emotional perception in the process of making managerial decisions and its combination with rational ones. Therefore, it is important for managers to provide information to the subjects of the external environment both about the real achievements and achievements of enterprises, and about their capabilities in accordance with the expectations and active needs of partners, competitors and consumers, that is, the main subjects of direct influence of the external environment. Such information interaction is important at all economic levels, from micro to macroeconomic, and in all types of spaces – real and virtual. In accordance with the real space, almost all subjects of direct influence combine logistic processes and connections, especially in relation to transportation, in accordance with the virtual one – the use of Internet channels to transmit information about the uniqueness of the manufactured products and services provided, that is, their innovativeness, and peculiarities of economic processes at different economic levels. Thus, the question of analyzing the unification of these aspects of economic activity becomes relevant.

Logistics activity ensures the reliable operation of all economic systems. In modern wartime conditions, the role of logistics activities is changing, the number of logistics companies and the scope of their activities is increasing, the peculiarities of functioning and innovativeness are increasing to deepen the impressions on the subjects of the external environment in order to attract them to the circle of their customers. That is, the influence of the economy of experiences, which is based on innovativeness, is growing. In fact, logistics companies are intermediaries between producers of goods and providers of services. Therefore, ensuring the reliable operation of logistics companies is important for the effective functioning of all economic levels. The system of relationships between them is constantly becoming more complicated, the level of use of innovative technologies is increasing, which, as a result, will strengthen existing and create new competitive advantages. Therefore, there is an objective need to determine the impact of innovation on the efficiency of logistics activities in the modern conditions of the economy of experiences.

The purpose of the article is to determine the influence of investments in intangible assets as the basis of innovative development on the efficiency of logistics in the modern conditions of the experiences economy development in real and virtual space. Based on the set goal, the following research tasks are solved in the article:

− summarizing research on the features of the economy of experiences, the interaction of business structures with partners and consumers based on the use of Internet resources, i.e. in virtual space, the flow of logistics activities taking into account the use of innovations and investments in intangible assets as their basis in real space;

− proving the relationship between the effective activity of enterprises and the use of the Internet by real and potential consumers, that is, the importance of the Internet for ensuring the success of business activities in general and logistics in particular;

− determining the intensity of Internet use in the regional aspect;

− analysis of the main trends of changes in the values in the real space of indicators of logistics activity: turnover of wholesale trade, export and import, volumes of transportation by rail, road transport, air transport, pipeline transport and volumes of investments in tangible and intangible assets as a basis for the development and implementation of innovations;

− identification of latent factors influencing logistics activities and investing in intangible assets;

− modelling of the interrelationship of investments in intangible assets and indicators of logistics activity - exports, imports, volumes of transportation by railway, road transport;

− development of proposals for the activation of logistics activities in the context of investing in innovations in the conditions of the development of the economy of experiences.

Literature Review. The problem considered in the article is multifaceted. Regarding the economy of experiences, as a modern concept of the development of economic relations, its features are considered in the more detail in the publication (Pine and Gilmore, 2021), in which the authors list the types of relations and suggest their development with various tools, including through the Internet to form positive impressions about the innovativeness and uniqueness of business entities, including logistics ones. The same idea is continued (Rossman and Durden, 2021). The monograph (Kotler, 2019) presents proposals for increasing the efficiency of enterprises based on impression marketing, which can be used for logistics companies when solving the issue of implementing innovative technologies that will ensure their uniqueness. The article (Baldynyuk, 2014) provides suggestions for business management regarding the attraction of new customers, but the relationship between the formation of impressions and the innovativeness of business activities is not defined. The study (Dyshkantiuk, 2016) examines the expediency of using the economy of experiences for

the formation of logistics chains, but focuses only on the field of hospitality. This idea is continued for tourist enterprises in the work (Humarova et al., 2021), but the given proposals differ in their focus on one specific industry and do not consider the possibility of using virtual space to enhance impressions on the subjects of the external environment and attract them to the logistics value-added production chains. Mainly, publications on the economy of experiences examine the economic, marketing and psychological features of communication with subjects of the external environment. But it is worth noting that it is advisable to pay attention to the peculiarities of communication in the virtual space, which in today's conditions will increase the activity of entrepreneurial activity and ensure a significant increase in its effectiveness based on innovativeness. Sadigov (2022) paid attention to the consideration of modern digitization trends from the point of view of business innovation management, analyzed and substantiated the relationship between the indicators of the innovative, digital profile and the level of entrepreneurship development. Also, analyzing the article, it is possible to draw a conclusion about the expediency of developing the interaction of business structures based on the use of Internet resources to increase their own efficiency, the emphasis is placed on the need to introduce innovations in all spheres of life of enterprises, which is a valid proposal. The built regression model proves the influence of digitalization on the development of business structures, which proves the importance of Internet resources for ensuring the efficiency of enterprises. The work (Thavorn et al., 2022) mentions the intensification of the formation of impressions from cooperation with enterprises by the means of Internet resources, since, as the authors point out, Internet resources form the attitude of the target audience towards the enterprise, which contributes to the spread of its positive image on the Internet. However, a special study of the effectiveness of logistics activities in the conditions of the economy of experiences, its connection with innovative processes, was not conducted. That requires additional research.

The problems of analysing the impact of investments in intangible assets and innovations on the efficiency of logistics activities have been studied by many scientists. In particular, in the articles (Oklander, 2004) the logistics system of the enterprise is considered precisely as an organizational and management mechanism for coordinating the actions of specialists of various services that manage the material flow. But in modern conditions, intangible flows have the greatest influence on the efficiency of logistics. Separate publications (Christopher and Lee, 2004) note that information technology helps to reduce the supply risk associated with the delay or unavailability of information. The authors emphasize that without innovations, especially in the field of information technologies, it is impossible to increase the efficiency of logistics activities as a whole. The specifics of managing the logistics system of the enterprise in the context of conducting business in the conditions of globalization are considered in scientific works (Pitel et al., 2019), which testify that in global business, managing the logistics system within the enterprise is an important task that requires coordination of the potential capabilities of the subject management taking into account the characteristic features of the world market and effective balancing of logistics flows. But in modern conditions, it is necessary to take into account the existing limitations of logistics flows, primarily in terms of time and types of transport. In scientific works (Fawcett and Stanley, 1997; Hayes et al., 1988; Lu and Yang, 2010; Morash, 2001) it is noted that innovation is an important logistical opportunity. Accordingly, purposeful use will contribute to the increase in the efficiency of material and technical support. In the works (Lawson and Samson, 2001), innovative potential is considered as the firm's dynamic ability to constantly transform knowledge and ideas into new products, processes and systems for profit. That is, the emphasis is on intangible assets, the role of which is gradually increasing. The authors emphasize (Scott, 2009) that logistics innovation refers to new technologies, new services, new processes and new ideas that are used to improve logistics operations. Therefore, both tangible and intangible innovations play an important role, they must be taken into account. Some publications (Wang et al., 2020) point out that innovative logistics capabilities characterize the ability to incorporate logistics innovations to solve problems and adapt to changing conditions in the supply chain. Thus, a direct connection between logistics capabilities and logistics innovations has been established.

The publication (Thum-Thysen et al., 2019) assesses the factors that determine the amount of investment in various types of assets. It is indicated that some key factors and barriers affect tangible and intangible assets differently. It is noted that investments in intangible assets are mainly financed from domestic resources. At the same time, at the present time, financing of non-material assets is also possible at the expense of other sources of capital (crowdfunding, etc.). Article (Seo and Ki, 2020) points out that firms can invest in human capital, advertising, and R&D, either individually or simultaneously, to improve their performance. Therefore, business managers must strategically use these three key factors and invest in intangible assets to achieve certain management goals. Intangible assets are a potential source of economic growth and require long-term sustainable investment. The result of which may be the creation and accumulation of knowledge that has a significant impact on the company. Research Report (Adarov and Stehrer, 2019) indicates the impact of

economic competencies intangibles remains significant in the post-crisis period. R&D capital is found to be an important factor facilitating growth and productivity in manufacturing sectors. Therefore, the results highlight the importance of economic policies facilitating accumulation of intangible assets and ICT capital as integral elements of productivity and competitiveness. Thus, it can be concluded that it is necessary to continue research in the triad «economy of experiences, virtual space, logistics activity in real space, taking into account the use of innovations based on investment in intangible assets», which determines the relevance of this article.

Methodology and research methods. The methodological basis of the work is a systematic approach, which allows to investigate complex phenomena in the relationship, namely in the triad «economy of experiences, virtual space, logistics activity in real space, taking into account the use of innovations based on investment in intangible assets». The logical sequence of the conducted research is as follows: on the basis of the analysis of the latest publications, the main directions of research are determined according to the triad «economy of experiences, virtual space, logistics activity in real space taking into account the use of innovations based on investment in intangible assets» based on the use of Internet resources, i.e. in the virtual space, the course of logistics activity taking into account the use of innovations and investments in intangible assets as their basis in real space; with the use of economic-mathematical methods of descriptive statistics and the built multifactorial regression model, the relationship between the efficiency of enterprise activity and the use of the Internet by real and potential consumers (in the virtual space), i.e., the importance of the Internet for ensuring the success of business activities in general and logistics in particular, was proven; with the use of cluster analysis, the intensity of the use of the Internet in the regional aspect was determined in order to strengthen the influence on the formation of positive impressions about the economic activity of economic entities; on the basis of statistical analysis, the main trends of changes in values in the real space of indicators of logistics activity were determined: turnover of wholesale trade, export and import, volumes of transportation by rail, road transport, air transport, pipeline transport and volumes of investments in tangible and intangible assets as a basis for the development and implementation of innovations; with the use of multidimensional factor analysis, latent factors influencing logistics activity and investment in intangible assets were identified; modelling of the relationship between investment volumes in intangible assets and indicators of logistics activity – exports, imports, volumes of transportation by railway and motor vehicles using multifactorial regression analysis was carried out; taking into account the identified dependencies, proposals were developed for the activation of logistics activities in the context of investing in innovations in the conditions of the development of the economy of experiences.

The following general scientific and special methods of scientific research are used in the article. In particular, methods of analysis and synthesis – to determine trends and functional regularities of the use of innovations in entrepreneurial activity; statistical analysis – to determine average, maximum, minimum values and standard deviation; multidimensional factor analysis – to identify indicators that have the greatest impact and to identify latent factors of the relationship between logistics activities and investments in intangible assets; multifactor regression analysis – to identify the impact of indicators characterizing the use of the Internet on the net profit of large and medium-sized enterprises; to form a model of the dependence of the efficiency of transportation in logistics activities on the level of use and implementation of investments in intangible assets as a basis for the implementation of innovations; descriptive statistics – to determine the laws of distribution of data on the net profit of large and medium-sized enterprises, the number of Internet subscribers and the number of subscribers of pay multi-channel television using the Internet; cluster analysis – to determine the most advanced regions in terms of Internet use, which affects the receipt of net profit by enterprises located in them and the formation of positive impressions about the activities of enterprises; graphic method - for visual presentation of the obtained results.

Results. Recently, Internet resources have become a full-fledged platform for business activities and perform the functions of effective and accurate communication of information about potential customers to the target audience, the availability of necessary communication tools for working with consumers, partners in the sale of goods, services, logistics activities in particular. The importance of Internet resources is especially growing in the conditions of the development of the economy of experiences, when it is necessary not only to communicate rational information, but also to have an emotional impact on market subjects, which consists in strengthening the influence of virtual space on the adoption of management decisions. The main advantages of the Internet are the ease of access to information and the speed of its dissemination. The development of business and logistics activities in the virtual space can be successful and contribute to the growth of the net profit of enterprises with the creation and support of brand offices, as well as reputation management on all platforms with a social component. In order to prove the relationship between the amount

of net profit of enterprises (large and medium) in Ukraine (*y*) by region (in % of the total number of enterprises) and the intensity of Internet use, it is advisable to use official statistics based on the existing indicators of the number of Internet subscribers (*x1*) and the number of subscribers of multi-channel pay television (*x2*) and process it with appropriate economic and mathematical methods. As a statistical array, the existing official latest statistical data for 2021 was used. For this purpose, at the first stage, it is necessary to carry out an intelligence analysis of the values of these indicators with the help of descriptive statistics tools. Table 1 presents the calculated numerical characteristics of the studied indicators, which indicate that their distribution laws are asymmetric and far from the normal law. This is confirmed by the histograms and block histograms (whiskered boxes) of the laws of distribution of the specified indicators, presented in Figure 1.

Table 1. Numerical characteristics of the investigated indicators

Characteristic	y	x1	x2	Characteristic	y	x1	x2
Number	24	24	24	Standard error	1.455	43.934	6.304
Average	69.375	169.842	40.263	Minimum	45.8	41.6	6.6
Median	71.7	103.05	30	Maximum	77.2	1103.5	143.3
Mode			54.1	Swing	31.4	1061.9	136.7
Variation	50.782	46324.3	953.729	Standardized value of the asymmetry coefficient	-3.942	7.762	3.262
Standard deviation	7.126	215.231	30.883	The standardized value of the kurtosis coefficient	4.326	16.675	4.128
Coefficient of variation	10.27%	126.72%	76.70%				

Note: y – the amount of net profit of enterprises (large and medium) in Ukraine by region, x1 –number of Internet subscribers, x2 – number of subscribers of multi-channel pay television
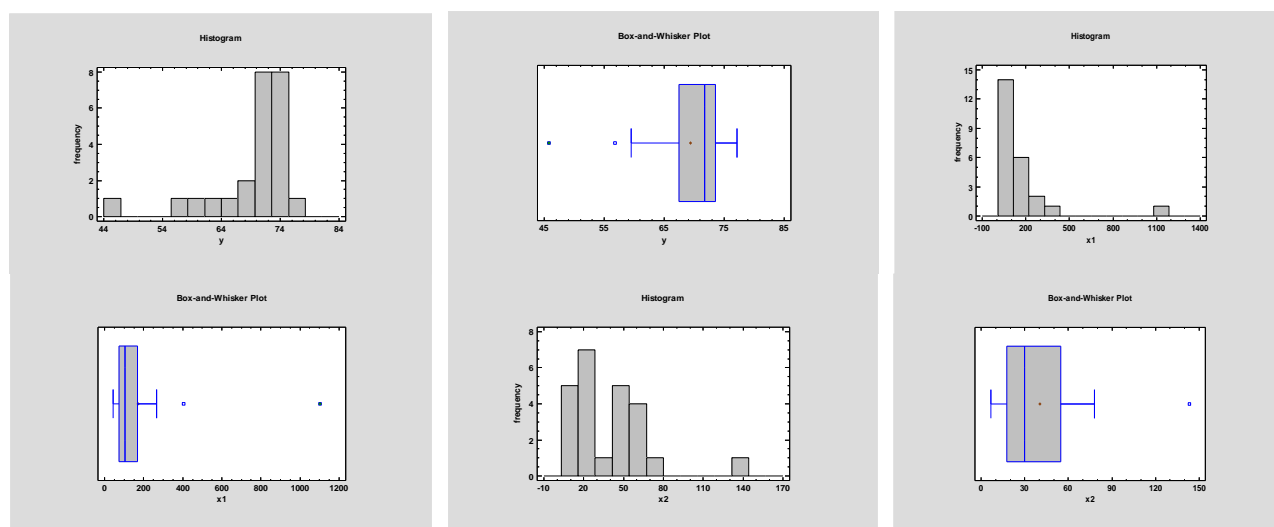
Sources: developed by the authors.

Figure 1. Histograms and block diagrams of the distribution of indicator values: net profit (loss) of large and medium-sized enterprises by region (*y*) (y in % of the total number of enterprises), the number of Internet subscribers (*x1*) and the number of subscribers of multi-channel pay television using the Internet (*x2*)

Sources: developed by the authors.

The fact that the laws of the distribution of the values of the indicators do not correspond to the normal law indicates the unevenness of the distribution of their quantitative values, but it allows building a multifactorial regression model:

$$y = 66.909 + 0.019 * x2 + 0.009 * x1 \tag{1}$$

The built two-factor regression model confirms the relationship between the net profit of enterprises and indicators that quantitatively characterize the use of the Internet by real and potential consumers, i.e., the importance of the Internet for ensuring the success of enterprises. The presented model is statistically qualitative, which is confirmed by the value of the coefficient of determination, the Student, Fisher, Durbin-Watson criteria. However, each region is characterized by different intensity of Internet use. To determine the

affinity of the regions of Ukraine according to the criteria of the system of indicators of net profit (loss) of large and medium-sized enterprises (in % of the total number of enterprises), the number of Internet subscribers and the number of multi-channel pay TV subscribers, a cluster analysis according to Ward's method was applied (Figure 2).
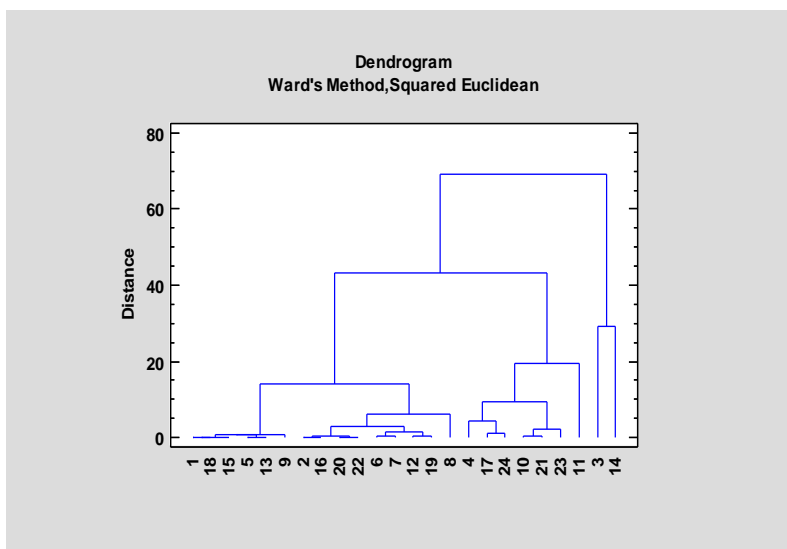

Figure 2. Dendrogram of the regions of Ukraine according to the criterion of the system of indicators of net profit (loss) of large and medium-sized enterprises by region (*y*) (y in % of the total number of enterprises), the number of subscribers (*x1*) and the number of subscribers of multi-channel pay television (*x2*)

Conventional designations, oblasts (regions) of Ukraine: 1 – Vinnytsia; 2 – Volynska; 3 – Dnipropetrovsk; 4 – Donetsk; 5 – Zhytomyr; 6 – Zakarpattia; 7 – Zaporizhzhia; 8 – Ivano-Frankivsk; 9 – Kyivska; 10 – Kirovohradska; 11 – Luhansk; 12 – Lviv; 13 – Mykolayivska; 14 – Odesa; 15 – Poltava; 16 – Rivne; 17 – Sumy; 18 – Ternopil; 19 – Kharkiv; 20 – Khersonska; 21 – Khmelnytska; 22 – Cherkassy; 23 – Chernivtsi; 24 – Chernihivska.

Sources: developed by the authors.

According to the constructed dendrogram, it is possible to distinguish three main clusters. The first is the most numerous with a low value of indicators, which companies can be recommended to increase their activity on the Internet for the growth of net profit and the formation of positive impressions about their achievements and opportunities for creating a rational and emotional impact on the subjects of the internal and external environment, which is especially important in conditions of the development of the economy of experiences. The second cluster is characterized by an average level of indicators. The third, the least numerous cluster, which includes the Dnipropetrovsk and Odesa regions, has the best values of the indicators, whose enterprises have established the closest relationship with Internet users, which will provide them with greater mobility of transmitting information to real and potential consumers and partners, forming operational and the most realistic impressions about his achievements. That is, logistics enterprises located in different regions have different conditions of operation, work with consumers and partners and must develop measures of interaction with them in the virtual Internet space, taking into account the peculiarities of its development revealed in this study. In terms of the real space, in the conditions of the economy of experiences, it is necessary to ensure the uniqueness of the activities of business entities, which can be achieved due to innovation, which is caused by investing in intangible and tangible assets, and to compare these indicators with the achievements of logistics transport flows, that is, the efficiency of logistics activities. Then the virtual and real, rational, and emotional aspects of decision-making will complement each other. The efficiency of the logistics activities of each business entity is significantly influenced by the level of development of innovations, which allows you to minimize costs, speed up the implementation of the entire range of logistics services and improve their quality. In Ukraine, the volume of wholesale trade turnover grew from 2010 to 2011, gradually grew from 2014 to 2021. In 2012-2014, due to political events that had a negative impact on economic processes, there was a decrease by 10.78% (in 2014 in comparative with 2011). The period from 2014 to 2021 is characterized by significant growth (3.19 times). In fact, this is a reflection of the inflation index, which in 2021, respectively, had a value of 110.00 %, 2020 – 105.00 %, 2019 – 104.10 %, 2018 – 109.80%, 2017 – 113.70 %, 2016 –

112.40 %, 2015 – 143.30 %, 2014 – 124.90 %. System of indicators of logistics efficiency and innovation development through investment in tangible and intangible assets as their foundation presented in the Table 2.

Table 2. System of indicators of logistics efficiency and innovation development through investment in tangible and intangible

Year	Wholesale trade turnover, mln.UAH	Exports, mln. USD	Imports, mln. USD	Railway transport-tation, thsd. tones	Motor vehicles, thsd. tones	Air, thsd. tones	Pipeline, thsd. tones	Investments in	
								tangible assets, mln.UAH	intangible assets, mln.UAH
2010	993695.8	51405.2	60742.2	432897.0	1168218.8	87.9	153436.6	173662.8	6912.7
2011	1107283.4	68394.2	82608.2	469308.1	1252390.3	92.1	154971.2	231910.2	9375.8
2012	1093290.8	68830.4	84717.6	457454.5	1259697.7	122.6	128439.8	264853.7	8402.3
2013	1074753.2	63320.7	76986.8	443601.5	1260767.5	99.2	125941.1	239393.6	10479.8
2014	987957.0	53901.7	54428.7	386276.5	1131312.7	78.6	99679.5	212035.1	7384.8
2015	1244220.8	38127.1	37516.4	349994.8	1020604.0	69.1	97231.5	254730.9	18385.5
2016	1555965.7	36361.7	39249.8	343433.5	1085663.4	74.3	106729.2	347390.5	11825.6
2017	1908670.6	43264.7	49607.2	339550.5	1121673.6	82.8	114810.4	432039.5	16422.0
2018	2215367.4	47335.0	57187.6	322342.1	1205530.8	99.1	109418.2	542335.1	36391.3
2019	2322176.9	50054.6	60800.2	312938.9	1147049.6	92.6	112656.4	600568.1	23410.8
2020	2462558.8	49191.8	54336.1	305480.4	1232391.9	88.3	97464.7	483324.0	24893.0
2021	3153187.3	68072.3	72843.1	314300.0	1441898.5	81.85	77600.0	642801.5	31097.8

Sources: developed by the authors (State Statistics Service of Ukraine).

In accordance with Table 2 the efficiency of logistics activities is also characterized by the volume of exports and imports, which increased from 2010 to 2012. The years 2013-2015 are characterized by a decrease in export (and in 2016) and import indicators. Exports began to grow in 2017-2019, and imports - in 2016-2019. In 2020, there is a drop in exports and imports, and in 2021, on the contrary, an increase in exports and imports (38.4% and 34.1%, respectively). Also, the volume of transportation by rail, road, air, pipeline transport affects the efficiency of logistics activities. It should be noted that the general trend towards a decrease in the volume of transportation by rail, air, and pipeline transport and an increase in the volume of transportation by road transport is noticeable. The analysis of investing in innovations shows the growth of innovations on the market for the period 2010-2021 by 1.69 times and the slight growth of vehicles and equipment during the same period by 1.14 times. The main source of innovative development is investment in both tangible and intangible assets. During 2010-2021, their gradual growth was observed, with the exception of 2013, 2014, 2020 for investments in tangible assets and 2012, 2014, 2016, 2019 for intangible assets. The total growth is 3.7 and 4.5 times, respectively, for tangible and intangible assets. This confirms the importance of investing in all types of analyzed assets to ensure the innovativeness of the work of business entities and their acquisition of uniqueness to form positive impressions among consumers and partners, which will encourage the latter to cooperate with enterprises and ensure the further development of a positive attitude towards them on the basis of association rational and emotional information. Table 3 demonstrates a summary statistics of wholesale trade turnover, exports, imports, railway transportation, motor vehicles, air, pipeline, implementation of innovations at industrial enterprises over the period 2010 to 2021.

Table 3. Descriptive statistics of the logistics efficiency and the innovations development

Indicator Name	Valid N	Mean	Minimum	Maximum	Std. Dev.
Wholesale trade turnover, mln.UAH	12	1676594	987957	3153187	721590.4
Exports, thsd. USD	12	53188	36362	68830	11569.1
Imports, thsd. USD	12	60919	37516	84718	15614.0
Railway transportation, thsd. tones	12	373131	305480	469308	61685.8
Motor vehicles, thsd. tones	12	1193933	1020604	1441899	108324.8
Air, thsd. tones	12	89	69	123	14.0
Pipeline, thsd. tones	12	114865	77600	154971	22837.3
Investments in tangible assets, mln.UAH	12	368754	173663	642802	164713.6
intangible assets, mln.UAH	12	17082	6913	36391	9889.8

Sources: developed by the authors.

Considering findings in Table 3, the average volume of wholesale trade turnover is 1676594 mln. UAH. The maximum amount is 3153187 mln. UAH in 2021 and the minimum amount is 987957 mln. UAH in 2014. The standard deviation is 721590.4 mln. UAH. Exports – 53188 thsd. USD, maximum 68830 thsd. USD in 2012 and minimum 36362 thsd. USD in 2016. The standard deviation is 11569.1 thsd. USD. Imports 60919 thsd. USD with a maximum amount of 84718 thsd. USD in 2012 and a minimum amount of 37516 thsd. USD in 2015. The standard deviation is 15614.0 thsd. USD. Railway transport 373131 thsd. tones with a maximum volume of 469308 thsd. tones in 2011 and a minimum of 305480 thsd. tones in 2020. The standard deviation is 61685.8 thsd. tones. The size of vehicles 1193933 thsd. tones, maximum 1441899 thsd. tones in 2021 and minimum 1020604 thsd. tones in 2015. The standard deviation is 108324.8 thsd. tones. The size of air 89 thsd. tones, maximum 123 thsd. tones in 2012 and minimum 69 thsd. tones in 2015. The standard deviation is 14 thsd. tones. The size of the pipeline is 114865 thsd. tones, with a maximum of 154971 thsd. tones in 2011 and a minimum of 77600 thsd. tones in 2021. The standard deviation is 22837.3 thsd. tones. The revealed trends indicate a significant fluctuation of indicators during 2010-2021. As a result of the objective circumstances that developed in the pre-war period, there was a significant reduction in the volume of transportation by pipeline and air transport. The growth rate of investment in tangible assets significantly exceeds the growth rate of investment in intangible assets, which requires the adoption of appropriate management decisions to adjust their ratio.

According to the data in the Table 3 values of transportation indicators have a relationship with the amount of investment in tangible and intangible assets, which confirms the dependence of these processes on the innovativeness of logistics activities, which ensures uniqueness and the formation of positive impressions from the activities of business entities.

The average size of investments in tangible assets is UAH 368754 million. The maximum amount is UAH 642802 million. in 2021, the minimum is 173663 million UAH in 2010. The standard deviation is UAH 164713.6 million. The average size of investments in intangible assets is UAH 17082 million. The maximum amount is only UAH 36391 million in 2018, and the minimum – UAH 6913 million in 2010. The standard deviation is UAH 9889.8 million. Such changes confirm the significant dispersion of investments in innovations over the years and the need for their constant monitoring in order to flexibly respond to the needs of business entities in the activation of logistics activities in real space. In order to determine and prove the relationship between transportation indicators in logistics activities and investment in tangible and intangible assets as a basis for innovativeness, it is necessary to identify latent factors using methods of economic and mathematical modeling, namely, multidimensional factor analysis. An important criterion for identifying latent factors is their importance, which is determined by the maximum load, which should be greater than 0.8. In order to compare the values of the indicators in a further study, it is necessary to carry out their standardization (Table 4).

Table 4 Standardized values of the indicators systems of the logistics efficiency and the innovation development

Year	Wholesale trade turnover, mln.UAH	Exports, thsd. USD	Imports, thsd. USD	Railway transportation, thsd. tones	Motor vehicles, thsd. tones	Air, thsd. tones	Pipeline, thsd. tones	Investments in	
								tangible assets, mln.UAH	intangible assets, mln.UAH
2010	-0.946	-0.154	-0.011	0.968	-0.237	-0.081	1.689	-1.184	-1.028
2011	-0.789	1.314	1.389	1.559	0.539	0.218	1.756	-0.830	-0.779
2012	-0.808	1.352	1.524	1.367	0.607	2.390	0.594	-0.630	-0.877
2013	-0.834	0.875	1.029	1.142	0.617	0.723	0.485	-0.785	-0.667
2014	-0.954	0.061	-0.415	0.213	-0.578	-0.743	-0.664	-0.951	-0.980
2015	-0.599	-1.301	-1.498	-0.375	-1.600	-1.419	-0.772	-0.692	0.131
2016	-0.167	-1.454	-1.387	-0.481	-0.999	-1.049	-0.356	-0.129	-0.531
2017	0.321	-0.857	-0.724	-0.544	-0.667	-0.444	-0.002	0.384	-0.066
2018	0.746	-0.505	-0.239	-0.823	0.107	0.716	-0.238	1.053	1.952
2019	0.894	-0.270	-0.007	-0.975	-0.432	0.253	-0.096	1.407	0.640
2020	1.089	-0.345	-0.421	-1.096	0.355	-0.052	-0.761	0.695	0.789
2021	2.046	1.286	0.763	-0.953	2.289	-0.511	-1.631	1.663	1.417

Sources: development of authors.

Thus, it can be concluded that the standardized values of indicators allow to unify their values and provide a basis for further factor analysis. The application of multivariate factor analysis made it possible to identify

latent factors, which were obtained 2 and which prove the relationship between transportation indicators in logistics activities and investment in intangible and tangible assets. Factor analysis was carried out in the STATISTICA program. Varimax raw rotation method. Its results are presented in Table 5.

Table 5. Factor Loadings

Variable	Factor Loadings (Varimax raw) Extraction: Principal components (Marked loadings are >,700000)	
	Factor 1	Factor 2
Wholesale trade turnover, mln.UAH	0.976	0.086
Exports, thsd. USD	-0.110	0.950
Imports, thsd. USD	-0.176	0.977
Railway transportation, thsd. tones	-0.865	0.483
Motor vehicles, thsd. tones	0.376	0.860
Air, thsd. tones	-0.163	0.772
Pipeline, thsd. tones	-0.761	0.316
Investments in tangible assets. mln.UAH	0.958	0,082
intangible assets. mln.UAH	0.920	0,002
Expl.Var	4.259	3.544
Prp.Totl	0.473	0.393

Sources: development of authors.

The maximum load characterizes the following indicators: wholesale trade turnover, export, import, railway transport, motor vehicles, and investments in tangible and intangible assets. The load according to the indicated indicators is more than 0.8. The first factor includes indicators that characterize the efficiency of logistics and innovation activities based on the analysis of wholesale trade, the efficiency of railway transport, the volume of investments in tangible and intangible assets as the main source of innovation activity. Thus, the first latent factor leads to the prioritization of investment in innovation in railway transport and in trade. In the second factor – indicators of export and import of goods, services, new technologies, the efficiency of the functioning of motor vehicles. That is, the second factor does not confirm the use of innovativeness and investment in assets for these types of transportation in logistics activities. The results of the analysis show that the obtained factors describe 86.7% of the variance of the entire primary list of factors, which indicates the adequacy of the calculations (Table 6).

Table 6. Eigenvalues

Value	Eigenvalues Extraction: Principal components			
	Eigenvalue	Total variance, %	Cumulative eigenva	Cumulative, %
1	4.577	50.863	4.577	50.863
2	3.226	35.849	7.800	86.713

Sources: development of authors.

Therefore, it seems appropriate to determine the factors that have the most significant impact on the volume of investment in intangible assets. Based on the objectives of the study, the dependent variable is the amount of investment in intangible assets. The independent variables in this study are: wholesale trade, the efficiency of motor transport and rail transport, the volume of exports and imports of goods, services, new technologies. That is, those indicators that have the largest factor loadings in the selected factors when applying multivariate factor analysis. First, the initial data were normalized in order to eliminate differences in the units of measurement of indicators. Then a regression analysis was conducted. The results of determining the regression estimates of the equation are presented in Table 7.

Table 7 presents the results of the regression analysis, which reports that the correlation coefficient is 0.8. It belongs to the range (0.6; 0.9) therefore linear relationship is sufficient. Multiple correlation coefficient is 0.645. This indicates a strong correlation. Multiple determination coefficient is 81.43 % that there is a significant relationship between the dependent variable (volume of investment in intangible assets) and independent variables (wholesale trade, the efficiency of motor transport and rail transport, the volume of exports and imports of goods, services, new technologies).

Table 7. Regression results

N=12	Regression Summary for Dependent Variable: Var7 R= 0.902 R²= 0.814 Adjusted R²= 0.591 F(6,5)=3.654 p<0.088 Std. Error of estimate: 0,639					
	b*	Std. Err. of b*	b	Std. Err. of b	t(6)	p-value
Intercept			0.000	0.184	0.000	1.000
Var1	-0.505	1.588	-0.505	1.588	-0.318	0.763
Var2	-0.705	1.1810	-0.705	1.181	-0.597	0.576
Var3	0.654	1.731	0.654	1.731	0.378	0.720
Var4	-0.917	1.614	-0.917	1.614	-0.568	0.594
Var5	0.555	0.887	0.555	0.887	0.625	0.559
Var6	0.426	1.510	0.426	1.510	0.282	0.789

Sources: development of authors.

The column b in Table 7 contains the values of the parameters: b_1 = -0,505755, b_2 = -0,705956, b_3 = 0.654, b_4 = -0.917, b_5 = 0.555, b_6 = 0.426. To test the significance of the coefficients (b), the observation values of the Student's t test for each coefficient are used. These values are in column t (5) of the Regression Summary table: t_{observ} (b_1) = -0.318, t_{observ} (b_2) = -0.597, t_{observ} (b_3) = 0.378, t_{observ} (b_4) = -0.568, t_{observ} (b_5) = 0.625, t_{observ} (b_6) = 0.282.

Thus, the application of multivariate regression analysis allows us to draw a conclusion about the dependence of transportation efficiency in logistics activities on innovation investment, that is, on investment in tangible and intangible assets. It is innovativeness that will ensure the achievement of not only the efficiency of logistics activities in a real economic space, but also the involvement of consumers and partners in cooperation with business entities, the formation of positive impressions about their activities, the desire to cooperate with them based on the expectation of meeting the active needs of market entities, which it is especially important in the conditions of the development of the economy of experiences.

Conclusions. Thus, the need to take into account modern trends in the development of the economy of experiences in the process of entrepreneurial activity has been proven. The latest publications on the problems of the economy of experiences, the use of Internet resources to activate the activities of business entities and create opportunities for effective entrepreneurial activity based on the formation of positive impressions about the results of activities and business opportunities of individuals were considered. The relationship between the indicators of the net profit of large and medium-sized enterprises of Ukraine, the number of Internet subscribers, users of paid multi-channel television in a regional section is determined, regional clusters that differ in the use of the Internet are determined, resources that must be taken into account by enterprises for the efficiency of their activities in general and logistics in particular, with the aim of forming uniqueness and innovative opportunities. This confirms the need to study the triad «economy of experiences, virtual space, logistics activities in real space, taking into account the use of innovations based on investments in intangible assets» to ensure the activation of the implementation of innovations and ensure the effectiveness of activities.

Regarding the real space, the main trends of changes in transportation indicators in logistics activity for 2010-2021 have been determined, which indicate the growth of export and import volumes from 2010 to 2012. But in the years 2013-2015 due to the destabilization of the political and economic situation in the region are characterized by the opposite a decrease in export (and in 2016) and import indicators. Then there was an increase in exports in 2017-2019, and in imports – in 2016-2019. In 2020-2021, there is a fluctuation in exports and imports. First decline, then growth. Also, noticeable is the general trend towards a decrease in the volume of transportation by rail, air, and pipeline transport and an increase in the volume of transportation by road.

The uniqueness of business entities is ensured by investing in intangible assets and tangible assets, which had a tendency to grow during this period. It is 3.7 and 4.5 times, respectively, for tangible and intangible assets. This testifies to the importance of investing in all types of analysed assets to ensure the innovativeness of the work of business entities, their balanced development and the formation of certain special features in them that will contribute to the creation of positive impressions among counterparties. Based on the results of multiple factor analysis, latent factors and interrelationships of indicators in transportation in logistics activity and investment in assets were revealed, which brought the significance for rail transport and wholesale trade. Other types of transport are more actively encouraged to invest in innovation to achieve uniqueness for the formation of positive thoughts about the results of their activity. On the basis of a multi-factual regression analysis was identified an interrelationship investment in innovation. This was brought to the achievement by

the subjects of the state of uniqueness and positive impression about their activity, which is especially important in today's minds for the experience economy development.

Author Contributions: conceptualization, O. I., H. S. and F. G.; methodology, O. I. and H. S.; software, F. G.; validation, O. I., and H. S., formal analysis, O. I., and H. S.; investigation, O. I., H. S. and F. G.; resources, O. I. and H. S.; data curation, O. I., H. S. and F. G..; writing-original draft preparation, O. I., H. S.; writing-review and editing, O. I., H. S. and F. G.; visualization, H. S.; supervision, O.I., H. S. and F. G.; project administration, O. I. and H. S..; funding acquisition, O. I., and H. S.

Conflicts of Interest: Authors declare no conflict of interest.

Data Availability Statement: Not applicable.

Informed Consent Statement: Not applicable.

References

Adarov, A., & Stehrer, R. (2019). *Tangible and Intangible Assets in the Growth Performance of the EU, Japan and the US* (No. 442). wiiw Research Report. [Google Scholar]

Baldynyuk, A. (2014). Impressions management as a strategic direction and development of its brand. *Scientific Bulletin of Kherson State University*, 6(2), 88-90. [Google Scholar]

Christopher, M., & Lee, H. (2004). Mitigating supply chain risk through improved confidence. *International Journal of Physical Distribution and Logistics Management*, 34(5), 388-396. [Google Scholar] [CrossRef]

Dyshkantiuk, O. V. (2016). The economics of hostility is the current stage in the development of suspensory production. *Economics of food industry*, 8(4), 3-9. [Google Scholar] [CrossRef]

Fawcett, S. E., Stanley, L. L., & Smith, S. R. (1997). Developing a logistics capability to improve the performance of international operations. *Journal of Business Logistics*, 18(2), 101-127. [Google Scholar]

Hayes, R. H., Wheelwright, S., Wheelwright, S. C., & Clark, K. B. (1988). Dynamic manufacturing: Creating the learning organization. *Simon and Schuster.* [Google Scholar]

Humarova, N. I., Nikolaichuk, T. O., Petrushenko, M. M., & Cherchik, L. M. (2021). Digitalization as a trend of the economy is an enemy in the minds of the actualization of inclusive development: based on the materials of the tourism and recreational sphere of Ukraine: monograph, Odesa, Ukraine, 53. Retrieved from [Link]

Kotler, F. (2019). Marketing from A to Z. 80 concepts that every manager should know. Alpina Publisher, 242. Retrieved from [Link]

Lawson, B., & Samson, D. (2001). Developing innovation capability in organisations: a dynamic capabilities approach. *International Journal of Innovation Management*, 5(3), 377-400. [Google Scholar] [CrossRef]

Lu, C. S., & Yang, C. C. (2010). Logistics service capabilities and firm performance of international distribution center operators. *The Service Industries Journal*, 30(2), 281-298. [Google Scholar] [CrossRef]

Morash, E. A. (2001). Supply chain strategies, capabilities, and performance. *Transportation Journal*, 41(1), 37-51. Retrieved from [Link]

Morash, E. A., Droge, C. L., & Vickery, S. K. (1996). Strategic logistics capabilities for competitive advantage and firm success. *Journal of Business Logistics*, 17(1), 1-22. [Google Scholar]

Oklander, M. A. (2004). Logistics system of the enterprise. Odesa, Ukraine, 312. Retrieved from [Link]

Pine II, J. B. & Gilmore, J. H. (2021). The experience economy: competing for customer time, attention, and money, *Kharkiv: Vivat*, 416. Retrieved from [Link]

Pitel, N., Alioshkina, L., Verniuk, N., Novak, I., & Smoliy, L. (2019). Managing Logistic System of an Enterprise in the Context of Conducting International Business Transactions. *TEM Journal*, 8(3), 888-893. [Google Scholar] [CrossRef]

Rossman, R., & Durden, M. (2021). Experience design: tools and templates for creating positive emotions for customers from interacting with a company and product. Moscow, Russia, 332. Retrieved from [Link]

Sadigov, R. (2022). Impact of Digitalization on Entrepreneurship Development in the Context of Business Innovation Management. *Marketing and Management of Innovations*, 1, 167-175. [Google Scholar] [CrossRef]

Grawe, S. J. (2009). Logistics innovation: a literature-based conceptual framework. *The International Journal of Logistics Management*, 20(3), 360-377. [Google Scholar] [CrossRef]

Seo, H. S., & Kim, Y. (2020). Intangible assets investment and firms' performance: evidence from small and medium-sized enterprises in Korea. *Journal of Business Economics and Management*, *21*(2), 421-445. [Google Scholar] [CrossRef]

State Statistics Service of Ukraine. Retrieved from [Link]

Thavorn, J., Trichob, P., Klongthong, W., & Ngamkroeckjoti, Ch. (2022). Effect of midroll video advertising value and perceived intrusiveness on Facebook viewers' response: the mediating roles of attitude and word-of-mouth intention. *Cogent Business & Management*, 9(1), 206-209. [Google Scholar] [CrossRef]

Thum-Thysen, A., Voigt, P., Bilbao-Osorio, B., Maier, C., & Ognyanova, D. (2019). Investment dynamics in Europe: Distinct drivers and barriers for investing in intangible versus tangible assets? *Structural Change and Economic Dynamics*, 51, 77-88. [Google Scholar] [CrossRef]

Wang, M., Asian, S., Wood, L. C., & Wang, B. (2020). Logistics innovation capability and its impacts on the supply chain risks in the Industry 4.0 era. *Modern Supply Chain Research and Applications*, 2(2), 83-98. [Google Scholar] [CrossRef]

Олеся Ястремська, к.е.н., доцент, Харківський національний економічний університет імені Семена Кузнеця, Україна

Ганна Строкович, д.е.н., доцент, Коледж з нерухомості Ізраїлю, R.E.S. GROUP, Ізраїль

Гасімов Фуад, Ph.D., UNEC Бізнес школа Азербайджанського економічного університету, Республіка Азербайджан

Взаємозв'язок інвестування в інновації та логістичної діяльності в умовах розвитку економіки вражень

Актуальність вирішення даної наукової проблеми зумовлюється необхідністю врахування особливостей розвитку економіки вражень, які мають як раціональну, так і емоційну природу, та їх проявами і передачею й урахуванням інформації у віртуальному просторі, завдяки використанню інтернет ресурсів, а також аналізом й грунтуванням на результативності діяльності суб'єктів господарювання на всіх економічних рівнях – макро та мезо та за функціональними напрямами, одним з яких є логістична діяльність, яка повинна характеризуватися інноваційністю щодо реального простору свого прояву через значення показників транспортування. Метою статті є визначення впливу інвестицій у нематеріальні активи як підгрунтя інноваційного розвитку на ефективність логістики в сучасних умовах розвитку економіки вражень у реальному і віртуальному просторі. Дослідження цього складного і комплексного питання в статті здійснено в наступній логічній послідовності: на основі аналізу новітніх публікацій визначено основні напрями досліджень за тріадою «економіка вражень, віртуальний простір, логістична діяльність у реальному просторі з урахуванням використання інновацій на основі інвестування у нематеріальні активи» на основі використання інтернет ресурсів, тобто у віртуальному просторі, перебігу логістичної діяльності з урахуванням використання інновацій та інвестицій у нематеріальні активи як їх підгрунтя у реальному просторі; з використанням економіко-математичних методів описової статистики та побудованої багатофакторної регресійної моделі доведено взаємозв'язок ефективності діяльності підприємств та використання Інтернету реальними і потенційними споживачами (у віртуальному просторі), тобто значущість Інтернету для забезпечення успішності підприємницької діяльності в цілому та логістичної зокрема; з використанням кластерного аналізу визначено інтенсивність використання Інтернету у регіональному аспекті для посилення впливу на формування позитивних вражень про економічну діяльність суб'єктів господарювання; на основі статистичного аналізу визначено основні тренди зміни значень у реальному просторі показників логістичної діяльності: товарообігу оптової торгівлі, експорту та імпорту, обсягів перевезень залізничним, автотранспортом, аеротранспортом, трубопровідним транспортом та обсягів інвестицій у матеріальні та нематеріальні активи як підгрунтя розроблення і впровадження інновацій; з використанням багатовимірного факторного аналізу виявлено латентні факторів впливу логістичної діяльності та інвестуванням у нематеріальні активи; здійснено моделювання взаємозв'язку обсягів інвестицій у нематеріальні активи та показників логістичної діяльності – експорту, імпорту, обсягів перевезень залізницею, автотранспортом з використанням багатофакторного регресійного аналізу; з урахуванням виявлених залежностей розроблено пропозиції з активізації логістичної діяльності у контексті інвестування інновацій в умовах розвитку економіки вражень. Викладені пропозиції характеризуються науковою новизною та практичним значенням. Дослідження емпірично підтверджує та теоретично доводить доцільність розгляду тріади «економіка вражень, віртуальний простір, логістична діяльність у реальному просторі з урахуванням використання інновацій на основі інвестування у нематеріальні активи» у для досягнення успішності функціонування суб'єктів господарювання різних економічних рівнів. Результати проведеного дослідження мають практичний інтерес для менеджерів макро-, мезо- і мікроекономічного рівнів в процесі ухвалення управлінських рішень у різних функціональних зонах, зокрема логістичній, щодо активізації їх діяльності для забезпечення її інноваційної спрямованості в умовах розвитку економіки вражень.

Ключові слова: економіка вражень, вплив логістичної діяльності, інновації, нематеріальні активи, інвестування, віртуальний і реальний простір.