PHILOSOPHICAL SCIENCES

PHILOSOPHY OF SCIENCE AND TECHNOLOGY


INFORMATION ON THE TIME. SYSTEMS TRANSDISCIPLINARY ASPECT

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ABSTRACT

This is the second of three articles that introduce readers to models of a systems transdisciplinary approach. The subject of this article is a brief theoretical justification of the systems transdisciplinary model of temporal unit of order, as well as a description of some areas of its practical application. The author represents an alternative view on the problems of time, development of the living through the question of transdisciplinarity. He develops his statements within the framework of a philosophical metaphorical methodological approach. The author's position offers certain ways for further philosophical discussion. Correlations of forecasts and other original descriptions with accurate historical dates should be taken as methodological approximations. The specific examples and conclusions in the text are largely metaphorical and require a disciplinary approaches for their further interpretation.

АННОТАЦИЯ

Это вторая из трех статей, знакомящих читателей с моделями системного трансдисциплинарного подхода. Предметом данной статьи является краткое теоретическое обоснование системной трансдисциплинарной модели временной единицы порядка, а также описание некоторых областей ее практического применения. Автор представляет альтернативный взгляд на проблемы времени, развития живого через вопрос трансдисциплинарности. Он развивает свои высказывания в рамках философско-метафорического методологического подхода. Авторская позиция предлагает определенные пути для дальнейшего философского обсуждения. Корреляции прогнозов и других исходных описаний с точными историческими датами следует рассматривать как методологические приближения. Конкретные примеры и выводы в тексте в многом метафоричны и требуют дисциплинарных подходов для их дальнейшей интерпретации.

Keywords: transdisciplinarity, systems transdisciplinary approach, systems transdisciplinary model of temporal unit of order.

Ключевые слова: трансдисциплинарность, системный трансдисциплинарный подход, системная трансдисциплинарная модель единицы порядка.

Introduction

The modern states differ in the features of national culture and education, the level of socio-economic development. Therefore, each state has its description of the development goals of modern society and also has different ideas about how to achieve these goals. This fact makes it very difficult to solve the complex problems of modern society (Begun, 2012). It follows from this statement that the development of society is subject to
laws based on subjective factors. However, if we say that man and humanity are natural objects, this subjective process of self-organization must be carried out under the influence of objective natural factors. Therefore, in such conditions, a higher level of scientific understanding, assessment and modelling of natural, socio-economic, technological, cultural phenomena and phenomena is necessary, from which policy and decision-making at the global and local levels should be based (Pyastolov, 2016). One of these factors is time. In our case, time should play the role of self-organization of socio-economic processes.

The necessary level of scientific understanding of socio-economic development offers systematic thinking and a systematic transdisciplinary approach. Within the framework of the new scientific understanding, the objective factor of time is based on the General philosophical concept of unicentrism (Mokiy, 2019a). In this concept, the unity of the world determines the universal order. The researcher can detect this order in the structure of fragments of space, attributes of information, and periods of isomorphic systems transdisciplinary models of spatial, informational, and temporal unit of order. This article aims to acquaint readers with the theoretical justification of the systems transdisciplinary model of the time unit of order, as well as to show the practical possibilities of this model by the example of justification of objective trends, goals and objectives of socio-economic development of modern society.

**Philosophy of Time**

The Greek philosopher Aristotle (384 BC – 322 BC) claimed that Time is the most unknown of all unknown things. Time is the focus of philosophers and psychologists, mathematicians and physicists, economists and engineers.

The results of this multi-faceted study of time can be found in the book “the Natural Philosophy of Time”, which was written by G.J. Whitrow (Whitrow 1960). It follows from this book that arguments about the nature of time, which have practical significance in various fields of human activity, have contributed to the emergence of many definitions of time. Modern scientists prefer to consider time as part of special scientific theories. Scientists say that if there is a theory, you can analyze the past, evaluate the present and predict the future, and if there is no theory, then you can remember the past, observe the present and dream about the future (Yashnik, 2017). Let’s consider several modern approaches to understanding the nature of time.

For ordinary people, time is, first of all, what the clock shows. However, in modern science, time is perceived and studied only together with space (space-time). At the same time, physical space-time is thought of as an independent category (substance). In this case, space is “pure extension” and time is “pure duration”. This substance is a continuous background on which the dynamics of the submerged particles and fields unfold. In another case, space-time is interpreted as a specific system of relations between objects of the microcosm. In this case, space is a set of relations that Express the coordination of the coexistence of objects (their location relative to each other), and time is a set of relations that Express the coordination of successive States, their sequence and duration (Vladimirov, & Bolokhov, 2016).

A generalization of the above scientific arguments about time reflects the following definition of time. Time is the dimension of the physical universe that orders the sequence of events at a given place. Time is the dimension of the physical universe that orders the sequence of events at a given place. Time is the dimension of the physical universe that orders the sequence of events at a given place. Time is the dimension of the physical universe that orders the sequence of events at a given place. Time is the dimension of the physical universe that orders the sequence of events at a given place.

**Time in the Concept of Unicentrism**

In the concept of unicentrism, time is a form of transforming the potency of One Orderly Medium (OOM). If we use the example with a mechanical clock, the role of time will be played by a fixed dial (not process time) and moving hands (process time). Non-process time plays the role of a temporary aspect of the OOM development program. In such a program, the past, present, and future are strictly defined periods. The processing time is associated with the movement of objects. More precisely, with a movement that leads objects to certain results and development goals. Thus, the generic definition of time looks like this. Time is a form of transformation of OOM potency that helps to achieve goals, coordinate meanings, and synchronize the results of the development of objects and functional ensembles of objects at all levels of reality (Mokiy, & Lukyanova, 2021).

**Structure of the Systems Transdisciplinary Model of Temporal Unit of Order**

To model the transformation of potency, which is revealed by the variety of objects and processes of reality, it is important to combine information (as a form of manifestation of potency) and time (as a form of transformation of manifested potency). These forms are isomorphic, that is, they have the same principles of structure. These principles are implemented in the systems transdisciplinary model of temporal unit of order (see Figure 1). For methodological purposes four types of the systems transdisciplinary model of temporal unit of order are used:

- Multiplex model (see Figure 1a). This model demonstrates the distribution of influence and synchronization of the results of soft and hard programs of appropriate potency conversion;
- Stage model (see Figure 1b). This model demonstrates a consistent acceleration of the appropriate potency conversion;
- Impulse model (see Figure 1c). This model demonstrates the distribution of saturation events that accompany the appropriate transformation of potency.
Fourth (main) type of the systems transdisciplinary model of temporal unit of order is the model of the Progressive time scale of the complete transformation of the potency of the original cosmic matter on Earth in the modern chronology (see Figure 4). This model defines the duration of periods of inorganic, organic, and social history that the previous three types of models can be applied to study and describe. This model will be described in detail below.

Let’s consider the characteristic features of each type of the systems transdisciplinary model of temporal unit of order.

**Systems Transdisciplinary Model of Multiplex**

Multiplicity model (from lat. *Multiplex* – complex) is a complex of waves that logically fragments the entire expedient development process. In the multiplex model, each period of information transformation of a certain type is represented by a certain wave or set of waves. Therefore, the multiplex is a “snapshot” of a specific unit of physical or historical time. In this “photo” you can see the entire set of periods of development of the object, demonstrating its meaning, its present, future and past.

The multiplex consists of long and short waves (see Figure 1a). Within the framework of long waves, the development of the object has a predetermined character. Predetermination is manifested by the sequence of inevitable results of object development. Therefore, the long waves of the multiplex play the role of a hard development program. Within short waves, the development of the object has the character of predisposition (the tendency to show their individuality in the implementation of activities). Therefore, the current results of individual development of objects and a functional ensemble of objects have to be periodically synchronized and distributed in an orderly manner within short waves, showing obvious signs of development. As such the short wave multiplex plays the role of a soft development program (Mokiy, 2019b).

The long waves of the multiplex include the base and setting waves:

- **Base wave** is a representation of the entire duration of development (transformation of potency) of an object or a functional ensemble of objects;
- **Setting wave** is a representation of the duration of the inevitable stages of development of an object or a functional ensemble of objects.

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**Figure 1. Types of the systems transdisciplinary model of temporal unit of order**

(Combined with the systems transdisciplinary model of the informational unit of order)
The short wave multiplex is the calibration and the supporting wave:

- Calibration wave is a display of the duration within which the logical compatibility of the main milestones (moments) of the development of an object or a functional ensemble of objects is discernible;
- Supporting wave is a display of the duration within which the logical compatibility of current events in the development of an object or a functional ensemble of objects is discernible.

**Control and Critical Points of the Multiplex Model**

The end of the wave implies the achievement of a certain goal and development results. Therefore, the control point is the end date of each multiplex wave. The value of checkpoints is that they allow you to synchronize the results of the development of soft and hard programs that have different durations. In Figure 1a, the control points are indicated in yellow.

The critical point is the date of transition of each multiplex wave from the quantitative stage to the qualitative stage of development. Critical point is characterized by sufficient resources to allow an object or functional ensemble of objects to achieve the program results of the nearest control point. In Figure 1a, the critical points are marked in red. The absence of conditions and resources at a critical point can radically change the course of development of an object and a functional ensemble of objects, up to the end of development.

**Systems Transdisciplinary Stage Model**

Stage is a period during which objects, their properties, relationships, and results of activity undergo significant quantitative and qualitative changes. These changes lead to a consistent acceleration of the appropriate development process. The systems transdisciplinary stage model includes four main stages: Identification, Communication, Stabilization, and Invariation (see Figure 1b).

**Identification stage.** During the Identification stage, under the influence of factors of different nature, objects become what they should become. This stage corresponds to the duration of the first setting wave of the multiplex. Therefore, the result of object identification is the result of a hard development program. It is important to note that the following steps relate to the second setting wave of the multiplex. Consequently, each subsequent stage will increase the hardness of the development program.

**Communication stage.** As part of the Communication stage, objects begin to manifest and improve signs of civilization. Awareness of their functional responsibilities allows objects to establish a variety of relationships and thus form vertical and horizontal functional ensembles. Within the framework of functional ensembles, the objects themselves become more complex and possible complex types and forms of their activity are realized. It is important to note that at this stage there is an accumulation of matter, which is the result of the activities of numerous and diverse functional ensembles.

**Stabilization stage.** Within the framework of the Stabilization stage, only those objects and functional ensembles of objects that can give the overall development pronounced expediency receive further development.

**Invariation stage.** Within the framework of the Invariation stage, the overall development of objects and functional ensembles of objects is completed. This stage corresponds to the eighth supporting wave of the multiplex. This wave determines the duration and characteristics of current events that contribute to the formation of the final result of development.

Thus, the use of a systems transdisciplinary Stage model allows us to conduct a correct study of the characteristic stages of development, as well as to organize effective management of the development of objects and functional ensembles of objects.

**Systems Transdisciplinary Impulse Model**

Impulse is the inner urge of the manifested potency to an expedient transformation. This means that when the potency conversion begins, information from all eight information attributes will begin to be converted. The Impulse model consists of two periods: the period of gaining the form of the manifested potency and the period of realization of the formed potency (see Figure 1c). Under the requirements of the universal order, the transformation of each feature of information will represent a set of eight “feature waves”. Each feature wave characterizes events that contribute to achieving the goal of the corresponding feature. Maximum saturation with events that correspond to all eight features is observed in the first half of the period of obtaining the form of the manifested potency. The maximum saturation with events that correspond to all eight features is observed in the second half of the period of realization of the formed potency.

For each functional ensemble of objects, eight main parameters can be defined, which can describe the process of its development. These parameters include, for example, the state structure, culture, economy, and so on. Using a system transdisciplinary impulse model allows to predict the saturation of events that accompany the development of a certain functional ensemble; calculate the duration of events that relate to each of these parameters; determine the timing of synchronization of the results of these events in the development process, as well as manage the development process, increasing or reducing its saturation with the corresponding characteristic events.

**Determining the Calendar Duration of Models**

Models of the Multiplex, Stage model, and Impulse model gain practical significance from the moment they are given calendar terms of adequate chronology. Adequate chronology is the calendar duration of the selected base cycle. For example, the duration of the base (annual) cycle of the rotation of Mars around the Sun is 667 Martian days. The duration of the Earth’s base (annual) cycle is 365 Earth days, etc. In the example of a mechanical clock, the duration of the basic (annual) cycle can be compared to the moving hands. To decipher the readings of these arrows, you need a scale of a fixed dial.
The role of this dial is played by a model of a Progressive time scale.

The universal order implemented in systems trans-disciplinary models of informational and temporal unit of order is a multiple of 2. Therefore, the model of the absolute Progressive time scale will be a sequence of numbers that is a multiple of 2 (2-4-8-16-32-64-128-256-512-1024, 2048, and so on). In this case, the evaluation of the results of converting the matter potency of the planets of the Solar system should be based on the timing of synchronization of the base (annual) cycle with one of the numerical values of the absolute progressive time scale close to them. Such a close numerical value for the annual cycle of Mars (667 days) is the number – 1024. A close numerical value for the Earth's annual cycle (365 days) is 512. The graph of the combination of two coherent (not changing their parameters) wave processes (365–512) revealed the following pattern. These processes are synchronized every seven Earth years (see Figure 2).

![Figure 2. Graph of combining waves with the duration of cycles 365 and 512](image)

This circumstance allows us to form a model of Progressive (twice increasing) time scale for the complete transformation of the potency of the original cosmic matter with the participation of Earth's humanity in the modern chronology. Under the requirement of the Multiplex model, the model of the Progressive time scale for the complete transformation of the potency of the original cosmic matter on Earth in modern chronology consists of eight periods. Under the design of the stage model, which demonstrates the sequential acceleration of the potency transformation, each such period consists of four proper periods. Each period reduces its duration by half (see Figure 3).

![Figure 3. Model of a Progressive time scale for the complete transformation of the potency of the original cosmic matter with the participation of Earth’s humanity in the modern chronology](image)

In describing the events of the successive evolutionary development of inorganic and organic matter in the universe and on Earth, science uses modern chronology. Therefore, to demonstrate the heuristic properties of a progressive time scale model, it is sufficient to combine the scientifically proven timing and duration of these events with the timing of this model.

**Heuristic Properties of the Model of a Progressive Time Scale**

This model of the Progressive time scale of the complete transformation of the potency of the original cosmic matter on Earth in modern chronology indicates the initial event that occurred about 15 billion years ago. This event is the beginning of the transformation of the potency of the Big Bang, which is associated with the beginning of the transformation of primary cosmic matter. The specified age of the universe is confirmed by various methods used by astronomers. For example, estimates of the age of the oldest stars in globular clusters, based on their chemical composition using modern theories of stellar evolution, gave values of 15 ± 4 billion years (Samus, 1987). Analysis of the content of thorium and uranium in the atmospheres of young stars allowed us to determine the age of the universe at 15.5±3.2 billion years (Schatz, Toenjes, & Pfeiffer, 2002).

In the process of scientific research conducted by the author of the article in 2013, it was possible to combine scientifically confirmed events of the evolutionary development of inorganic and organic matter with a model of a progressive time scale for the conversion of the potentiality of the original cosmic matter with the participation of terrestrial humanity (Mokiy, 2013). Under the results of this study, the transformation of the potentiality of planetary matter with the participation of terrestrial humanity should be completed in 3584 (see Figure 4).

Taking into account the nature of the evolution of biological species, the process of transforming cosmic and planetary matter on Earth should probably achieve its main result. It is about the formation of a special substance.
Such a substance is the DNA and RNA molecules of people who can truly display a single world, as well as carry out their material and spiritual activities under the general order that determines the unity of the world. It is likely that when our Sun sheds its shell and destroys its planets, these substances will become part of the new protostellar cloud. From such a cloud a new star system will form. Some planets of the new star system will receive these specific chemicals, which will take part in the formation of more developed worlds of these planets. On this occasion, the German philosopher I. Kant said that it must be recognized that manifestations of will, human actions, like any other natural phenomenon, are determined by the general laws of nature. Someday,
not very soon, the human race will finally reach the state where all its natural inclinations can fully develop and its purpose on Earth will be fulfilled. This justification of nature or, rather, providence is an important incentive for choosing a special point of view on the world (Kant, 1724-1804).

The content of this view of the world was previously described by the philosopher Plotin (204-270). He argued that the inherent wisdom of nature does not gradually consist of theorems or evidence, as well as from the multitude into unity, but, on the contrary, reveals its unity in the multitude. This statement applies to a set of four types of systems transdisciplinary model of the time unit of order, combined with the corresponding models of the Progressive time scale (see Figure 5). Simply put, instant photos of selected periods of the purposeful transformation of the matter of the universe with the participation of Earth's humanity allow us to tell about them in a few sentences.

The paper provides a brief description of only three periods:
- 15032385536 – 0, see Figure 5d;
- 10752 BC – AD 2688, see Figure 5d1;
- 1792 – 2688, see Figure 5d2.

![Figure 5. Combining the models of the Progressive time scale (d, d1, d2) with other types of the model of the time unit of order, demonstrating the appropriate transformation of the potency of cosmic and planetary matter in the Earth’s chronology](image-url)
Brief description of period 15 032 385 536 – 0
(The Progressive time scale - d)

About 15 billion years ago, the universe was created. About 7.5 billion years ago, under the first installation wave (a hard program of development), a protosolar cloud was formed, saturated with the substance of stellar systems of several generations. About 3.5 billion years ago, an active transformation of primary planetary matter began on the planet. With the beginning of the eighth supporting wave (about 1.8 billion years ago), which coincides with the Invariation stage, nuclear cells appeared. About 0.9 billion years ago, multicellular organisms arose. Multicellular organisms use the gene exchange mechanism efficiently. This circumstance contributed to the consistent improvement of species of multicellular organisms, which, in turn, contributed to the improvement of DNA and RNA molecules. Therefore, about 0.9 billion years ago, events began in which the synchronization of the results of the improvement of DNA and RNA molecules of all planetary species of multicellular organisms, including humans, takes place.

Brief description of period 10 752 BC – AD 2688
(the Progressive time scale - d1)

The highest values of this period are the results of the human mental functions (thinking, consciousness, reason). According to the stage model, we can talk about four subspecies of Man truly reasonable (see Figure 4 – “blue” period). The development stages are characterized by a special worldview of people, features of social organizations and the content of basic values.

From 10752 BC to 3584 BC. Sedentary Man became the main contributor to social development. The emergence of Sedentary Man was largely driven by the Neolithic revolution (around 10752 BC).

From 3584 BC until the first year AD Social Man became the main contributor to social development. The emergence of Social Man was largely driven by the Civilization revolution (around 3584 BC).

From the first year of AD to 1792. The main participant in social development became the Humanistic Man. The emergence of Humanistic Man was largely driven by the Ethnic revolution (beginning of AD).

From 1792 to 2688. The main participant in social development was Liberal Man. The emergence of Liberal Man was largely driven by the Industrial revolution (around 1792).

The General Description of the Period of formation of Man truly reasonable (10752 BC – AD 2688) showed that each new subspecies of Man truly reasonable was formed in the environment of its previous or previous subspecies. Therefore, we can say that modern humanity consists of four subspecies: Sedentary Man, Social Man, Humanistic Man, Liberal Man. Each subspecies of Man truly reasonable has been promoted by a specific worldview: mythological, philosophical, religious, and scientific. Therefore, regardless of race and nationality, people of different subspecies of Man truly reasonable respond differently, perceive and react to the same event, fact, call, and idea. This circumstance can be overcome by generalizing four types of worldviews within the framework of a systems transdisciplinary worldview. It is important to note that taking into account the four subspecies of Man truly reasonable, we should talk about the existence of four types of States with characteristic features: State sedentary, State social, State humanistic, State liberal. This circumstance excludes successful transfers of forms of state structure and principles of interpersonal communication and features of economic relations between different types of States.

Brief description of period 1792 – 2688
(the Progressive time scale – d2)

The period from 1792 to 2016. In the period from 1792 to 2016, the society completed the transition from the Imperial form of state structure, as a form of forced national-state integration of States at different stages of forming their statehood and subordinate to the metropolis, to sovereign national States (States-Nations), which implement the right of Nations to self-determination. A characteristic feature of the development trend of States during this period is the search for the relationship between the state structure and the amount of economic and political benefits that can be extracted from the established interstate relations. According to the impulse model (see Figure 5), the period of maximum saturation with historical events has ended by 2016. Therefore, the new model of the world socio-economic order should be based on a rethinking of the history of human society since 1792, which took place under the aegis of the famous motto of The French Revolution “Freedom, equality, private property”. The results of this reinterpretation will be of fundamental importance for the entire subsequent development of human society.

The period from 2016 to 2240. In the period from 2016 to 2240, there should be a consistent transition of national States (States-Nations) and their federations to co-existence as part of interstate groups (unions). The purpose of such unions of States is to ensure the prosperity of peoples, not to solve political problems. Therefore, the period from 2016 to 2240 may be held under the motto “Safety, cooperation, welfare.” Figuratively speaking, starting in 2016, a state, technological and socio-economic ideological reboot should take place in society. Therefore, in the framework of systemic transdisciplinary worldview will assess the latest scientific and technical achievements, which are contiguous with the norms of morality and ethics, as well as to assess the contents of an existing model of the world socio-economic order.

The results of this period should be the unification of the forms of government, the clarification of values and morals and methods of governance of various types, contributing to their sustainable development as a part of interstate groups (unions).

The period from 2240 to 2464. In the period from 2240 to 2464, there will be a trend in society towards the transition of interstate unions to co-existence within a single inter-Union entity that ensures the effective implementation of a system of true values and moral norms. The results of this period should be considered a reduction in the number of forms of government that ensure the most effective implementation of the system of true values and standards of morality, within the framework of a single inter-Union social entity.
The period from 2464 to 2688. In the period from 2464 to 2688, society will strive to move from a single inter-Union social entity to a single human society, a single legal state. The results of this period should be considered the creation of a system of true values and standards of morality, as well as socio-economic conditions for the emergence of a single human society based on the principles of the law of moral responsibility.

To correctly evaluate the descriptions of the Period of the appearance of Liberal Man (1792 – 2688), it must be remembered that this period corresponds to the Invar-iation stage of the Period of formation of Man truly rea-sonable (10752 BC – AD 2688) (see Figure 5). This means that the results that society should achieve in the Period of the appearance of Liberal Man (1782 – 2688) are already predetermined by the requirements of hard development programs. And this means that the soft pro-grams of Period of the appearance of Liberal Man (1782 – 2688) can only be considered conditionally. Conse- quently, the requirements for achieving goals and results for control and critical points of the multiplex model of this period increase many times.

Soft and hard multiplex programs are objective, that is, they are set and controlled by planetary nature – a more severe influence of direct and feedback between its horizontal functional ensembles. Studies of other peri-ods of the progressive time scale for the conversion of planetary matter by biological objects revealed the fol-lowing circumstance. An expedient transformation of space and the planetary matter was achieved by radically adjusting the species composition of biological objects (mass extinctions) close to the control and critical points of the periods of the Multiplex model (Mokiy, & Lukyanova, 2015). Probably, this circumstance can be explained by the increasing virus attacks in the 21st century.

Conclusion

The main problem of the socio-economic develop-ment of modern society is the lack of a description of the necessary objective factors of this subjective self-organizing process. It is assumed that time plays the role of an objective factor in managing socio-economic development. Therefore, the subject of the article was a brief theoretical justification of time on the example of a sys-tems transdisciplinary model of temporal unit of order, as well as a description of some areas of its practical application. The paper presents four types of systems transdisciplinary model of temporal unit of order: Mult-iplex model, Stage model, Impulse model and Progress-ive time scale model in modern Earth chronology. The Multiplex model demonstrates the distribution of influ-ence and synchronization of the results of soft and hard programs of expedient development. The Stage model demonstra-tes the simultaneous acceleration of the expedient development process. The Impulse model demonstrates the distribution of saturation with events that accompany the appropriate development process. These characteris-tic features of the models allow us to apply them to the study of the development of any object, functional ensem-ble of objects and modern society. Giving these models a duration within the progressive time scale in modern Earth chronology, allowed us to assess the pro-cesses of socio-economic development of society in a new way, as well as to describe the most likely trends in this development.

The results of using four types of systems transdis-ciplinary model of the time unit of order provided in the article indicate that the necessary level of scientific understanding, assessment and modelling of natural, socio-economic, technological, cultural phenomena should be based on policy and decision-making at the global and local levels. This circumstance allows us to speak about the feasibility of using this model to justify the prin-ciples of a new model of the world socio-economic order.

Four types of systems transdisciplinary model of the time unit of order can be successfully applied in all types of human activities that take into account the time factor. In this case, it is important to note that this methodological tool can significantly strengthen the methodology of the Humanities and Social Sciences. Therefore, a more detailed scientific description of the future of modern society based on systemic transdisciplinary models of the time unit of order should be made with the direct participation of specialists in these scientific areas.

It is possible that the systems transdisciplinary sce-nario of "world history according to the plan of nature", which is briefly described in this article, can, as Kant said, play the role of a guiding thread that can serve not only to explain the tangled tangle of human Affairs or for the art of political prediction of future state changes but also to open up comforting prospects for the future.

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