INTRODUCTION

Structural changes in economy of the regions in the modern conditions of digitalization reveal the key, retrospective and modern determinants that form new approaches and scientific principles of regional development. Regularities of development, historical and cultural factors of transformation of economic systems and separate territories under external influence, form steady and unique features of all regions.

Evolutionary processes and digitalization of the economy affect the formation of the modern structure of regions, which are directly related to the formation of unique features of individual territories, national identification, planning and administrative allocation of productive forces and resource allocation, which was characteristic of post-Soviet countries, as well as geographical competitive advantages, etc.

The formation of modern theoretical and conceptual foundations for regulating structural changes in the regional economy is based not only on digitization processes taking place today, but also on the provisions of institutional theory, theories of knowledge economy, cyclical and sustainable development, the concept of technological evolutionary, adaptive, democratic, civilizational and other paradigms.

Modern digitization processes require the development of principles for regulating the processes of structural changes in regional systems. The purpose of the article is to study aspects of structural changes in regional economic systems in the context of digitalization. To achieve this goal, a number of tasks were solved, namely: separate stages of restructuring the structure of regional economic relations, which influenced the current patterns in the functioning of regional economic systems in the context of digitalization; the main aspects of regional structure management are highlighted; substantiate the forms of structural changes that reflect the stages of regional transformation; to single out four levels of influence on structural changes of regional economic systems in the conditions of digitalization.

LITERATURE REVIEW

The study of structural changes in the economy of the regions, as well as the processes of digitalization of the economy is devoted to scientific publications of such scientists, including: Abramova A. (2021); Adam M. (2018); Afonosova M., (2019); Alraja M. (2020); Bazhenkov I. (2021); Billestrup J. (2014); Boichenko S. (2014); Bondarev A. (2021); Budzinski O. (2019); Bye B. (2021); Chudnovskiy A.D. (2021); Cosmulese C. G. (2019); Dannikov O. (2018); Dávila-Fernández M.J. (2020); De Silva, I. (2019); Tulchynska S. (2021); Dubyna M. (2017); Eichstädt S. (2020); Gopane T.J. (2020); Heath N. (2019); Hor (2021); Ivanova N. (2020); Khasan N. (2021); Kholidavko N. (2020); Khudolei V. (2021); Klyuchnikov A. (2020); Kornieieva, Yu. (2018); Kovalchuk S. (2021); Kychko I. (2021); Lin Chia Jie (2018); Myovella G. (2020); Panchenko O. (2021); Popelo O. (2021); Ramstetter E.D. (2019); Román C. (2021); Serhii Hrytsenko (2021); Samoilovych A. (2021); Saveliev Y. (2013); Shevandin A.V. (2020); Shkarlet S. (2017); Soni S. (2020); Sudolska A. (2020); Szopik-Depczynska K. (2020); Treschchevskiy Y.. (2018); Tulchynska S...
The study (SHEVANDRIN et al., 2020) is based on the quantitative assessment and identification of the relationship between economic growth and structural and technological changes in the economies of the regions, which allows us to conclude about the quality of the observed economic growth or factors of economic downturn. According to the research of scientists, it is concluded that there is no positive impact of structural changes on economic growth in the regions. The aim of the study (RAMSTETTER, 2019) is to assess the extent to which foreign direct investment in developing countries is associated with structural changes in the Asia-Pacific region.

The purpose of the article (TRESHCHEVSKY et al., 2018) is to identify promising areas of structural change in the regions based on economic and statistical analysis. The authors propose for each group of municipalities promising areas of structural change in the economic and social spheres. The article (ZABELINA et al., 2016) examines the structural changes in the Russian and Chinese regions involved in cross-border cooperation processes. The authors conclude that the possible impact of cross-border relations on the dynamics of sectoral changes in the regions of Russia, while the Chinese provinces are less dependent on this factor.

The author of the article (SAVELIEV, 2013) analyzes the regions, which allows to determine the factors of their competitiveness and assess how effectively they are used. According to the research results, standard strategies for modernization and increasing the competitiveness of regions are proposed. Scientists propose (VAYSMAN et al., 2013) a forecast of structural changes in the economy, which is planned to be implemented in two areas: in the traditional sector of the economy and the knowledge-based economy. The method was developed to determine the first forecast field, the approbation of which confirmed the probable downward trend in traditional sectors of the economy.

The document (BONDAREV, 2021) develops an endogenous growth model in which doubly differentiated research and development is the engine of growth. The authors note that the model includes dynamic structural changes and heterogeneous changes in knowledge. The authors of the article (BYES et al., 2021) argue that the promotion of economic growth and the transition to a more knowledge-based industrial structure will be at the forefront in the coming decades. Researchers are studying how more and better human capital can contribute to knowledge accumulation and structural change through a dynamic endogenous growth model, with Norway as a numerical example.

Researchers (ROMÁN et al., 2021) have found that growing interest in diversifying the economy, improving technology and specializing production again puts structural change at the center of economic development theory. The authors seek to fill this gap by using a synthetic indicator that reflects the dynamics of structural changes in the long run and allows to identify various patterns of development.

The article (DÁVILA-FERNÁNDEZ et al., 2020) investigates and analyzes the interaction of structural and institutional changes. Emphasis is placed on the sharp contrast between societies. Using Teernwall's law as a connecting bridge, the authors present empirical evidence regarding the attitude and production structure for a sample of 20 Latin American and 14 Asian countries. In the article (SONI et al., 2020), empirical analysis of the nature and causes of structural changes in the Indian economy shows that industry and the economy are driven by the services sector, and the growth and dominance of the sector are influenced by external factors such as foreign direct investment.
RESULTS AND DISCUSSION

If we take the regions of Ukraine as an example, it should be noted that recently their current state has been influenced by three main events.

Firstly, with the collapse of the Soviet Union, which led to the leveling of almost all existing economic ties and the destruction of a single system of planning and deployment of productive forces. Their violation has led to a lack of markets, which has led to overproduction, downtime and negative impact on the territory where these facilities are located. Such negative changes led to the fact that the population was left without income, over time, there was an aging of equipment and technology; loss of competencies and competitiveness.

In fact, there was a restructuring structure in the national and regional economy, which formed a detrimental effect on the structure of individual industrial regions.

Secondly, the consequences of the first change led to the disappearance of entire industries and city-forming industries. As a result of such negative structural changes, a larger number of collective agricultural enterprises disappeared, and most enterprises of light and food industries were liquidated. During this period, large industrial facilities were privatized, land and property of agricultural enterprises were sold, and most food and light industry plants were liquidated. The combination of such negative manifestations led to the structural crisis of regional economic systems.

Thirdly, as a result of the privatization of property, there was a significant increase in private property, which led to the restructuring of the architecture of the territorial structure. Such processes have led to the emergence of the private farming sector in regional structures. Transformational changes have led to demands and the need to improve technology and modernize the infrastructure sector, intensifying the orientation of Ukrainian regions to world markets as a competitive player. International standards are being disseminated and adopted, and the accumulated private financial capital in the regions is becoming an investment in the development of individual enterprises, which together provoke structural changes in the whole region. Gradually, there is an urgent problem of restoring mechanical engineering (aviation, shipbuilding, automotive sectors, production of the latest generations), repairing transport infrastructure, investing in innovative development of the social sphere and ensuring energy and information security.

Fourthly, reforms of decentralization of power, which led not only to changes in the functions of regional and local authorities, but also to self-sufficiency and responsibility for decisions, to the requirements of self-financing, rationalization of resource allocation. Functional aspects of structural changes in the economy of the regions in the context of digitalization are presented in Fig. 1.
Fig. 1. Functional aspects of structural changes in the economy of regions in the context of digitalization

STAGES OF RECONSTRUCTION OF THE STRUCTURE OF REGIONAL ECONOMIC RELATIONS

ASPECTS OF REGIONAL STRUCTURE MANAGEMENT IN THE CONDITIONS OF DIGITALIZATION
- continuity of processes of structural shifts
- the initial forms of the emergence of changes in the structure of the regions are the result of imbalances and the exhaustion of reliability
- the nature and causes of structural changes form the basic properties, direction and future consequences of such changes
- changes are a priority in the process of restructuring the regional structure
- the dynamically active nature of change necessitates the management of their orientation
- the system of regional economy is constantly in motion
- longevity and effectiveness of the existing structure of regional economic systems
- depends on the qualitative transformations of the previous structure and digitization processes

FORMS OF STRUCTURAL SHIFTS THAT REFLECT THE STAGES OF REGIONAL TRANSFORMATIONS
- transformation of the structure of regional economic systems in developed market economies
- the focus of regional changes on the dominance of industrial production
- regional shifts related to the transition from a planned to a market economy
- structural changes in accordance with the formation of a productive market economy
- transformation of the structure of regions under the influence of transformations of the global economy

LEVEL OF INFLUENCE ON STRUCTURAL CHANGES OF REGIONAL ECONOMIC SYSTEMS

Source: generated by the authors
Selected stages of restructuring the structure of regional economic relations have influenced the current patterns in the functioning of regional economic systems in the context of digitalization. The study makes it possible to identify the following aspects of regional structure management, namely:

- the continuity of the processes of structural changes is caused by many changes in the parametric characteristics and relationships of individual elements of the structure of the regions;

- the initial forms of origin of changes in the structure of regions are the result of imbalances and exhaustiveness of reliability and stability of the existing established structure, as well as caused by digitalization processes;

- the nature and causes of structural changes form the basic properties, direction and future consequences of such changes in both positive and negative directions of change;

- in the process of restructuring the regional structure, changes are a priority. Changes can be considered as basic, poorly predicted, unsystematic and stochastic fluctuations, the management of which forms and directs structural changes. In turn, structural changes are a key parameter of regulating the qualitative impact on the regional system, while the system, balance and sequence of regulation allows them to restructure the system of the region with minimal resources and time;

- the dynamically active nature of change causes the need to manage their focus;

- the system of regional economy is constantly in motion, which requires finding a balance of coherence of the elements and the stability of the system;

- the longevity and effectiveness of the existing structure of regional economic systems depends on the qualitative transformations of the previous structure and digitization processes.

Thus, changes in the properties, parameters of any element or relationship in the system are manifested in many influences, as well as shape the nature and direction of structural changes in regional economic systems. Perception of structural changes in the region under external influence ensures the direction and effectiveness of management of the regional economic system. The processes of social development cause various forms of structural changes that reflect the stages of regional transformation, namely:

- transformation of the structure of regional economic systems in developed market economies, due to the transition from industrial to post-industrial society, namely the digitalization of social development, which accelerates the spread of technology and information, intellectualization of labor resources, capital accumulation in some regions, etc.;

- the focus of regional shifts on the dominance of industrial production, which corresponds in developing countries as a result of the focus of structural policy on the industrial form of social production;

- regional shifts related to the transition from a planned to a market economy, consisting in a radical change in ownership, stimulation of services and trade, the predominance of small households, private ownership in the relevant structures;

- structural changes in accordance with the formation of a productive market economy, which is directly related to the decentralization of power, includes processes of continuous self-improvement of structures, financial independence of regions, the dominance of high-tech industries and the digital economy;

- transformation of the structure of regions under the influence of transformations of the global economy, radical changes in world economic processes, redistribution of capital and technology flows, investment of international corporations and public institutions in certain territories.
In the context of digitalization, we can trace four levels of impact on structural changes in regional economic systems (Fig. 2). Firstly, the megalevel, which is manifested in the impact of globalization on changes in the structure of regions associated with international investment and the introduction of global innovative technologies, the presence of the interests of transnational corporations, the representation of international institutions and the organization in a particular region. The influence of the megalevel on the structural changes of the regions is manifested through:

- globalization of markets for goods, services and resources;
- acceleration of technological development and dissemination of information, knowledge, innovations, technologies, which is facilitated by the digitalization of the economic space;
- the impact of international institutions on the processes of structural change, which consists in grant support for educational, scientific, environmental, energy, innovative regional development projects;
- the impact of international organizations on the level of democratization and environmental friendliness, industry standardization and energy efficiency, including regional economic systems;
- international industry associations and their impact on stimulating technological modernization, introduction of innovations, security, formation of competition in the market, etc.
Fig. 2. Levels of influence on structural changes of regional economic structures

LEVEL OF INFLUENCE ON STRUCTURAL CHANGES OF REGIONAL ECONOMIC SYSTEMS

**Megalevel**
- globalization of markets for goods, services and resources
- acceleration of technological development and dissemination of information, knowledge, innovations, technologies
- the influence of international institutions on the processes of structural change
- the influence of international organizations on the level of democratization, environmental friendliness, industry standardization
- the impact of international industry associations on the promotion of modernization, security, the formation of competition in the market
- financing the infrastructure of the regions

**Macrolevel**
- state regulation of regional development, control of regional formations by government and other structures
- territorial organization of the country and institutional development
- stimulation or deterrence by fiscal policy
- investment policy in general
- strategic planning of development of separate territories
- financial and investment incentives for certain areas of the region
- formation of financial independence of regions
- priority of development of industrial and socio-economic centers
- development of the formed production and infrastructure logistics
- creating a competitive framework in the relations between the territories
- stimulating international cooperation

**Mesolevel**
- organization of enterprises of territorial location
- formation of the level of income of the population, the impact on consumption
- support for the development of infrastructural and social spheres
- creating conditions for capitalization of income in the region
- investing in innovative renewal of production facilities

**Microlevel**
- investing in innovation, the sustainability of production processes
- support for the development of new technologies and innovation
- formation of the level of income of the population, the impact on consumption
- support for the development of infrastructural and social spheres
- creating conditions for capitalization of income in the region
- investing in innovative renewal of production facilities

**Source:** built by the authors

Secondly, the macro level, which manifests itself in the form of the influence of the national economy and state regulation, is related to the distribution of various types of economic activities...
resources, regulation of regional economic systems, external national structural and regional policies, processes of stimulating certain territories or industries. The influence of the macro level on the structural changes of regional economic systems is manifested through:

- state regulation of regional development;
- territorial organization of the country and institutional development and control of regional entities by government and other structures;
- stimulation or deterrence by fiscal policy of certain industries and territories;
- investment policy in general, as well as an innovative development and the pace of intellectualization of the regions;
- strategic planning of development of separate territories;
- financing of the infrastructure of the regions and the priority of individual routes, etc.

Thirdly, the meso-level, due to the level of decentralization, sectoral and territorial-architectural architecture of the structure within the region, the availability and adequacy of internal resources, as well as cultural, geographical, historical properties that have shaped and continue to influence the structure of the region. The mesolevel influences changes in the structure of regional formations through:

- financial and investment incentives for certain areas of the region;
- formation of financial independence of regional institutions and self-sufficiency of the region;
- priority of development of industrial and socio-economic centers in the region;
- formation of united territorial communities and a new institutional environment in the region;
- development of the formed production and infrastructure logistics and its expansion and increase of efficiency;
- creation of competitive bases in relations between territories;
- support of territories in the formation of unique local products or the development of historically formed conceptual and competitive advantages;
- support for the development of innovation and intellectualization;
- improvement of infrastructural, social objects, development of tourism;
- stimulation of international cooperation between regions and foreign countries and world organizations, etc.

Fourthly, the micro level, which is represented by the types and development of economic entities by ownership structure, forms of small business, social demands and interests of consumers, the structure of employment, costs and incomes, and so on. This level affects changes in the structure of regions through:

- the organization of enterprises located in the region, which directly provide financial flows of tax revenues and capital, form the distribution of assets in the region;
- formation of the level of income of the population, the activity of its involvement in production processes and the impact on the consumption of goods and services in the region, especially local production;
- support and stimulation of development of infrastructural and social spheres of separate territories and region in particular;
- investing in innovative renewal of production facilities and social infrastructure;
• stimulating the accumulation of skills and experience in the population of the territories;
• use of natural resources and formation of the level and scope of development of geographical competitive advantages;
• distribution of productive forces between branches of regional economy on the territory;
• creating conditions for capitalization of income in the region, etc.

CONCLUSION

The current structural impact on the regional economic system is the growing role of digitalization of economic processes, as well as the importance of high-tech elements, the uniqueness of territorial values and cultural identification, expanding access to information and knowledge and property rights. The processes of structural changes in the regional economy are influenced by corporatization and socialization against the background of globalization, as well as the intellectualization of global economic processes. Such trends made it possible to distinguish four levels of influence on the structural changes of regional economic systems in the context of digitalization, namely: megalevel, macrolevel, mesolevel and microlevel. Also, to detail the specific weights of the impact of these four areas on structural changes in the regional economic system. In turn, the isolated levels of impact of structural changes in the context of digitalization provoke certain imbalances and threats, including:

• reduction of efficiency of use and exhaustion of resources, increase of technologically backward branches of economy that leads to excessive consumption of natural resources, loss of territorial competitive advantages, deterioration of an ecological condition of regions;
• low level of innovation activity of the subjects of regional economic systems due to the lack of internal financial incentives and lack of resources for innovative development;
• high level of wear and technological aging of social and industrial infrastructure of the regions;
• deterioration of economic security and protection due to lack of stimulation of information development and availability of information.

Further research requires issues related to disparities and threats of structural changes that may provoke negative phenomena in the development of regional economic structures.

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Structural changes in economy of the regions in the context of digitalization
Mudanças estruturais na economia das regiões no contexto da digitalização
Cambios estructurales en la economía de las regiones en el contexto de la digitalización

Resumo
O objetivo do estudo é identificar aspectos das mudanças estruturais na economia das regiões no contexto da digitalização. A metodologia de pesquisa é uma abordagem sistemática das mudanças estruturais na economia das regiões. E para realizar este estudo utilizou uma série de métodos gerais de pesquisa econômicos e específicos baseados nas tendências científicas atuais no desenvolvimento econômico regional e na digitalização. O estudo possibilitou comprovar as seguintes conclusões, ou seja, o impacto sobre as mudanças estruturais nos sistemas econômicos regionais no contexto da digitalização é do meganível, macronível, mesonível e macro-nível. Isso possibilitou identificar as alavancas desses níveis de influência e justificar as formas de mudanças estruturais que refletem as etapas da transformação regional.

Keywords: Structural changes. Region. Digitization. Economic relations. Regional economic system.

Abstract
The aim of the study is to identify aspects of structural changes in economy of the regions in the context of digitalization. The research methodology is a systematic approach to structural changes in the economy of the regions. And to carry out this study used a number of general economic and specific research methods based on current scientific trends in regional economic development and digitalization. The study made it possible to substantiate the following conclusions, namely, the impact on structural changes in regional economic systems in the context of digitalization is from the mega-level, macro-level, meso-level and macro-level. This made it possible to identify the levers of these levels of influence and justify the forms of structural changes that reflect the stages of regional transformation.

Resumen
El objetivo del estudio es identificar aspectos de los cambios estructurales en la economía de las regiones en el contexto de la digitalización. La metodología de investigación es un enfoque sistemático de los cambios estructurales en la economía de las regiones. Y para llevar a cabo este estudio se utilizaron una serie de métodos de investigación económicos generales y específicos basados en las tendencias científicas actuales en el desarrollo económico regional y la digitalización. El estudio ha podido fundamentar las siguientes conclusiones, a saber, el impacto en los cambios estructurales en los sistemas económicos regionales en el contexto de la digitalización es a nivel mega, macro, mesonivel y macro nivel. Esto le permite identificar las palancas de estos niveles de influencia y justificar las formas de cambios estructurales que reflejan las etapas de transformación regional.

Palavras-chave: Mudanças estruturais. Região. Digitalização. Relações econômicas. Sistema econômico regional.

Keywords: Cambios estructurales. Región. Digiitzación. Economic relations. Regional economic system.

Palabras-clave: Cambios estructurales. Región. Digitalización. Relaciones económicas. Sistema económico regional.