

# FUNCTIONALIST-ORGANIC INFORMATION ECONOMY – THE ORGANIZATIONAL-ECONOMIC THEORY OF INNOVATION DEVELOPMENT

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## ФУНКЦИОНАЛИСТСКО-ОРГАНИЧЕСКАЯ ИНФОРМАЦИОННАЯ ЭКОНОМИКА – ОРГАНИЗАЦИОННО-ЭКОНОМИЧЕСКАЯ ТЕОРИЯ ИННОВАЦИОННОГО РАЗВИТИЯ Александр Иванович ОРЛОВ

**ABSTRACT.** *The main ideas of the functionalist-organic information economy are analyzed. It was justified to use it as a basic organizational-economic theory instead of «economics». According to the functionalist-organic information economy and basing on the “open network society” – the modern information technology and decision theory (including expert technology) allow to build information and communication systems designed at the identifying of the needs of people and organization of production in order to meet the needs. Predecessors – V.M. Glushkov, St. Beer, P. Cockshott, A. Cottrell, etc. The main scope of research – forecasting of future society and its economy, the development of organizational-economic methods and models designed to improve the effectiveness of management processes.*

**KEYWORDS:** *the economic theory, management, information technologies, the decision-making theory, future research*

**РЕЗЮМЕ.** *Проанализированы основные идеи функционалистско-органической информационной экономики. Обосновано ее использование в качестве базовой организационно-экономической теории взамен «economics». Согласно функционалистско-органической информационной экономике современные информационные технологии и теория принятия решений (включая экспертные технологии) позволяют на основе «открытого сетевого общества» построить информационно-коммуникационную систему, предназначенную для выявления потребностей людей и организации производства с целью их удовлетворения. Предшественники – В.М. Глушков, Ст. Бир, П. Кокшотт, А. Коттрелл и др. Основное содержание исследований – прогнозирование развития будущего общества и его экономики, разработка организационно-экономических методов и моделей, предназначенных для повышения эффективности процессов управления.*

**КЛЮЧЕВЫЕ СЛОВА:** *экономическая теория, менеджмент, информационные технологии, теория принятия решений, прогностика.*

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## 1. Introduction

The quality of life, the success of the implementation of public policies in different areas of social life is largely, if not primarily determined by the methods of economic management. Practice of economic life, i.e. management of the economy as a whole and its constituent parts (regions, private organizations, etc.) is based on economic theory. We (at the Bauman Moscow State Technical University), unfortunately, used for a long time the alien «economics» as a basic theory, from which we seek to carry out specific designs. Eventually (in the summer of 2007), having realized the inadequacy of the «economics» – we established a scientific school industrial economy and business administration at the Bauman Moscow State Technical University, aiming at the development of a new basic organizational-economic theory as a replacement for «economics» – the functionalist-organic information economy. It is based on business economics (Engineering Economics), control theory (modern management theory of active systems and decision-making), information technologies, and is the methodological basis of case studies in the field of organizational-economic modeling, economics, and management of the economy, particularly in the industry, management, innovations. Herein, the organizational-economic mechanism of production and business activities of enterprises (with reference to integrated production, corporate structures, regions and the country as a whole) – is proposed to be based on the functionalist-organic information economy.

## 2. The need to move to a planned economy

According to our observations, the mainstream trend in modern economics justifies the failure of the market economy and substantiates the need to move to a planned system of economic management. Therein, the choice of the most appropriate options of planning systems is in the focus of current discussions. For example, the company's or corporation's plan must be both tough and, at the same time – adequately responsive to emergent situations, within the region or the country as a whole.

In general, planned economy is the functionalist-organic information economy. Previously, we used the term "informal information economy of the future". On 28 January 2013 the main online resource [8] for the functionalist-organic information economy was viewed more than 56.4 thousand times, including the appearance of 27 publications (articles and abstracts) [9].

It is recognized that management decisions must take into account the entire amount of social, technological, economic, environmental, and political factors. This approach primarily calls for strategic decisions. Modern managers deal with economic theory as the part of general management – the science of managing people. In turn, our experience in the airline group “Volga-Dnepr” shows that financial issues represent a small part in financial management.

According to the functionalist-organic information economy – information technology and decision theory (including expert technology) create and apply information and communication systems for the identification of the needs of people and, further – organization of the production of goods in order to meet their needs. Primarily, in transforming the management of an economic unit – only the will of this unit is required. Thus, we attach a new essential significance to rational management. According to the P. Drucker, 1873 – “the end of the era of liberalism – the end of a century, during which the political creed was the policy of non-interference in the economy” [2]. Nowadays, the archaic idea of “the invisible hand of the market” is still common in Russia and hinders innovative modernization of control systems.

According to Joseph Stiglitz, "economists are to blame for the crisis, but there is a chance to correct the matter." Speaking of models, which are based on “economic theory,” Stiglitz states that they "failed completely, and the decisions based on them, were wrong" [11]. Obviously, Stiglitz recognized inadequacy of contemporary “economics”. Therefore, it must be replaced by a new theory that meets the realities in the XXI century. Among them we propose the functionalist-organic information economy.

### **3. Aristotelian essence of the functionalist-organic information economy**

The term “functionalist-organic” (in Aristotle’s sense) emphasizes the need and the opportunity for independent economic agents and voluntary joint activities, which use the hierarchical schemes based on their own “forms”. Likewise, in Aristotle’s sense, we mean the adoption of solutions which satisfy all the result of negotiations and compromises, the prevalence of self-organization processes and synergetic structures, and removal of coercive factors from economic sphere. Following P.A. Kropotkin, we consider mutual assistance as the engine of progress. The term "information" reflects the growing role of information and communication technologies, including networks which allow us to prognosticate the development in economic and societal spheres in general revolutionary “transformation of quantity into quality”. In particular, the transition from representative bodies to direct action, of public suppression apparatus to the developed institution of social contract is needed.

The term “economy” directly refers to the issues of production, organizational and economic development of society. Significantly, Aristotle understood under “economy” a kind of farm management.

Previously, we used the term “future” in the original title of our theory. This term emphasized the orientation of research on prognostication and construction of the future development of economic systems, without reference to the established traditions of management. Thus, normative forecasting (goal setting) was our first task. However, we have abandoned the use of the term "future" because "the future is now." Therefore, our task is to make recommendations to the heads of economic

structures, state and municipal authorities – the recommendations that can be used now, and not in the indefinite future.

#### **4. Views of Aristotle – against “chrematistics”**

Economy as a whole is the maid of society, complying with its requirements. Goals of society are primary, economic mechanisms are secondary, and used to implement the requirements of society. Despite the evidence of this statement, sometimes economic factors become primary, for example, when agency is organized around profit-making.

Goals of society are determined by its needs. We presume that these needs can be formulated and agreed in society. Our assumption is the needs of a society as the whole can be proposed, discussed and (eventually) identified in their expression. This is a usual practice for a small group (family, clan) – the identification of their common needs, which was performed billions of times in the history of mankind. Naturally, human society used in history various patterns of generation the societal requirements – gathering of community, the power of the autocrat, representative democracy, the use of government agencies. The solution of national problems must be combined with the rights and freedoms of individuals and groups. However, until recently there was no visible solution to the underlying problem – integration and coordination of the views of all interested parties due to their large numbers. Eventually, development of information technology brought about the essential computing resources. The theory and practice of development and decision-making, in particular, methods of peer review, provide an opportunity to apply effective fair procedures for identifying community needs. This development has a spontaneous character and goes in the aforementioned direction, especially from the standpoint of a long historical perspective.

Hence, our work (and other expected contributions), aim at forecasting the development of decision-making methods in respect to large systems' analysis. In managing the economic system (enterprise, corporation, government) the most difficult moment is goal setting. What is needed to be satisfied, in other words – How to formulate a goal to put forward the optimization problem? Science-fiction writers have proposed various solutions. For example, I.A. Efremov described the future social order, similar to the structure of the human brain: an ongoing forum with their research and coordination-associative centers [3]. Aiming at the construction of such a system of development and management decision-making – we need highly-developed means of the decision theory and active use of information technologies. If a goal is set, it is possible to achieve it and to develop an optimal plan (in natural units) and monitor its implementation. Methodologically it is easier to set a goal than to identify needs. But, so far, we did not have enough computing resources. Nowadays, however, the construction of an optimal plan for the production and distribution of goods and services across the entire Earth is quite a solvable problem, as this is already the experience of large multinational companies.

The views of Aristotle are highly relevant for the development of the functionalist-organic information economy. He discussed the management of business entities at various levels – the company, the city (polis), the state (satrapy). Aristotle introduced the special term "chrematistics," by which he refers to activities aimed at profit, accumulation of wealth, as opposed to the economy – an activity just aimed at meeting the needs of people; that is, for the production and purchase of goods for the home and the state. Chrematistics – as a form of economic organization – was considered by Aristotle as the unnatural form.

## 5. Modern achievements

In modern time, Henry Ford in his book "My Life. My achievements" [4], wrote: "... The task of the enterprise – to produce for consumption and not for profit or speculation ... work for the common good is placed above the benefits ...".

Effective mechanisms for the adoption and implementation of planning decisions should be based on modern information technology. After the war in our country, as well as throughout the world, different types of control systems were developed. The most ambitious project was realized in the early 1960s by V.M. Glushkov. The scientists proposed to the rulers of the USSR to create a nationwide automated system of economic management of the country (OGAS). He substantiated that it would give a real chance to build the most efficient economy in the world. V.M. Glushkov wrote [5]:

*The first information barrier or threshold was overcome by mankind because the commodity-money relations and the appropriate management structures were invented. Computer technology – that is a modern invention that will overcome the second barrier. It is a historical turn to the famous spiral development. When we have the state automated control system, we can easily realize a generalizing vision of the whole economy. In a new historical stage, with the new technologies, we can transcend the point of the dialectical spiral...*

The system analogous to OGAS (but on a smaller scale) was put into practice in Chile, during the presidency of Salvador Allende. One of the founders of cybernetics St. Beer has developed an automated control system, used for the control of nationalized enterprises in Chile [1]. By virtue of this system, it was possible to control the production of the country in real time (of each enterprise), and to see immediately the results of decisions, and, if necessary, to correct deviations.

In many modern works the problems of information technology management are under study. A group of young researchers published a special issue of the "Great Circle" [7], which correlates with the functionalist-organic information economy. The title of the journal points to the ideas of I.A. Efremov. In particular, I. Gerasimov says that contemporary information technology management is able to control over integrated information systems designed at the coordination of people, resources,

needs, suggestions. In this way, relying on the efforts of joint working groups for the implementation of economic projects – the establishment of direct links between the producers and consumers, better coordination of initiatives and projects in the social scale is achievable. The specific functions within the economic bloc are: accounting and allocation of resources, economic exchange experiences and technologies, identification of the needs of a population in goods and services, team building for new businesses, accumulation and distribution of investment, coordination of labor collectives, public evaluation of business customers stakeholders, conducting a public dialogue between consumers and producers of goods and services, free use of mass-media in unveiling the destructive activities of economic agents, the development of optimal schemes and plans of resource and economic development [10].

Compared to the times of V.M. Glushkov and St. Beer, a wide spread network technologies emerged. The latter introduced to the societal life the hardware means that realize the right of citizens to participate in decisions that affect them. It is equally important the participation of all citizens in economic life. Not less important the empowerment of citizens with opportunities to participate directly in the political management of society. This is particularly the formation of community councils and working groups for collective study and solution of various social problems; assessment of officials' activity; development, discussion and evaluation of regulations; organization of public dialogue administrative authorities and the public discussion on the candidates for elective office; assessment of socially significant actions, etc. All this is a qualitatively new level in societal and economic development. Especially, it becomes clear in comparison with separate sites of companies and administrative agencies. The latter ought to be integrated into the portals that refer to the entire economic sectors and territories. Likewise, they should realize the feedback based on the same standards, subject to the principle of "open architecture" – to have interconnected channels and regular exchange of data under the control of the population and the formed community councils at various levels. According to I. Gerasimov, open process of creating real organizational system modules, participants recruitment, establishment of horizontal relations and operations – these processes use the synthesis of the English terms Open Source, Open Architecture, Commons-based Peer Production, Peer-to-Peer and the Open Society («Open Society») – and can be called Open P2P Society or "Open network society", where the topology is characterized by non-hierarchical relationship ("from each to each" or "Peer to Peer").

One of the main directions of development of modern economic and management thought is information technology management, both at the enterprise level and at the macro level. The mathematical basis of this approach is the theory of management of organizational systems, especially theory of active systems, the theory of decision-making, including bases of expert technology.

Relying on advanced information technologies management decision-making, we are able nowadays to tackle the issue of carrying out the ideas of V.M. Glushkov

and St. Beer. Significantly, planning system can simulate any market economy, and, therefore – the planned economy certainly is not less effective than the market economy. Criticism of the planning system on national scale was based on the inability to produce the required number of calculations. In result, planning decisions were late and could not cover the required range of goods and services. As shown by Scottish economist W. Paul Cockshott and Allin Cottrell [6], modern information technology set us free of these problems. Nowadays, new technologies new technologies can conform the production of goods with their consumption across the country or humanity as a whole, taking into account individual needs. Capabilities of modern computers are sufficient for the calculation of management decisions on the basis of econometric models. The possibility of self-realization, rapid implementation of creative solutions, is fully realized in the advanced version of the planned economy.

## 6. Conclusion

Functionalist-organic decisions – the most important feature of the systems of decision making. First, freedom of information communication is needed – from person to person, taking away administrative filters and including the effective feedback. Second, the realization of the principle of direct democracy is called for – the participation of all interested individuals and organizations in the development and implementation of solutions. Thereby, everyone has the right to participate and contribute to the development of appropriate decision making. Likewise, there is a need of due technical basis, which is sufficient implement the “Open network society”. Finally, the political will is essential – to introduce into societal life the achievements of the functionalist-organic information economy<sup>2</sup>.

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