

ЕКОНОМІКА ТА УПРАВЛІННЯ НАЦІОНАЛЬНИМ ГОСПОДАРСТВОМ

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**ATTRIBUTIVE MODEL OF SYNERGETIC
TYPE SYSTEMS DEVELOPMENT****АТРИБУТИВНА МОДЕЛЬ РОЗВИТКУ
СИСТЕМ СИНЕРГЕТИЧНОГО ТИПУ**

Urgency of the research. The environment of the social and economic systems functioning is characterized by a high degree of variability, which creates barriers for their development. The search for ways to ensure the development of social and economic systems has to be based on the perfect ownership of concepts and categories connected with development.

Target setting. The formation of a conceptual and categorical apparatus of development requires not only the study of the categories associated with this concept, but also the establishment of existing interrelationships between them.

Actual scientific researches and issues analysis. Afanasyev N., Rogozhyn V, Rudyk V. Belyayev O., Bebelo A., Bogatyryov I. and others have devoted their researches to the concept of development of social and economic systems at different levels of the hierarchy.

Uninvestigated parts of general matters defining. At the same time, the interrelation between the categories related to the development of the system that needs to be refined and visualized and has not been sufficiently studied.

The research objective. Construction of an attributive model for the development of social and economic systems by synergetic type in order to clearly illustrate the interrelations between the separate categories of the conceptual and categorical apparatus of systems development.

The statement of basic materials. The article investigates the interrelations between the categories of development, the adaptability of the social and economic system and the regulation of development. An attributive model of synergetic type has been constructed, the feature of which is the optimal breadth of coverage of social and economic systems. Within the framework of the constructed model, the attributes of time and interaction with the division of the latter on the attributes of the space, motion and influence have been highlighted.

Conclusions. The attributive model of the development of the social and economic system, constructed in this way, allows account the interrelationships between its development, the level of adaptability and the regulation of the system's development.

Keywords: social and economic system; development; attribute; development level; character of development; stability; variability; adaptability, regulation.

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Актуальність теми дослідження. Середовище функціонування соціально-економічних систем вирізняється високим ступенем мінливості, що створює перепони для їхнього розвитку. Пошук шляхів забезпечення розвитку соціально-економічних систем має ґрунтуватися на досконалому володінні поняттями та категоріями, пов'язаними з розвитком.

Постановка проблеми. Формування понятійно-категоріального апарату розвитку потребує не лише дослідження пов'язаних з цим поняттями категорій, але й встановлення існуючих між ними взаємозв'язків.

Аналіз останніх досліджень і публікацій. Вивченню поняття розвитку соціально-економічних систем на різних рівнях ієрархії присвятили свої дослідження Н. Афанасьєв, В. Рогожин, В. Рудика, О. Беляєв, А. Бебело, І. Богатирьов тощо.

Виділення недосліджених частин загальної проблеми. У той же час, недостатньо вивченими є взаємозв'язки між категоріями, пов'язаними з розвитком системи, які потребують уточнення та наочного відображення.

Постановка завдання. Побудова атрибутивної моделі розвитку соціально-економічних систем синергетичного типу з метою наочного відображення взаємозв'язків між окремими категоріями понятійно-категоріального апарату розвитку систем.

Виклад основного матеріалу. У статті досліджено взаємозв'язки між категоріями розвитку, адаптивності соціально-економічної системи та регулювання розвитку. Побудовано атрибутивну модель синергетичного типу, особливістю якої є оптимальна широта охоплення соціально-економічних систем. В рамках побудованої моделі виділено атрибути часу та взаємодії з поділом останніх на атрибути простору руху та впливу.

Висновки. Побудована в такий спосіб атрибутивна модель розвитку соціально-економічної системи дозволяє врахувати взаємозв'язки між її розвитком, рівнем адаптивності та регулюванням розвитку системи.

Ключові слова: соціально-економічна система; розвиток; атрибут; рівень розвитку; характер розвитку; стійкість; мінливість; адаптивність, регулювання.

Urgency of the research. In today's conditions, the relevance of finding ways to ensure the development of social and economic systems of different levels is increasing. Of particular importance, this task acquires in a dynamic environment of the systems functioning, characterized by a high degree of instability, instability and turbulence. In connection with this, there is a need for the formation of a conceptual and categorical apparatus for the study of "development" concept.

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Target setting. The study of such a complex concept as the development of the social and economic system requires a systematic approach to the formation of a conceptual and categorical apparatus, which involves not only the establishment of content categories associated with the development of the system, but also a careful study of the relationship between these categories. At the same time, it is extremely urgent to create an exhaustive idea of the course of the process of the system development as a characteristic of its movement in specific conditions of space and time under the influence of certain factors.

Actual scientific researches and issues analysis. In the researches of domestic and foreign scholars such as Afanasyev N., Rogozhyn V., Rudyk V. [1], Belyayev O., Bebelo A. [2], Bogatyryov I. [3], Mychernyi S., Dovbenko M. [4], Pogorelov Yu. [5], Sirko A. [6], etc. understanding of the essence of the social and economic system has been formed, the approaches to the concept of development have been considered, the characteristic features and specific features of the development of social and economic systems of the micro, meso and macro levels have been investigated. , the factors influencing the process of their development have been systematized.

Paying tribute to the research of scientists covering a wide range of theoretical, methodological and practical aspects of ensuring the development of social and economic systems as a focused process, it should be noted that the interrelations between categories related to the development of the system need to be clarified and more clearly reflected.

The research objective. The purpose of this research is to organize the conceptual and categorical apparatus of the study of social and economic systems development, to identify the relationships between individual categories and their visual representation by constructing a complex attributive model of the synergetic type.

The statement of basic materials. The study of the concept "development" in close relationship with other categories has allowed identifying categories that should be integral components of the conceptual and categorical apparatus of the research. Such categories are the development of the social and economic system. Adaptive feature of the development and its regulation.

In our opinion, it is expedient to consider the possibility of constructing an attributive model of a synergetic type, which will allow visualizing the interrelations between these categories. The choice of the attributive model is due to the fact that, as Popov S. states in [10], one of the peculiarities of the attributive approach is the optimal breadth of coverage of social and economic systems that allow solving the problems of their functioning and development, depending on the conditions and the level of complexity.

An attributive approach, avoiding the usual description of a particular category, is to distinguish its defining characteristic (attribute), which distinguishes this category from others, and possibly determines the rest of its characteristics.

The attributive approach is constructed using the theory of attribution, which can be successfully applied in relation to social and economic systems of different levels of the hierarchy.

Before proceeding to the construction of an attributive model for the development of the social and economic system, it is advisable to define the concept of "attribute" as the key concept of the attributive approach.

In the modern social and economic dictionary, compiled by Raisberg B., the attribute is interpreted as the property of the given object, the object, its attributes and symbols [11]. That is, the attribute is that in traditional logic it is called the distinctive feature of a certain thing, but in terms of not a species, but a substantive difference.

The attribute is also considered to be an integral, necessary, to ensure the integrity of the object (subject) or subject (person), property, its part, appendix [12]. According to the academic explanatory dictionary of the Ukrainian language, the attribute is a substantial, inalienable property of an object or phenomenon; a sign or an object that is a particular character feature of someone or something [13].

Regarding the attributive approach, it is characterized by the understanding of the object of study as a set of certain attributes. The application of the attributive approach is often aimed at constructing an attributive model, which is the most complete model that gives complete information on the structure of the research object.

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All attributes are most often divided into the following groups: attributes of time - past, present, future; attributes of space - length, width, height; attributes of motion - direction, speed, purpose; attributes of influence - factors represented by the macro world [10].

From the point of view of the study of social and economic systems and their development, such a division into groups requires some adjustments. We believe that the attributes of time should be singled out, since they are unchanged for any social and economic systems and categories that characterize them. Each of these categories can be explored in retrospect, at the current time and with the prospect of future changes.

At the same time, the attributes of space, movement and influence differ for each category and reflect certain interrelationships that are characteristic of it. In view of this, it is proposed to combine the attributes of space, movement and influence into a single group – the attributes of interaction.

The relationship between time attributes and interaction attributes is shown in Fig. 1

Attributes		Time attribute					
		Past Period	Present .Period	Future Period			
				Short-term	Middle-term	Long-term	
Attributes of Space	Interaction attributes	Analytical Aspect	Retrospective Analysis	Current Analysis	Perspective Analysis		
		Result Aspect	Analytical base for forecast	Analytical base for forecast	Short-term forecast	Middle-term forecast	Long-term forecast

Fig. 1. Interconnection between the attributes of interaction and time

From Fig. 1. it is shown that any object can be characterized by the attributes of time and interaction attributes. As attributes of the time, which is unchanged for all objects, is the past period, present period and future period. At the same time, the future period can be divided into short-term (up to 1 year), medium-term (up to 3-4 years), long-term period (from 5 years).

The attributes of interaction, which include the attributes of space, motion and influence, get the characteristic corresponding to the one from which point of view the space attribute is considered by this object. At the same time, in our opinion, it is worthwhile to highlight two aspects that characterize the relationship between time attributes and interaction attributes: analytical and productive.

The analytical aspect determines which kind of analysis will be applied to this object by the chosen attribute of interaction in terms of a specific attribute of time. It should be noted that in the case when the object is considered in the context of the past, we can talk about conducting a retrospective analysis. If the object and its inherent attributes of interaction are considered at the current moment, then we can talk about conducting the current analysis. At the same time, if the object and its attributes are studied in the context of detecting possible future changes, then, despite the duration of the research period (short-term, medium-term or long-term), it is a prospective analysis.

An effective aspect determines what should be the result of the selected type of analysis that will be applied to the given object by the chosen attribute of interaction in terms of a specific attribute of time. As for the conditions of the past and the current period one can say that the analytical basis for the forecast will be created as a result of the analysis (retrospective or current). The difference between these time periods is that only the short-term forecast can be built on the basis of the current analysis, and on the basis of a retrospective analysis combined with the current one, it is medium and long-term (depending on how many years of the previous period were subject to analysis). As for the

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effective aspect in the future time, we can talk about obtaining three possible types of forecasts - short, medium and long-term.

First of all, it is worth considering a simplified attributive model for the development of the social and economic system (without taking into account the attributes of time). The attribute of space in this case is the level of development; attributes of movement – the character and stability of development, the attributes of influence – the variability of the external environment, as it has been previously described, the level, the nature and sustainability of the development cause a change in each other. In turn, the level and nature of development is largely influenced by the variability of the external environment.

The development of the social and economic system and its characteristics are closely linked to the property of the system, which is adaptability. It's time to consider a simplified attributive model of adaptability of the social and economic system (without taking into account the attributes of time).

We have found that adaptability have to be considered as the capability to adaptability. This concept has three main characteristics: action, direction and impulse. According to our proposed model of adaptability of space attributes is the adaptation to changes as an action, attributes of motion – change the parameters of the system as a direction, the attributes of influence – the change of external factors as an impulse. The interpretation of the constructed model can be as follows: the change of external factors gives impetus to actions that involve adjusting the social and economic system to changes, which is aimed at changing the parameters of the system in order to increase the level of development of the social and economic system and ensure its progressive character.

In the process of the relationship studying between attributive models of development and adaptability of the social and economic system, it has been established that the variability of the external environment leads to changes in external factors that create an impetus for the implementation of the mechanism of adaptation to changes, which maintains or increases the level of sustainability of the social and economic systems. Changing the system's parameters through which the adaptation to changes in external factors is being made contributes to a higher level of development and a progressive nature of development.

Unfortunately, the level of adaptability is not always enough to ensure the preservation or increase of the sustainability of the development of the social and economic system, as well as the level of growth and its progressive nature. Consequently, in such conditions, there is a need to regulate the development of the social and economic system.

Let's consider a simplified attributive model of regulation of the development of the social and economic system (without taking into account the attributes of time). The attributes of space in the attributive model of regulation of the development of the social and economic system is the strategy of development, attributes of motion – drivers of development, attributes of influence – impulses of development. Thus, under the influence of developmental impulses, a development strategy is selected and development drivers are developed within the framework of the chosen strategy.

In Fig. 2 presents the attributive model of the development of a social and economic system of synergetic type that combines elements of attributive models of development, adaptability and regulation of development, and takes into account connections within the categories. The variability of the external environment causes changes in external factors that give impetus to the launch of the adaptation mechanism, as well as create impulses of development, which takes into account the strategy and development drivers are being developed.

The level of development achieved in the current and past periods is the basis for choosing a development strategy that defines future developmental dimensions with adaptation to change. Implementation of the development strategy leads to a change in the parameters of the system, which are aimed at increasing the level of development and ensuring its progressive character. Development drivers developed in the development strategy contribute to the sustainability of development.

In turn, the development strategy implies the implementation of certain mechanisms (development drivers), the development of which is carried out taking into account the impulses of development, which are formed as a result of changes in external factors of the environment of the social and economic system.

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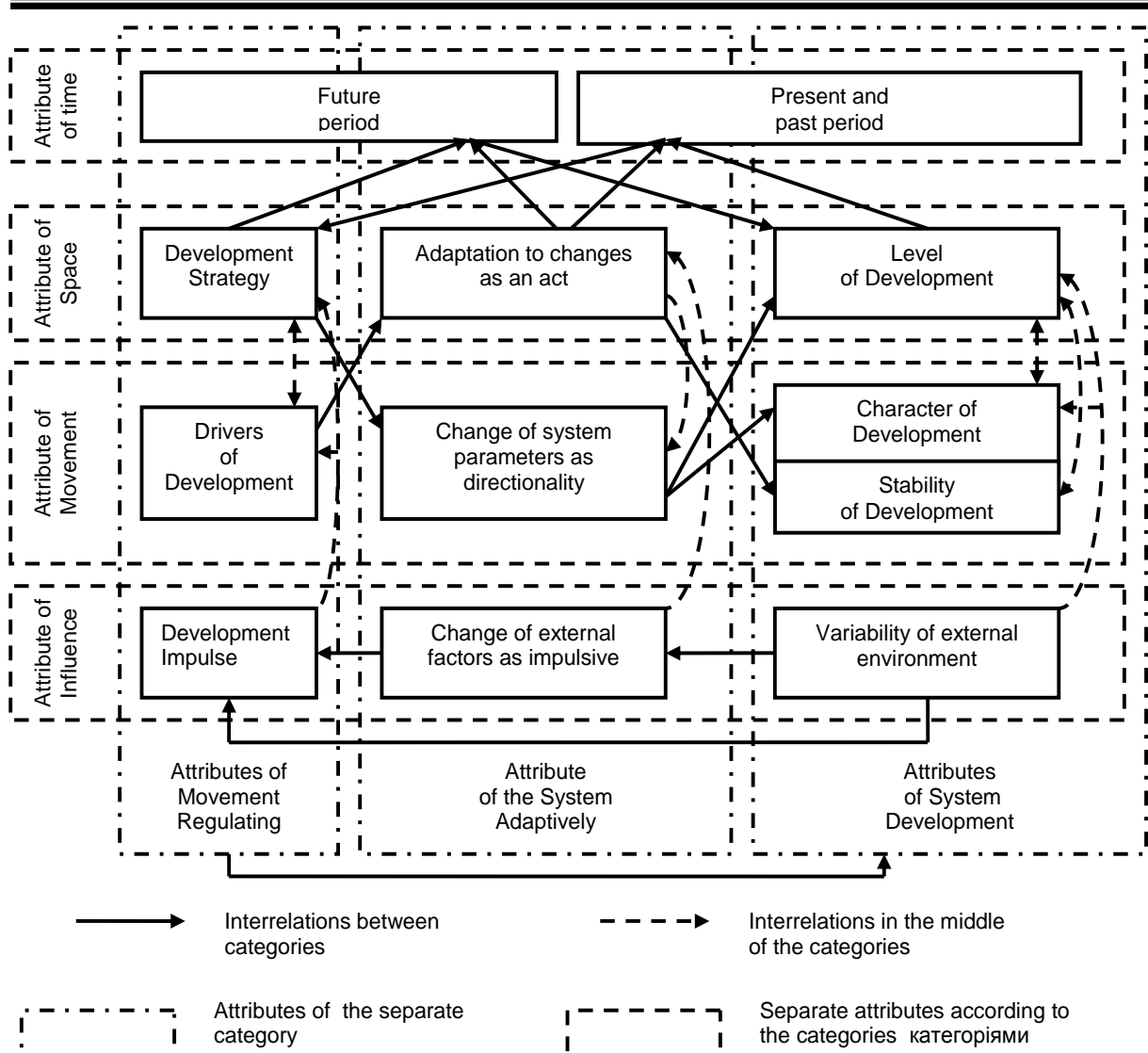


Fig. 2. Attributive model of development of social and economic system of synergetic type

Conclusions. Thus, the constructed model gives an exhaustive idea of the relationship between the attributes of the development of the social and economic system, the attributes of the adaptability of the social and economic system and the attributes of development regulation. Application of such a model allows taking into account the relationship between the development of the social and economic system, the level of its adaptability and regulation of the development of the social and economic system.

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