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# SYNERGETIC MODELING OF THE SYSTEM OF STATE ORGANIZATION OF SOCIETY

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*Abstract:* The research contained in this work is aimed at actualizing the problem of forecasting the sustainable development of society and the state in the conditions of multifactorial socio-political turbulence observed in the modern world. The stated provisions and conclusions are intended to draw attention to the need to increase the effectiveness of cognitive activity in relation to state-organizational reality through logical and rational tools associated with the development of an appropriate dynamic self-organizational model of the object under study.

The article, appealing to the synergetic methodology, expressing the basis of the post-non-classical scientific paradigm, contains an analysis concerning the issues of the ontology of modelling of human-dimensional systems; modelling of crisis states of socio-political systems; program formula of the dynamic model of the state system.

The article substantiates the position on the fundamental possibility and importance of carrying out interdisciplinary design and research activities in the state-legal sphere, using methods of mathematical modelling and computer programming, thereby ensuring an increase in the quality of social engineering, predictability and functionality of the system of the state organization of society.

*Keywords:* synergetics, society, state, model, crisis, formula, system, indicators.

## Introduction

Today, fundamental science pays more and more attention to highly complex systems, living, human-dimensional, and social ones. Naturally, there is a problem with the reflection of science about the revision of its ideals, norms and values, technologies of scientific knowledge and inter-

action with society.

The synergetics of human-dimensional systems today, in the era of post-industrial development, form a special meta-level of culture, reflexive tools for analyzing its development – synergetic methodology, methodology of interdisciplinary communication and reality modeling. The methodology is open and adaptive.

Synergetics today faces not only the problem of creating its own disciplinary ontology, which is expressed in the relevant principles but also the problem of including these principles in the scientific picture of the world. This is one of the important aspects of the foundations of its interdisciplinary and transdisciplinary status. It is around this issue that discussions are essentially unfolding regarding the place of synergetics in the system of scientific knowledge. Its rejection by some critics refers not to its specific models but to the program of including its principles in the general scientific picture as a system-forming core (Budanov, 2008).

Difficulties in implementing this program are associated with rethinking the foundations of many sciences, including jurisprudence. In particular, it is important to present the objects studied by her as open procedural systems.

It seems that all these problems, first of all, will be solved, exacerbated and updated in interdisciplinary design and modelling activities, in which synergetics will have to develop its universalist approaches and improve the transdisciplinary metalanguage.

Realizing the significance of this context in relation to scientific research in the field of theory of state and law, it will be promising to analyze the system-functional approach in the processes of synergetic modelling of the system of the state organization of society and its self-organizational development.

The model of the state as an independent means of cognition of political and legal reality allows, within the framework of a single methodology, to identify the general and special in its organization and functioning, to determine the needs for the specifics of scientific knowledge for conducting practice-oriented research on the real organization of public power.

### Ontology of Modeling Human-Dimensional Systems

In fact, authentic synergetics is born as a result of professional interaction of three areas of intellectual activity: subject practices, philosophy and mathematics, and today this interaction is increasingly carried out in the teamwork of disciplines, mathematicians and philosophers-methodologists within the framework of interdis-

ciplinary projects (Korotaev, Malkov, & Khalturnina, 2005).

There is a well-known opinion (Stepin, 2000) that philosophy and mathematics, in the process of their development, outstrip the needs of society and create mental constructions, which are then demanded during periods of cultural mutations and social and scientific revolutions. The process of synergetic modelling itself can be correlated with a cultural mutation that creates images of reality that were previously absent in disciplinary cultures. Therefore, there are more and more motives for cooperation between philosophy, theory and practice, and as the complexity of projects and systems under study increases, the sociosynergetic methodology becomes one of the indispensable components of the success of modelling state-legal reality.

Taking as a basis the concept of V. G. Budanov, let us dwell in more detail on the conduct of the process of full-scale synergetic modelling in the humanitarian (state-legal) sphere and interdisciplinary design, highlighting the following stages:

1. Setting the task in disciplinary terms, including interdisciplinary expertise.
2. Translation of disciplinary concepts and empirical data into synergetic terminology.
3. Discretion of basic processes, feedbacks, and principles of synergetics in empirical material
4. Coordination, and assembly of the principles of synergetics on empirical material, resulting in a logical square.
5. Building a structural and functional cognitive model.
6. Construction of a formal dynamic model.
7. Construction of a "real" model, i.e. refinement of free parameters and coefficients from experience.
8. Mathematical solution of the model (mathematical, computer modelling).
9. Comparison with experiment, interpretation of results. (Here, first of all, the predictive value of the model is checked, however, not only in the temporal dynamics of the model but also in the determination of previously unverified properties of the system by it).
10. Decision-making, model adjustment.

It is important to note that in the process of synergetic modelling, each designated stage has its own stages. The first stage is the cultural-semiotic, symbolic stage, then the images of

space and time are formed, then the relational (causal categories), then the system-structured, and the last – the formalized stage. Moreover, at each stage of modelling, one of these stages dominates.

We can say that moving through the stages of modelling, we present the extended principle of observability in synergetics, but we find the social and communicative functions of this principle already in the ontologies of non-classical science of the early XX century, long before the era of interdisciplinary research.

The crisis of classical rationality at the beginning of the XX century led to the debunking of the ideas of absolute determinism, absolute observer, and absolute completeness of the classical ontology of reality. Many obvious ideas and ways of reasoning about reality have been destroyed. The theory of relativity populated each point of space-time with an infinite number of observers moving in various ways and set the rules of communication between them, which had not been particularly thought about before, and thus realized a socio-humanitarian view of the simplest process of observing elementary events, which were now inseparable from a specific observer's position, a frame of reference.

A unified description of phenomena and processes is carried out in infinite-dimensional complex spaces in the operator language of functional analysis and not in the language of representable images - forms historically inherited by state studies from ancient times.

Complex interdisciplinary tasks of modern design and research activities use the methods of post-non-classical science.

Recall that in post-non-classics, the cognitive-activity chain “subject-means-object” closes in the spaces of culture and personal reflection of the subject, turning into a circular process of understanding and transforming the world and oneself.

So, the initial idea is that man, society, and culture appeared at a certain stage of the evolution of nature and carry in their foundations the basic natural laws of development, which have not yet been well studied. For complex humanitarian phenomena such as the state and law, laws are manifested primarily in the information sphere, although subtle natural science and synergetic mechanisms in multicomponent systems are behind this.

Let us turn to the well-known metaphor about the “laboratory of nature”, in which the world is created and changing, and science deciphers the natural laws of development. Recall that only since the Renaissance has a person become an active employee in this laboratory, consciously setting up an active experiment. In the humanitarian sphere, this metaphor can be represented as a “laboratory of civilization”, in which, together with the living, inanimate nature, humans create an anthropic sphere. They create their world self-referentially and self-creatively in the mode of communication and self-organization, so the application of synergetic ideas here seems relevant.

The peculiarity of the laboratory of civilization is that it is absolutely post-non-classical: consciously or unconsciously, a person is both a creator, a means, and an object of activity. The technical and spiritual sphere of culture can be represented as a field of experiment, usually unconscious. The idea of experiments arises when we begin to model state-legal phenomena, to search and reconstruct their goals and meanings, ways to change them related to the optimization of the life of society; and historically established practices (patterns, systemic forms) of the political and legal organization of society can be considered as the results of these experiments. Thus, the strategy of obtaining empirical knowledge is changing: it is not necessary to set up an active (often poorly controlled) social experiment; it is enough to create complete information databases of the anthropic sphere, identifying certain order parameters corresponding to the patterns of development. It seems that the prospect of further theorizing here will be connected with the solution, including incorrect inverse modelling problems and computer hypothesis testing.

However, the main problem hindering the promotion of natural sciences and humanities projects is still the coordination of disciplinary criteria: the goals and meanings of modelling, the rigour and reliability of the results obtained, the willingness to make interdisciplinary generalizations and hypotheses in other disciplinary areas, to change the ontological basis. The fact is that culture and socio-humanitarian phenomena are often considered in isolation from their natural genetic basis, and it is here where the field of interdisciplinary cooperation, joint expertise of natural scientists (who have the most powerful

methodological arsenal of reality modelling) and humanitarians lies.

Humanitarian synergetic models can arise both through the use of the analogy method, the architectural transfer of natural science models to the anthropic sphere (a new ontology is often imposed), and as a result of a soft reduction, more precisely, the derivation of state-legal phenomena from the natural science mechanisms of the development of the anthropic sphere.

Below are some counterarguments to the opponents of the use of natural science approaches in the humanities, detailed in the work of V. A. Lektorsky (2006).

So, it seems that if we have an explanation of a fact, we can easily predict future facts (the well-known thesis about the symmetry between explanation and prediction). This opinion corresponds to the popular model of explanation as summing up the facts under the general law. At the same time, it is assumed that the formulation of predictions of future events is a distinctive feature of the natural sciences. However, in reality, predicting natural phenomena is not an easy task. Synergetics convincingly shows that the future of complex systems is not unambiguously defined; an evolutionary tree of possible scenarios arises, and at the forks, at the points of bifurcations, the role of chance or personality in history plays a decisive role. Thus, it is possible to carry out a scenario forecast in the humanitarian sphere. Similarly, by having a synergetic model of reconstruction of the past, we can understand the key events and actions that led to the present, i.e. solve the problem of understanding in history.

Human actions not only produce and reproduce social structures but, in turn, are themselves conditioned by the latter. A researcher working in the human sciences not only describes actions but also tries to analyze social and cultural structures, including political and legal institutions and their relationships. In fact, it is a circular causality that occurs in the phenomena of self-organization between mass variables and social parameters of the order. If social synergetics is applied, then many mysterious social phenomena can acquire a strictly theoretical basis. Moreover, these social parameters of the order are manifested as time-varying laws of historical development.

It can be said that the theory of complex systems, or synergetics, really has the most appro-

priate methodological approaches to modern realities: nonlinear modelling and fractal analysis. Theoretical history, mathematical modelling of history based on a synergetic, holistic description of the state and society as a nonlinear developing system is being updated and developed (S. Kurdyumov, S. Kapitsa, G. Malinetsky, D. Chernavsky, V. Belavin, S. Malkov, A. Malkov, V. Koroteev, D. Khalturina, V. Budanov). This approach, in our opinion, is the most promising today.

### Modelling of Crisis States of Socio-Political Systems

Approaching the practical side of the issue concerning the modelling of self-organizational development, in fact, of the system of the state organization of society, let us turn to the analysis of its, in fact, immanent properties and conditions - dynamic chaos, which is the source of both self-organization and crisis processes, which, at the same time, constitute the subject area of synergetic research, the field of synergetic modelling, correlated with the prediction of the qualitative state (including the degree of sustainability of development) of the system depending on external and internal factors.

Chaos is the oldest humanitarian category of mythology and philosophy, which in the XIX century was supplemented by a natural scientific understanding of statistical (thermal) chaos, and in the XX century also, dynamic chaos in deterministic systems and cognitive chaos in complexity theory. In social systems, it appears in two guises at once: the chaos that is "in our heads" (in the conscious and unconscious spheres) is determined by the incoming bifurcation of interrelated concepts that predetermine the volitional attitude: need, opportunity, goal, value, duty, etc., and the dynamic chaos that is outside - which is an expression of the laws of the development of the Universe, which includes the entire human culture, civilization, the state and each individual reflecting these phenomena in his mind. The difficulty is that a person is not just an observer but also a participant in socio-political processes, and his internal spaces are also included in the system along with material and information spaces.

It should be noted that the very fact of dia-

logue and observation of the system can significantly, irreparably affect it. This phenomenon is well known in the quantum theory of micro-objects and is clearly manifested in the social sphere and, in general, in human-dimensional systems. For example, a social survey itself distorts the opinions of recipients; the publication of a legal norm adopted by a legislator informatively changes the quality of public relations, which no longer become those to which the norm was directed; the process of continuous reflection in the creative search, peeping at thinking, blocks the intuitive channel, imposes certainty of judgment. Thus, monitoring crisis systems becomes a very delicate matter. In fact, one of the management tools is sometimes unconscious and sometimes manipulative management. In this regard, there is a big problem with an adequate understanding of the role of the media, which today carry out the main management of the chaotic process of forming information attractors – models of state and political development.

Further, we will outline methodological guidelines for understanding the specifics of anti-crisis management (reactions aimed at overcoming negative processes of self-organizational, chaotic development), in this case, taking into account the influence of the subjective-volitional factor of the system participants (here we are speculatively at the level of the scale of the system within which the values of the functioning of its structural components are still distinguishable), we will determine alternative models of their response to various conditions of the surrounding reality.

Thus, it is possible to define several basic scenarios-models and practical strategies for the behaviour of participants in the socio-political system during the passage of a crisis situation. There are quite constructive forms of dialogue with social chaos that allow avoiding it or adapting to it (Budanov, 2003). So, the following scenarios of crises are possible.

Mobilization scenario – the system can undergo a crisis in a fast, forceful mode when the horizon of predictability is commensurate with the time spent in crisis. Sometimes such a situation can be created artificially: using “inertia” due to the acceleration of the system in the direction of the desired alternative, especially taking into account the rhythms of the historical development of the system.

The survival scenario is a slow passage of the crisis when the horizon of predictability is much less than the time spent in the crisis zone. Here there is a description in the language of probabilities of possible future alternatives, but the crisis can now be managed through small systematic efforts, changing the synergetic environment by gradually changing the rules of behaviour, strategies, and styles (shifts in domestic and foreign policy, economics, ideology, education, public opinion, excess or lack of information, etc.). Each strategy will give its relative probability of post-crisis alternatives, which are usually not clear when viewed from the crisis. The attractors have not yet been manifested and have not been formed. For example, when the super-efforts inherent in the previous mobilization scenario are premature and harmful and are a senseless waste of resources, then everyone has to choose the optimal, long-term survival strategy based on considerations of both maintaining the resource and implementing a minimum set of goals and values that everyone has their own.

The scenario of approaching the choice is the most complex, intermediate between the two previous scenarios. Here the horizon of predictability is gradually approaching the time of life in crisis. Thus, there is a real opportunity and urgent need to switch from survival mode to the power mode of the final choice. At the same time, on the one hand, it is necessary to save a resource for a forceful inertial throw; on the other hand, a “game” strategy can help to correctly redistribute probabilities and, at the end of the crisis to be in the pool of attraction of the newborn desired attractor. In the latter case, the resource may also be needed to keep the system near a still weak attractor. It is also possible to have a point impact at points of instability that solve the problem of choice, so the role of chance, the role of personality in history, etc., is manifested. At the same time, it must be borne in mind that chaotic processes provide “energy” for restructuring, and the task of finding a way out of the crisis is not to miss the moment.

It is important to note that the dynamic chaos of state organization systems is, in fact, an ambivalent category; it depends on both the properties of the system and the goals and values of the subjects. Therefore, the management of social chaos and with the help of chaos, which has been much talked about recently in connection with a

series of orange revolutions, smouldering civil wars, spreading Nazism and terrorism, is easiest to implement through value spaces, which in our postmodern world are becoming less inertial.

Here, it will be relevant to pay attention to the problem of modelling social unrest, outlined in the classic work of Poston and Stewart, "The Theory of catastrophes and its applications" (Poston & Stuart, 1980), where the dynamics of violations of a certain disciplinary regime is investigated using the theory of catastrophes.

Applying the method of analogy, the transfer of this model to society as a whole, we will consider the model of the relationship of the following three socio-psychological factors: social atomization (disunity of people), dissatisfaction with life circumstances (tension), the strength of social protest. Here we propose a model of social catastrophe in which the power of protest is a function of response from two other characteristics – atomization and discontent.

In the first scenario, the fact of an increase in the "fragility" or catastrophism of public life, i.e. a poorly predictable sharp explosion of protest social energy, which occurs with an increase in discontent in conditions of high atomization of members of society, is clearly manifested. Before the disaster zone, the atomized society was not sensitive in its manifestations to the level of people's discontent and this "lulls" the state authorities, making the fact of the disaster unexpected. In addition, the atomization of society may be attractive to the state authorities due to the possibility of creating the illusion of well-being.

In the second scenario of a non-atomized, coherent society, the collective effects of the protest reaction, as discontent increases, begin to manifest earlier and to a more adequately proportional degree; this regime is closer to the possibilities of a controlled democracy when the behaviour of society is predictable and not catastrophic, feedback has time to balance the situation, i.e. the government can have time to take adequate measures.

In fact, the second scenario correlates with a functional model of civil society with highly developed, flexible feedback and effective institutions of democracy at all levels of society, a kind of coherent collective socio-cultural organism. In the first scenario, we are talking more about a libertarian society – a machine in which abstract human rights have already formalized and de-

stroyed the communal beginnings of life and culture of the people, atomizing and separating its members.

At the same time, paying attention to the fact of the permanent involvement of a certain degree of discontent (tension) in the sphere of the life of society and its individual members, one can see in this state of affairs a positive side correlated with the dynamics of the development of civil society and the state through people's choice of forms and means of their existence, as well as the realization of the right to freedom of this choice which, in turn, has its own methodological interpretation.

So, when moderating within the framework of classical rationalism, it is not customary to talk about the multiplicity of causes or consequences – for any event (A), there is exactly one cause and one consequence, i.e. an event dyad  $-A-$ , then building a sequence of all events into a causal chain ...  $-A-B-C-$  ... we obtain either an infinite unambiguous linear series of events or an equally unambiguous circular process, where the first cause becomes the last consequence. Such cognitive linear schemes of reality do not leave a person free will and creativity in the world, and they generate confidence in the infallibility of dogmas and authorities, the existence of the only correct theories. They generate vicious logical circles, for the rupture of which it is necessary to abandon the unambiguity of premises in at least one link. These are closed systems of thinking, unable to develop, contributing to degradation (Budanov, 2003).

In this regard, it seems relevant that as a worldview reference, it is necessary to have an alternative modelling method capable of speculatively reproducing a meaningful, developing, evolving Universe, preserving a person's freedom of will as a condition for the immanence of the formation and transformation of state-political matter. So, in order to be able to construct the causal fabric of reality, it is necessary to admit a multiplicity of causes and consequences of events, where the minimum possibility is the creative triad for any event. Here the events form the nodes of the grid (in the node, there are two inputs, one output, or two outputs, one input), along which you can now move ambiguously and come to the same result in different ways or vice versa. This generates many scenarios for the development of events, the plural-

ism of opinions and the diversity of our world, its ambiguous future and possible past.

Anticipating further exposition, I must say that modelling history is certainly a delicate occupation because history does not tolerate the subjunctive mood, but this is exactly what we do many times, creating a model, selecting its parameters, and checking with the course of the real past. Historical models are automatically futurological; the moment “now” is not highlighted in them. Their predictions in the future are the more reliable, the more retrospective – coincidences with the predictions of the model in the past, so it is desirable to have a proven coincidence of the model with the history for decades, preferably for centuries. Here, verification of the model through an active, physical, planned, reproducible experiment is impossible; model hypotheses are tested through “experiments” of the story itself due to the richness of unique event material. Moreover, the conceptual model is tested on models of the histories of many societies.

#### The formula of the Dynamic Model of the System of State Organization of Society

The process of the emergence and development of ideas of public and state self-organization, their theoretical justification and gradual entry into the practice of state-building is an example of the formation (in the context of the principles of synergetics) of a new branch of scientific knowledge. The crisis of the classical paradigm in the understanding of highly complex nonlinear developing systems has led to an unstable state of traditional ideas about the phenomena and processes of the social world. Dogmatic propositions, losing their certainty, turned out to be open to their critical rethinking and transformation.

The correctness of the choice of the channel in which legal science is involved by the general theory of self-organization is checked traditionally by the request of practice. The openness of practice, its creativity in response to changes in the mode of activity included in it and its reverse effect on the state of the system of state organization, the conditions and quality of human life, the multivariance of the results of these responses, the unpredictability of their consequences in public life, require scientific research of the process-

es developing in it in the context of the theory of self-organization.

Actualizing the idea of using a synergetic approach in the study of the system of the state organization of society (SSOS) as a phenomenon of social reality with the properties of a complex, open, nonlinear system, it seems important to solve the issue related to the development of an appropriate model of self-organizational development, taking into account the definition of the principles and conditions of its genesis, viability, sustainability, evolution and coevolution.

In this regard (moving to a smaller scale of modelling than previously considered), first of all, it is necessary to determine special analytical (qualitative) indicators of this system.

They appear to be as follows.

The first group of SSOS indicators:

- A – effectiveness of law
- B – political loyalty
- C – functionality of the state mechanism
- D – efficiency of public administration

The second group of SSOS indicators:

- E – crisis of the development strategy
- F – destruction of the form of the state
- G – disintegration of society
- H – external intervention

In its turn, each indicator (order parameter) has its own conditions (state parameters) of positive dynamics (quality improvement):

Conditions of indicator A – effectiveness of law:

- 1) a1 – clarity of understanding of the purpose of regulation;
- 2) a2 – adequacy in the choice of legal means;
- 3) a3 – sufficiency of funds for the implementation of the norm;
- 4) a4 – taking into account the conditions in which the law will function.

Conditions of indicator B – political loyalty:

- 1) b1 – rule of law;
- 2) b2 – commonality of value-oriented attitudes;
- 3) b3 – consciousness of inclusion in a single historical process;
- 4) b4 – availability of short-term and long-term development prospects.

Conditions of indicator C – functionality of the state mechanism:

- 1) c1 – external and internal adaptability;
- 2) c2 – efficiency of processing (perception, processing, transmission) of information;
- 3) c3 – optimality of quantity and quality of



structural elements;

- 4) c4 – programming, programmability of functioning.

Conditions of indicator D – efficiency of public administration:

- 1) d1 – compliance with the controlling influence of a state body (system of state bodies) with the goals of its existence;
- 2) d2 – compliance of the obtained results with objective needs;
- 3) d3 – improving efficiency while saving resources;
- 4) d4 – achievement of targets.

Conditions of indicator E – crisis of the development strategy:

- 1) e1 – erroneous assessment of environmental conditions;
- 2) e2 – resource estimation error;
- 3) e3 – defectiveness of the competitiveness program;
- 4) e4 – conservatism of the organizational structure.

Conditions of indicator F – destruction of the form of the state:

- 1) f1 – degradation of the contingent of bearers of political power;
- 2) f2 – non-functionality of political institutions;
- 3) f3 – social inequality;
- 4) f4 – isolation, the aim in itself of the supreme power.

Conditions of indicator G – disintegration of society:

- 1) g1 – destruction of self-consciousness;
- 2) g2 – conflict of labour and capital;
- 3) g3 – the fall of the authority of state power;
- 4) g4 – loss of cultural values.

Conditions of indicator H – external intervention:

- 1) h1 – inefficiency of the economy ;
- 2) h2 – coalition dependence;
- 3) h3 – confrontation of the elites;
- 4) h4 – crisis of methods of domination of state power.

The presence of these signs (indicators) with appropriate conditions and the possibility of their analysis relative to a certain social community indicates both the fact of existence and the possibility of objective research, modelling of a certain, always specific, SSOS. State genesis, due to the achievement of a certain level of complexity by the system of relations, here appears to be a trend of non-entropic development of the organi-

zation of social existence.

Speaking about intra-system functional determination, we indicate the following.

Indicators A, B, C, and D (the first group of indicators) are directly proportional to each other.

Indicators E, F, G, and H (the second group of indicators) are directly proportional to each other.

Indicators A, B, C, and D are inversely proportional to indicators E, F, G, and H.

The indicators are in an internal relationship, a change in the magnitude or value of one causes a corresponding change in all indicators.

Positive values (positive dynamics) of indicators A, B, C, and D indicate a positive development, stabilization, an increase in the lifetime, the spread of the influence of SSOS, and vice versa, respectively.

The conditions of all indicators are interrelated and have mutual conditionality.

The conditions of an individual indicator are interrelated and directly proportional to each other.

The quality level of each condition of the same group of indicators is directly proportional to the quality level of each of the conditions of the indicators of the same group and inversely proportional to the quality level of the indicators of the other group. An increase in the quality level of an individual condition indicates positive dynamics of the corresponding indicator as a consequence of all indicators of the corresponding group.

Each indicator can be considered as a condition of other one-group indicators.

The indicated dynamic model of the ratio of qualitative characteristics (capable of having a percentage expression as a common denominator) of the system of state organization of society can be expressed by the following general formula (where “x” – magnitude of the changes):  $S$  (SSOS status) =  $(A(xa1 + xa2 + xa3 + xa4) + B(xb1 + xb2 + xb3 + xb4) + C(xc1 + xc2 + xc3 + xc4) + D(xd1 + xd2 + xd3 + xd4)) - (E(e1/x + e2/x + e3/x + e4/x) + F(f1/x + f2/x + f3/x + f4/x) + G(g1/x + g2/x + g3/x + g4/x) + H(h1/x + h2/x + h3/x + h4/x))$ . Here, the tendency of an increase in the positive value (an increasing percentage) of  $S$  will indicate the progressive development of SSOS,  $S$  equal to or close to zero will indicate the stagnation of SSOS, and a negative value (a

tendency to a negative value) of S will indicate the degradation of SSOS.

At the same time, it should be noted that each condition of SSOS indicators can have its own conditions, while a specific condition, acquiring the quality of a relative indicator, is interconnected with its own conditions, with the conditions of other conditions-indicators, in the manner previously described. It can be said that such a system of connections acquires fractal properties, extending to the level of the will of an individual

subject to the randomness factor.

This formula has potential, being the basis of a special computer program that is able to reflect and visualize the dynamics of the development of each S1 relative to each subsequent S2, demonstrating the quality of the condition, the level of stability and the effectiveness of the conditions of existence of SSOS.

So, the program calculating the SSOS status created on the Pascal ABC platform has the following form:

```

Program A
VAR A; B; C; D; E; F; G; H;S1 ;S2: real;
var a1 ,a2 ,a3 ,a4 ,b1 ,b2 ,b3 ,b4 ,c1 ,c2 ,c3 ,c4 ,d1 ,d2 ,d3 ,d4 ,e1 ,e2 ,e3 ,e4 ,f1 ,f2 ,f3 ,f4 ,g1 ,g2 ,g3 ,g4 ,h1 ,h2 ,h3 ,h4 ,x: real;
Begin
  Readln(a1 ,a2 ,a3 ,a4);
  Readln(b1 ,b2 ,b3 ,b4);
  Readln(c1 ,c2 ,c3 ,c4);
  Readln(d1 ,d2 ,d3 ,d4);
  Readln(e1 ,e2 ,e3 ,e4);
  Readln(f1 ,f2 ,f3 ,f4);
  Readln(g1 ,g2 ,g3 ,g4);
  Readln(h1 ,h2 ,h3 ,g4);
  S1:= $\frac{A(a1+a2+a3+a4)+B(b1+b2+b3+b4)+C(c1+c2+c3+c4)+D(d1+d2+d3+d4)}{E(e1+e2+e3+e4)+F(f1+f2+f3+f4)+G(g1+g2+g3+g4)+H(h1+h2+h3+h4)}$ ;
  Writeln('SOS status at some point in time'=S1');
  Readln(x);
  S2:=(A(xa1+xa2+xa3+xa4)+B(xb1+xb2+xb3+xb4)+C(xc1+xc2+xc3+xc4)+D(xd1+xd2+xd3+xd4))-
  (E( $\frac{e1}{x}+\frac{e2}{x}+\frac{e3}{x}+\frac{e4}{x}$ ))+F( $\frac{f1}{x}+\frac{f2}{x}+\frac{f3}{x}+\frac{f4}{x}$ ))+G( $\frac{g1}{x}+\frac{g2}{x}+\frac{g3}{x}+\frac{g4}{x}$ ))+H( $\frac{h1}{x}+\frac{h2}{x}+\frac{h3}{x}+\frac{h4}{x}$ ));
  Writeln('SSOS status'=S2');
end.

```

Next, we will pay attention to the possibilities of nonlinear (multivariate, alternative, evolutionary-bifurcation) development of SSOS in conditions of nonequilibrium.

The complete absence (termination) of a condition is determined by the absence of a minimum value of the characteristic of the condition, its tendency to zero.

The absence of all or most of the conditions of an indicator of one group corresponds to the acquisition of negative values by these conditions; as a consequence, the corresponding indicator acquires a negative value while it becomes an indicator of another group, thereby triggering bifurcation mechanisms.

A change in the value to the opposite of one single-group indicator determines the trend of the phase transition with a concomitant change in the

values of the other indicators of this group.

A qualitative change (transformation) of the values of all or most of the indicators of the first group and their inclusion as indicators of the second group indicates degradation, and non-functionality, as a consequence of the non-viability of SSOS, which leads to its self-destruction (dispersion) and/or absorption of another SSOS.

A qualitative change (transformation) of the values of all or most of the indicators of the second group and their inclusion as indicators of the first group indicates the functionality, efficiency, intensity and adaptability of the system, which demonstrates dynamic stability, finds its development in interaction with the environment by influencing other SSOSs (self-adjusting adaptive structures that prevent the creation of conditions for indicators of the first groups and con-

tributing to the creation of conditions for the indicators of the second group) in the form of their absorption, by merging, forming a system organization of a different level and quality.

In its turn, this system organization, due to its scale and hierarchical complexity (multiplicity of subsystems), due to the openness that ensures its resource need at a certain stage, becomes susceptible to fluctuations that can influence structural transformation or, by launching crisis-chaos some kind of processes, cause the destruction of the system and the creation on its basis (structuring) systems of a different order.

At the same time, the system of the state organization of society, exerting dominance by embedding other systems (SSOS), restructures the quantity and quality of its indicators and their conditions through interaction (exchange of energy, matter and information) with the indicators and conditions of the embedded or absorbed system, while the absence or insignificance of a certain indicator (an indicator of the first group) of the absorbed system it is capable, with insufficient resources, to cause a defect or destruction of a similar indicator of the absorbing system, which can lead to its degradation, as a consequence, to make itself an object of absorption.

Under the conditions of this process, the absorbed system, under certain structural possibilities, dissipating, itself can acquire or change the level of its indicators (increase the quality of the indicators of the first group, reduce the quality of the indicators of the second group) due to the indicators (sufficiency of their conditions) of the absorbing system, and, having increased the level of viability, get out of its influence by undergoing qualitative and quantitative transformation.

Let us pay attention to the fact that all the described processes, both relative to one and a certain set of SSOS, can occur simultaneously. At the same time, the SSOS structural organization will contain signs of pulsation associated with the change of centralization modes, where the course of processes in the centre (order parameter) is an indicator of the past development of the entire structure, and the course of processes on the periphery (state parameter) is an indicator of future development, and decentralization, where information about future development is contained in the centre, and about the past is on the periphery.

The form of SSOS (the formal expression of

the organization of the socio-political existence of society), determined by the specifics of the hierarchical relationships of elements in a specific period of time, has the potential for progression in the form of optimization of the functioning of the system, constantly undergoes an evolutionary or revolutionary (depending on the objective conditions described above) transformation, exerting, for its part, a regulatory influence on the nature of internal relationships.

Sustainability, sustainable (non-crisis) development of SSOS is possible within the framework of the historical period, which is determined by the movement toward the goal-setting attractor. The beginning of this movement is taken at the point of bifurcation of development alternatives, stops when the goal is achieved or when the system loses (initial absence, insufficiency) of functional mechanisms (resource basis) of its achievement, followed by crisis, chaotic and regular bifurcation processes, the role of randomness in which increases as much as possible.

The sustainable development of SSOS can be supported by the practice of positive feedback for the subsystem of indicators of the first group (A, B, C, D) and the absence of this type of connection in the subsystem of indicators of the second group (E, F, G, H). The duration of the period of sustainable development (the branch of evolution in which the system is involved) depends on the stability of the attractor, its value-target scale, the proportionality of the given scale of the system resource, as well as the adaptive capabilities of the system organization (the ability to overcome fluctuation processes) based on the reflection of public consciousness.

Moving to a higher level of abstraction in the matter of theoretical knowledge of the essence and principles of the development of the system of the state organization of society, in the context of the practice of ongoing globalization processes, assuming, in this case, the applicability of the provisions of the concept of Universal evolutionism, one can come to the following conclusions. Currently, the “choice” in favour of civilizational existence in the form of a state-like form of human society development has been made, and the system of state-political systems, having passed a long period of formation, has acquired the quality of a general planetary pattern, thereby completing the first stage of its temporal devel-

opment. It seems that the next stage of the development of a system of this scale, which has already begun, will be associated with the process of global synchronization, unification, integration of subsystems (state formations) and their structural elements, of course, taking into account the presence of all related synergetic processes – conditions of dynamic chaos, into a kind of global organizational (self-organizational) system – a qualitatively new state-political entity, but, at the same time, almost all the provisions of system functioning and organizational development described earlier will be applicable to this system.

## Conclusion

Summing up the above, it is necessary to emphasize the relevance of the research topic related to the scientific search for a new methodology of state studies, the formation of the concept of state understanding correlated with the modern post-non-classical paradigm of scientific knowledge, designed to provide an adequate understanding of the essence of the organizational development of the state-political system, the principles of its sustainability, to the modern reality saturated with crisis phenomena and processes, thereby providing an opportunity to improve the effectiveness of strategic planning of public policy and the practice of its implementation.

Strategic and historical forecasting and modelling, designing the future development of any state, its national interests and policies are firmly linked to the need to form an image of the future. At the same time, there is a limited set of opportunities for organizational development, a spectrum of evolutionary centres of attraction, determined in turn by the own properties of the state system, both at the macroscopic and elementary levels. Thus, the ideas of synergetic futurology can positively influence and strengthen the prognostic function of the theory of state and law associated with the study of the directions of state development.

At the same time, the idea of creating a universal model of the evolutionary development of the system of the state organization of society, developed within the framework of a synergetic approach, can become an element of the subject area of research, both humanities and mathemat-

ical sciences (the theoretical construction can be described by a mathematical equation, reproduced in the form of a computer model), the basis of interdisciplinary connections that can enrich and increase their effectiveness.

In this regard, it can be assumed that the concept presented in this work can become the basis for reflection of scientific knowledge, opening up the prospect of further state studies correlated with the release by the middle of the XXI century to the next – software-algorithmic (neoclassical) the type of state understanding, with the corresponding theoretical and methodological content.

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