

Socio-Economic Systems Strategic Development Managing

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Abstract

The relevance of the article is determined by the necessity of theoretical concepts' and practical experience's rethinking how to change the functioning of socio-economic processes and systems in the conditions of technological mode, the cycle of development, evaluation of current reforms' changing. In this regard, the purpose of this article is aimed at socio-economic systems' strategic development management improving when it is necessary to clarify the types of structural changes, to envisage various scenarios of events' development, to determine the possibility of sustainable development achieving. The basis of the presented paper is the ideas of the infological approach and the principles of continuous improvement of all processes in the system. The presented article shows the structural model of information provision providing for the selection of significant information content for the development management implementation. The article presents the author's system of information sources' ranking on quality criteria, providing a formalization and standardization of strategic planning source data. This article is intended for business leaders, educational organizations, top-managers, researchers and those who are focused on the development of socio-economic systems.

Keywords: socio-economic systems, management, development, information assurance, modeling

1. Introduction

1.1 Background

Contemporary critical political and socio-economic situation again put the problem of socio-economic systems' sustainable development at all levels before the science and practice (Anisimov,1995; Korneev & Nikitin, 2010; Novikov & Petrakov 1999) The existing theory of socio-economic systems' development does not only meet the requirements of practice, but does not withstand theoretical criticism, not matching, first, the nature of modern development, and secondly, being in a paradigmatic field of economic theory that does not consider the development as a goal and value itself (Voložhanina, 2010). The need to accelerate the reforms' progress increases the urgency of a methodological approach development, reducing the development's risks, feedback gain and socio-economic systems' efficiency improvement. The result is determined by the objective necessity to undertake development efforts to transition process to a qualitatively new state and to a higher level of functioning. It is necessary to develop such innovative methods, principles and mechanisms that would reinforce the effect of the reforms, reducing their negative manifestations in the current time period (Ansoff, 2009).

1.2 Status of a Problem

Socio-economic systems' development managing is positive or productive changes' management in modern functioning conditions (Kouchner & Carlina, 2011; Masalimova & Nigmatov, 2015). For the productive development implementation, it is necessary to justify the initial, fundamental ideas of managerial and

developmental activities and other important requirements, compliance with which ensures the efficiency of development. Theoretical basis of research are the works of the classics of philosophy, economic theory, the results of fundamental and applied studies of modern domestic and foreign experts in the field of socio-economic systems and other areas of knowledge (Thompson & Strickland, 2006; Buslenko, 1963; Novikov, 2005; Meskon, 2004; Hussey, 2004). The overall methodological framework of this study is the categorical system of philosophy, general systems theory, economic theory, management theory and the theory of computer science (Voronin, 2000; Karavaev, 2003; Webster, 2004; Kouchner, 2011; Volovikov & Rebrova, 2010). The need to shift the focus of research from the selected aspects of economic theory and management theory on polyparadigm level also caused by post-modern, post-industrial social and technological structures' changes and relevant to this revolutionary process, the knowledge and information technologies' increasing taking place currently.

1.3 Problem of Investigating

In the process of the gradual accumulation of changes at some point, any system reaches its growth limit and is becomes less and less able to continue its self-development and order providing. The result is determined by the objective necessity to undertake development efforts to transition to a qualitatively new state and to a higher level of functioning. Methodological and organizational approaches to development management are to determine: the entities of development management, management orientation, management integration, management respond's kind on changes.

Thus, the socio-economic system as a complex dynamic system consisting of endogenous nonlinear subsystems, influenced by waves of exogenous and endogenous impacts, is the most realistic model. This chaotic nature of the educational process significantly complicates the management and this requires the organization and structuring of information provision.

2. Materials and Methods

2.1 Principles of Socio-Economic System's Development

At each stage of society development, the state of the system is determined by the trends of socio-economic development and technological modes of economic development, there are new conditions, opportunities and needs (financial; legal; scientific-technical, organizational, informational, motivational, etc.). The need to identify systemic patterns allowed us to identify a number of principles of socio-economic systems' development:

- Taking into account of the system's all stakeholders' interests;
- Manageability –control model availability by the dynamic active socio-economic system;
- Information availability (full informational description of the controlled object, evaluation mechanisms and data interpretation);
- Effectiveness (system operation results are to satisfy its agents).
- Predictability (mission, strategy, strategic plan, roadmap);

These positions are identified by: participatory management (with all agents' participation of the system); system's each cycle's target orientation (beneficial effect) (then conditions or development's vector are changed while maintaining the integrity of the system); the systemic nature of innovations (developments), as the orientation of all processes of the system on the end result; a leading management with continuous monitoring for early detection of the directions' displacement in the development from the intended target.

2.2 The Development's Strategic Factors Identification

Identified systemic patterns determine targets for development management:

- socio-economic system's potential to a significant extent depends on the type of its elements' interaction organization;
- the socio-economic system is characterized by a high degree of instability, "cause" and "consequence" can be interchanged;
- the socio-economic system is able to maintain stability at the expense of countering to external and internal conditions;
- the structural stability of the socio-economic system is determined by the resistance of the weakest subsystem;
- the duration of the system's and subsystems' development cycles, and their component objects, which include smaller elements, has different periods, with these cycles in a complex manner are synchronized with each other;

- the socio-economic system's instability or crises is observed as in the external so in internal environment;
- the life of a socio-economic system corresponds to all its available resources;
- the efficiency of the socio-economic system is substantially below 100%.

2.3 The Active Socio-Economic Systems Management Model Parameters

According to the theory of active systems (Novikov), a model of active socio-economic system is specified by a set of parameters:

- collectively by participants and stakeholders of the system;
- a set of relationships between entities in the system (management, hierarchical, information);
- sequence of operation (focus of control and information flows);
- dynamic functioning (length of control cycles by the entities of the educational system);
- the level of impact (the degree of system's entities' influence on the state of the system);
- the effectiveness parameters of the system state (management criteria);
- the conditions of operation (the set of acceptable states for the system's entities);
- the system's participants' and stakeholders' certainty (the level of awareness when making decisions).

These parameters define the mechanism of interaction of its elements, i.e., a possible control mechanism of its functioning and development from different perspectives.

3. Results

3.1 Information Support's Development Stages of Socio-Economic System's Strategic Development

The starting point in the development of the information basis for strategic development of socio-economic systems is a dominant strategy, which is in the form of needs and purposes renders the selective influence in the analysis and synthesis of all incoming information. The result of selective information analysis and synthesis is the formation of a dynamically reloadable array of information, including the source, processed, launcher, command, diagnostic (return) and management information, and the original goal serves as an array of information with respect to the future and desirable conditions of social or economic system. Types and properties of information and the speed of its circulation and processing define the channels of communication that can have a reinforcing or weakening effect.

It is obvious that the flow of information then become a strategic resource for the system's development, when there is a uniform system of selection, analytics and metadata management with defined information qualities, their automated circulation and content. It requires the integration of organizational, technological and information support, that there would be a dynamic database of accurate, complete, holistic, accessible, structured and formalized information resources at the scale of the object.

Information provision is generally understood as a provision (use) of information for any activity, control or automated systems. Formed information provision for systems' strategic development is to coordinate all information works and to support the user with on-demand information resources with the necessary qualities, dynamic properties and suitable for repeated use.

Information support development of socio-economic systems' strategic development should include the following steps:

- meaningful content selection for information support;
- sources' identifying of information support;
- methods of obtaining, classifying, grouping of information;
- distributed information flows' identification, their formalization;
- verification of information obtained through the interaction data and the degree of correlation study;
- analysis of the data;

forecasting the state of the external and internal environment taking into account the existing economic and socio-political trends.

Formed information support of socio-economic systems' strategic development (Fig.1) is applicable at each of these stages, and is an organic combination of scientific knowledge, scientific methodology and techniques with the latest technology in all aspects of information work.

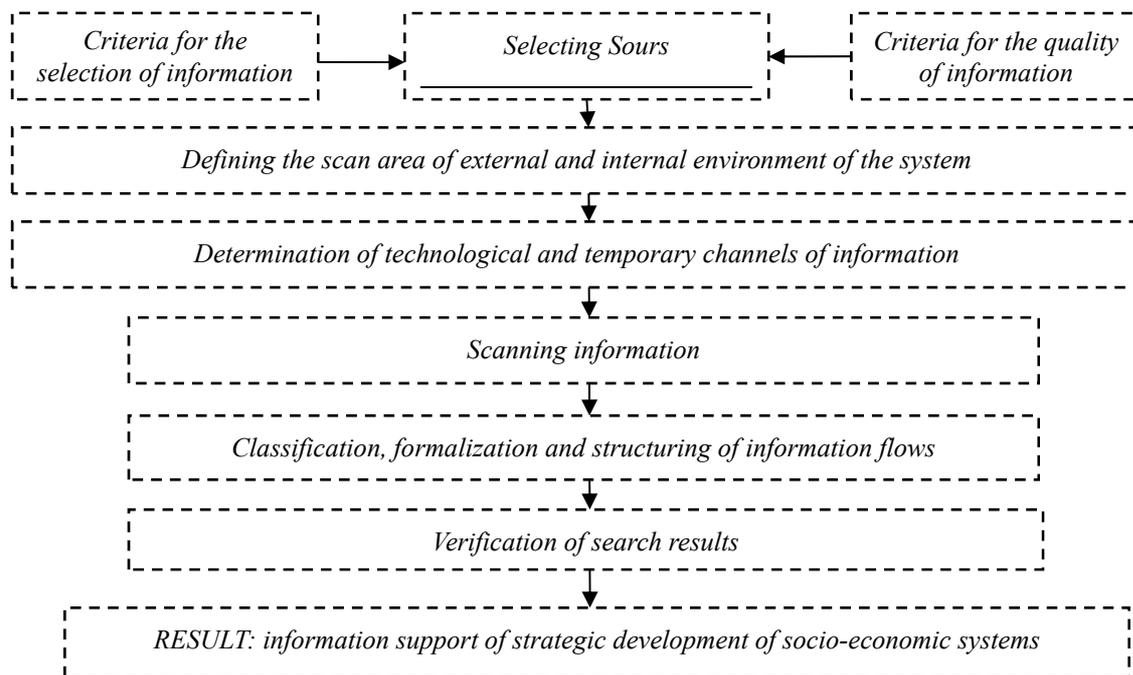


Figure 1. The procedure of information support formation of socio-economic systems' strategic development

3.2 The Information Support Quality Identification of Socio-Economic Systems' Development

Sources' selection - the initial stage of information support formation of socio-economic systems' strategic development, which determines the initial position of the information flow, its authenticity. Here the source is understood as documented carriers of any socio-economic information directly or indirectly affecting the potential agents' interests (stakeholders) of the system.

The determining factor at this stage is the inconsistent data elimination, which would erode the subsequent analytical presentation of the socio-economic situation. Also the important factor is the cost of consumed information because there is a likelihood of getting "cheap", but not adequate data at the same time, accurate reports performed by special analytical groups have a high price. Therefore, determining the sources' choice it is necessary to take into account the cost of the basic information that subsequently forms the basis for strategic planning. Besides, it makes sense to pay attention to the availability of information, that is, the method of its publication in open access and the level of replication. The relevance of basic information for strategic development is not too high, as it implements a long-term process. Therefore, the database accumulation and its update should be done in a set of time intervals, taking into account the effect of forecast situations and socio-economic trends.

The sources' information content is determined by the trends of the global and domestic socio-economic status in the whole, significant global political and socio-economic events and prognosis of the interpreted data on the functioning of the system processes.

There is a method of information sources' evaluation from both the source criteria, and the quality of information (Levina, Gumerov, 2015). Interpreting it in the aspect of research, we propose the following method of sources' determining on the basis of scaling and the formation of the ranks' matrix. Each of the sources' parameters is assigned with the index of importance (1 – 4) on each of information quality criteria (tab.1.).

Table 1. The information sources' ranking on quality criteria

Estimation	Completeness	Validity	Cost	Availability	Relevance
1	The amount of necessary information is insufficient	Links to doubtful sources	Significant costs	No access	Retrospective data
2	The number of necessary data narrowly reflects information	Commercial information agencies	Changing cost of information	Private channels of information obtaining	Periodic analytics
3	The number of necessary data reflects information on key positions	Secondary information from authoritative sources	Minor expenses	Registration or subscription	Daily media
4	The amount of necessary information is absolutely enough	Official government sources, regulatory documentation	Free access	Direct access	Information agencies

3.3 Comprehensive Assessment of Information with Regard to Possible Consequences for the Strategic Decisions

The importance of internal and external resources' managing of socio-economic systems puts the necessary definition of "environment organizational boundaries" and cost-effective use of all information resources, aimed at the development of the company in the long term.

In this area there is a developed international standard for stakeholder engagement AA1000SES [4], which provides a regulatory framework for the planning, execution, evaluation, information and non-financial audit of the interaction quality with stakeholders, which implements the functional interface of all interests through the mechanisms and procedures that ensure the rights of stakeholders. From the point of view of information support formation, this standard has impact on the selection of content and the choice of information sources, ensuring significant impacts' taking into account on stakeholders, the boundaries of action and resource constraints.

According to the AA1000SES standard, it is recommended to determine the team of stakeholders of socio-economic system, significant areas, content, purpose and mechanisms of interaction. These include the foreign and domestic policies' issues, financial objectives and problems, socio-ethical norms, etc. that identifies potential issues of interaction, that is, the necessary parameters of the information base of information provision. The quality of interaction at this stage determines the degree of accountability in information receiving and accepting from stakeholders on the developed Protocol and the degree of participation of stakeholders in activity planning for information rapid detection and distribution.

The next stage of information support formation is the classification, formalization and structuring of information flows. The total volume of documented information obtained from fixed information sources needed for the strategic development of the socio-economic system we call as information flow, the speed of which is determined by the amount of information processed per unit time. As a rule, incoming information flows are classified according to certain criteria (type of media, data source, frequency, purpose, openness, type of transfer, exchange type, orientation). Solving problems of strategic development, classification features of the information flow are divided into fixed and variable. As fixed signs, let's take the information electronic media, the prescribed period of use, off-line mode of exchange and anticipatory orientation. As variable signs of information flow classification, let's take the kind of information source, the information destination, the degree of openness of the incoming data.

By formalization of socio-economic systems' initial data is expected standardization and qualitatively-quantitatively interpretation of the information flow. Formalization allows for rational use and to simplify the content for the subsequent work, including automated systems. Formalization is a method of

information recording, aimed at further use or analysis, in a uniform manner according to specified criteria that ensure compliance with the order, the simplicity, the convenience of recording and broadcast, presentation.

Information structuring is a multifactorial problem also. The formation of the initial structure for the analysis is closely linked to the establishment of a database, methods for collection, storage and transmission of information, methods of analysis and monitoring. Information structure of formalized and classified data should be unambiguously interpreted on the one hand, and at the same time possess the potential semantic content on the other hand.

Final stage of information support formation is data verification related both to the conditions of the information obtaining and its' content. In information analysis there is the possibility of the inaccuracy of the original data, the unreliability of the source or the subjectivity of the examination. Therefore, the process of verification, as authentication establishing, verification of the truthfulness, accuracy, reliability of the received information and confirmation of its truth is mandatory for strategic planning.

4. Discussions

The problem of information provision semantic content selection is closely connected with the formation of balanced indicators. Initially, this system is based on allocated areas of the external and internal environment analysis of the socio-economic system's functioning, defining the boundaries of information requests and information environment interaction. The strategic analysis subsystem provides with information the entire strategy development process, highlighting four areas of strategic analysis: macro conditions, industry conditions, market conditions and the corporate environment conditions.

Effective analysis of external environment (to the system) provides a really executive development strategy (and, if needed, adjustment), leveling the risks and anticipating potential threats, and internal problems and potential opportunities knowledge allows for operational management and planning of internal resources implementation.

5. Conclusions

One of the ways to achieve sustainable development of socio-economic systems is to use the possibilities of modern information and communication technologies. Their use can meet the current needs of the socio-economic systems' practice, such as research methods, modeling, forecasting, management and development improvement.

From the standpoint of digital inclusion in socio-economic systems (i.e. increasing the share of knowledge and information as a public resource distribution of computers and computer networks) there is a need in the creation and organization of such share (information provision), which would allow us to freely create and consume information in all aspects of functioning, interaction of system units, at all hierarchical levels in the standards and protocols development that ensure interoperability for all components.

Then from the point of view of management, it is necessary to organize the information management of socio-economic systems, as integration of the principles, forms, technologies and rules of formation, processing, analysis and use of information resources. Information management is one of the aspects of systems' management in general, providing a formalization, structuring, processing and storage of metadata, which promotes the adoption of adequate management decisions.

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