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**SCENARIO MAPS OF MANAGEMENT AS EFFECTIVE CONCEPT
FOR SUSTAINABLE DEVELOPMENT OF ENTERPRISE**

Abstract. The article is devoted to the solution of actual questions concerning introduction of new managerial approaches for sustainable business development through forming maps of decisions. Scenarios of development enterprise according to temporal and spatial context of its activity are developed. Contour of enterprise information system as environment of organizational, technological, hardware and communication and information instruments that used to processing, transmission and storage of data is formed. Principles concerning processing of hypotheses of development and subsequent develop models of reaction on processes and phenomena to provide activation of enterprise activity are suggested. Such principles are coordinated map of decisions concerning hypotheses and models of reactions to them that allows to develop effective information relations in enterprise management system. Scenario constructions allow to increase effectiveness of management decisions and is foundation of creative approach that change qualitative characteristics of information system.

Keywords: scenario maps, principles, management, enterprise, development, strategy

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JEL Classification: L10, M13, M20

Introduction. Extensive changes in world economic space, becoming of global media society, changes of priorities and regulators of enterprise activity, active dominant of knowledge, technologies intelligence are influenced on organization and development of economic systems. Organization of business entity carried out in extremely difficult development conditions, for which inherent ambivalent character – turbulence and expanding range of tools and activation of business. However, more opportunities have many difficulties during adaptation economic systems to changes, because such systems are not completely ready to transformations and trying to preserve positions without risk that accompanies changes.

Literature review and the problem statement. Scientists D. H. Meadows, J. Randers, W. W. Behrens [Meadows, Randers, Behrens 1972], D. Rushkoff [Rushkoff 2016], T. Bochulia [Bochulia 2016], Ya. Fedorak [Fedorak 2006], R. O. Kostyrko [Kostyrko 2015], M. Reeves, K. Haanaes, J. Sinha [Reeves, Haanaes, Sinha 2015], F. Hylton [Hylton], D. M. Lytovchenko [Lytovchenko 2010], C. Laszlo, N. Zhexembayeva [Laszlo, Zhexembayeva 2011], V. S. Ponomarenko [Ponomarenko 2016] have laid scientific basis for modification of management system taking into account innovations of

development of economic systems. But at the undeniable value of scientific research of domestic and foreign academic community is still topical the need for systematization of approaches to forming strategy for sustainable development of enterprise on the basis of scenario maps of management.

Research goal is development of proposals concerning drafting scenario maps of making decisions as plan of development with monitoring and coordination of business processes taking into account features of modern stage of economic systems development that involves business differentiation for development of individual strategy.

The totality of general scientific methods of knowledge processes and phenomena that are basis for development of scenario maps of management has become theoretical and methodological basis of scientific research. At scientific research used: gnoseological method for concretization of concepts and categories that are main accent of defining scenario maps of management; system-structural method for concretization of principles of processing of hypotheses and subsequent develop models of reaction; method of analogy for forming scenarios of development enterprise according to temporal and spatial context of its activity; methods of theoretical generalization and comparisons for determination of prospects and directions of improving the efficiency of scenario maps of management to improve efficiency of formation and implementation leading influence with provision of continuous process of changes and innovations.

Research results. Harmoniousness and sustainability of socio-economic development predetermine the need formation of such model that embodies world system, which is sustainable without unforeseen and uncontrolled collapse and capable of provide basic development needs [Meadows, Randers, Behrens 1972]. Today for companies and organizations primary should be the objective is not growth but prosperity [Rushkoff 2016]. Therefore scenarios of management are means and objective of provision of conditions for activation development business. Mainly enterprises are chosen traditional pattern scenario of management – preservation of competitive positions without introduction of innovations that characterized by lack of guaranteed effect. The main limiting factors are excessive caution and leveling of individuality in management. Enterprise has to determine its vector of development with considering strategy of transformation, business values, target activity (meaning and causes of existence), on the basis of which management scenario is developed, actualization of which should be carried out according to time and spatial context of enterprise activity at economic external environment (Fig. 1) [Bochulia 2016, p. 144].

Enterprise during formation of development scenario guided by choice, changes and context, namely by circumstances, factors and conditions (context), in which economic entity is carry out and develop activity. Availability of choice contributes to assessment advantages and disadvantages of option selected management scenario, elements of which are updated and modified according to actual conditions of internal and external environment of enterprise activity.

Changes accompanying development of enterprise in active at coordination of relations at management horizontal plane, communication phenomenon of which is to achieve continuous coordination between subsystems of economic entity management.

Changes are logical and objective process that accompanies development and involves rejection of traditions in favor new, for which information is needed

with quality parameters that allow to promptly respond to changes and make decisions on prospect.

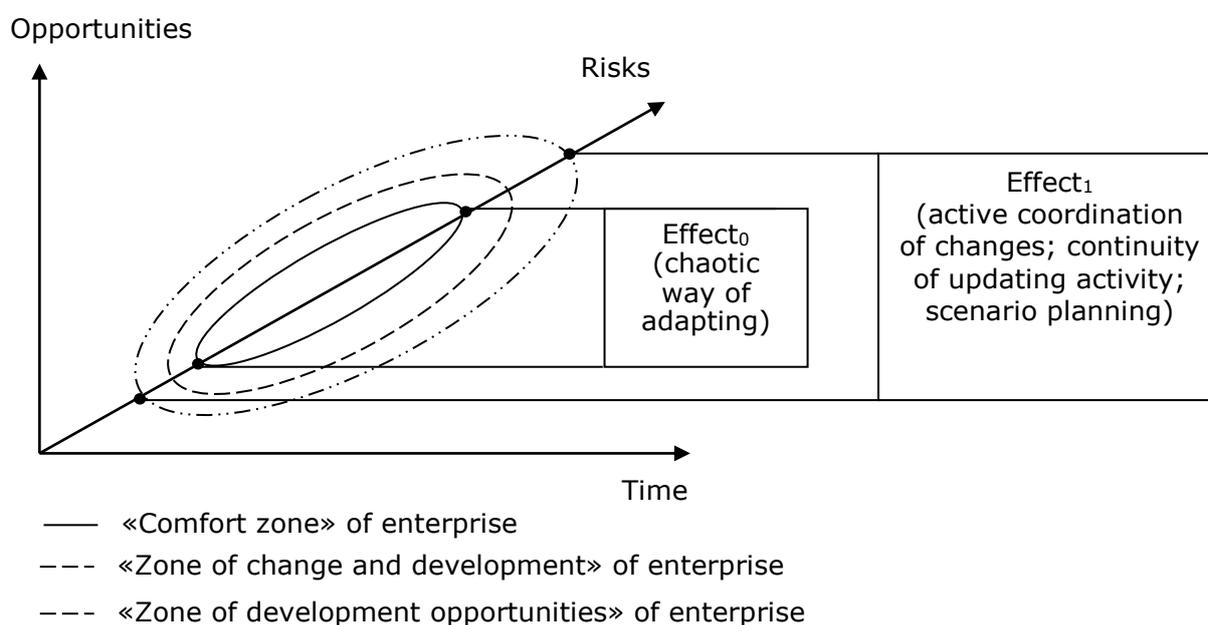


Figure 1 – Scenarios of development enterprise according to temporal and spatial context of its activity

Source: own development

Enterprise activity is limited by spatial and temporal context, resulting information and analytical environment should be flexible with active coordination of information relations between management subsystems and external environment. Hierarchical (vertical) order of information relations and information regulation been transformed into horizontally integrated system. Such option of organization information and analytical environment of enterprise is most conservative, because provides internal needs with external conditions of business activity.

Management scenario is needed to improve efficiency of formation and implementation leading influence with provision of continuous process of changes and innovations that are most correspond to characteristics of enterprise activity. The main marker of efficiency of enterprise activity is its ability at minimal amounts of time to transform important strategic and operational decisions into action, that is implementation of developed management scenarios [Fedorak 2006].

Effectiveness of management scenarios depends on several of economic, social and environmental criteria and indicators that indicate practice of enterprise economic activity and characterize the effectiveness of decisions made. System of criteria are proposed for real evaluation of enterprise sustainable development in the long term and adjustment of strategy parameters: financial and economic sustainability (economic efficiency of enterprise activity); social sustainability (efficiency of enterprise business relationships); environmental sustainability (effectiveness of environmental activities) [Kostyrko 2015, p. 307–308] that provides comprehensive research of status and prospects activities of economic entity. It is necessary to analyze criteria and then choose and implement the most appropriate strategy [Reeves,

Haanaes, Sinha 2015].

Enterprise should come out from «comfort zone» to «opportunities zone» for provision of development and for this risk taking and responsibility for partnerships with external economic environment are inherent.

Such outcome should be carried out according to necessary conditions that provides development of management scenario with unique set of factors and functions as core competencies with contributing to achieving of balance in changes of internal and external environment of enterprise activity with forecasting of trends and causes of changes world economic space. This is justified foresight of business activity without reference to warranty of getting results and willingness to timely development of model reaction to transforms in economy with architectonics of risk management.

Models that provide unquestionably positive, conditionally positive and negative results should be balanced for more objective of decision. In other words arithmetic mean between development and risks that accompany any changes and transformations should be found. Architectonics of risks is complicated, because is based on evaluation and processing of risks that can be accepted and to which guiding impact are apply and risks, occurrence of which not amenable to prediction.

Information-analytical knowledge are complex of relevant data and rules, on basis of which internal monitoring of enterprise activity can be made and development projects with definition of aggregate results different levels of efficiency are developed.

Processing of hypotheses and subsequent develop models of reaction should be carried out taking into account following principles:

1) scalability of planning. Scalability of planning continuous process of changes and innovations, updates and transformations of all processes, mechanisms and models of enterprise activity with provision of parallel implementation should be made. Phased organization should be replaced by composition that will have greater positive effect, because will provide readiness to making changes by all management system and not only by its individual subsystems.

2) collective control way. Control impact should be carried over from vertical plane to horizontal plane that will allow to provide active monitoring of enterprise activity and provide effective information exchange between enterprise management subsystem.

3) behavioral style of thinking. Conclusions and decisions should be generated based on concept, according to which economy develops as result of impact behavior and guidelines that adopted by individuals and integration with social institutions taking into account increase valuables of eulogistical human qualities. This is continual process of revising values, traditions, strategy of enterprise activity that provide simple or multivariate updating of hypotheses.

4) minimizing of time. Time for forming hypotheses and developing models of reactions to them should be maximally reduced that provide preliminary work concerning forming of base rules and knowledge base, which are updated by results of functioning of all subsystems management.

5) sustainability of changes. Each hypothesis should be instrument of gradual changes with harmonization of enterprise activity and collective way of adapting of all management subsystems to realities of external economic environmental and needs of enterprise internal environment.

Such principles are coordinated map of decisions concerning hypotheses

and models of reactions to them that allows to develop effective information relations in enterprise management system.

Scenario constructions allow to increase effectiveness of management decisions.

Decisions are formulated based on organization of information array, processing of which should be carried out taking into account factor of systematic approach, in which innovation, organizational architectonics, rational and irrational thinking are implemented.

Namely thinking is foundation of creative approach that change qualitative characteristics of information system as complicated structure that is prototype of reality in thinking of individuals, which united by same idea and strategy. Multivariate and ambivalence of information system are explained by personalization of their architectonics, which is defined at first organization that is changing under impact of internal and external conditions with impact on behavior of system and its interrelation with other systems.

Organizing information system is a necessary element of enterprise management, in which time that is necessary for obtaining high result is important factor.

Generating information for making decision acquires new meaning at modern conditions of global changes that caused by intellectual and technological transformation paradigm of economic and social systems. Users from information-analytical system expect not data, but knowledge, ie result of reflection realities of phenomena and processes, interpretation of which allows to effectively implement guiding impact.

Necessity of changes in information and analytical provision of management with implementation of prediction for increasing efficiency of management decisions that is outside traditional processes of processing, transmission and storage of information acquires particular relevance.

Formula generation of management information is based on three important factors that necessary for provide qualitative changes, which corresponding to time requirements:

$$S \times H \times A > T \quad (1)$$

where S – current situation; H – hypotheses; A – actions; T – tasks.

First components determine possibility of implementation defined task, each of which should be provided sufficient information for making decisions. Current situation in enterprise activity is characterized after monitoring changes and external conditions of business activity, for which information is taken from different databases and rules taking into account timeliness of data and conclusions.

Hypotheses are formed using new data and posteriori knowledge, amount of which depends on qualitative and quantitative parameters of priori information. Such information should constantly be evaluated concerning conformity to temporal context of enterprise activity and level of subjectivity that allows substantially reduce information losses and increase level of efficiency implementation of data in operative managerial decisions.

Models of reaction (active actions) which include complex of decisions with different expected effect are developing according to formed hypotheses (them should be at least two).

It is important to effectively and on time to processing, transmit and

interpret data in order to avoid risks that associated with information. Information allows not only describe enterprise activity and appropriately to understand logic of its organization and development that is implemented in decoding of goals, objectives and technologies.

Functioning information system can be estimated by obtained results, which is not enough, because forecasting of events and consequences are not done. Therefore is not only necessary traditional information provision with array of relevant data, and also multifunction information system, content of which should include priori, relevant, posterior, new information that characterizes information complexity of system.

Quantitative and qualitative characteristics of database, algorithm of processing and servicing of information, communications channels and also number of data that are needed for making decision define information complexity of system. Enterprise information system is complex of organizational, technological, hardware and communication and information instruments that used to processing, transmission and storage of data, which are updated by means of technologizing and intellectualization processes (Fig. 1). Information system includes explicit and potential informational resources that should be considered not from the point of view of value, but as assets, which can bring economic and corporate benefits to enterprise in the future [Hylton].

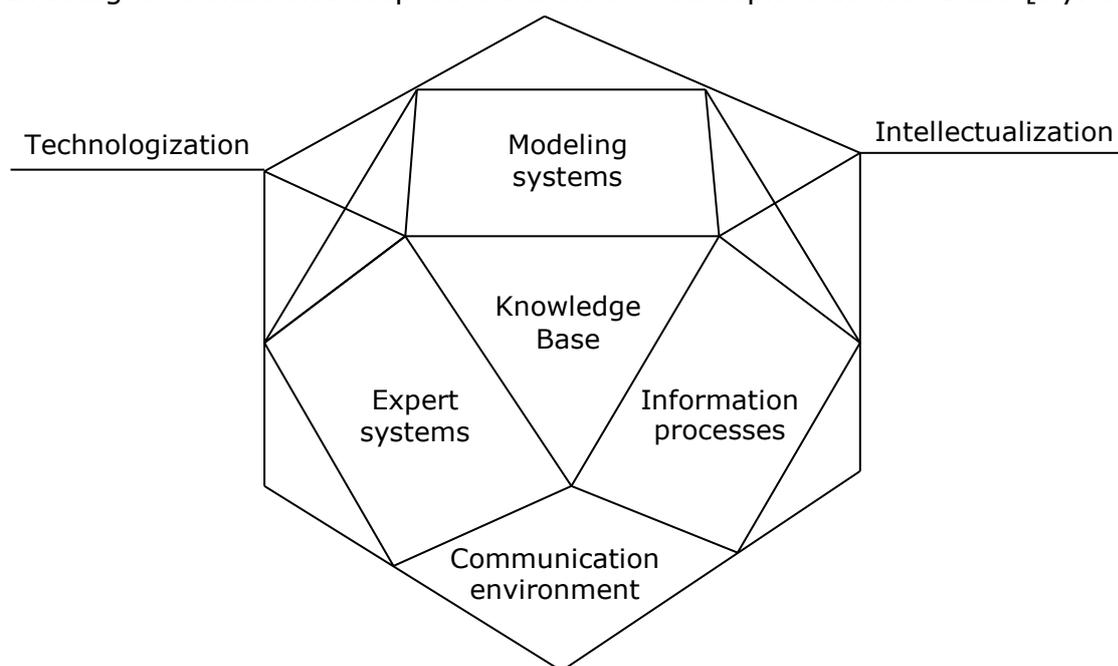


Figure 2 – Contour of enterprise information system

Source: own development

Knowledge Base as developed form processing, transmission and storage of information takes central place in contour of enterprise information system and for it inherent technological, hardware and communications and intellectual aspects. Forming, servicing and development of Knowledge Base (its technical and logical components) are carried out based on criteria organization of logical rules of conclusions, network models, algorithms of processing data, archiving of information: integrity; traceability; clarity; correctness; completeness; effectiveness [Lytovchenko 2010, p. 181–182]. Practical recommendations on intensification of critical thinking and promote integration of sustainable development at enterprise model with expansion of core competencies are

proposed [Laszlo, Zhexembayeva 2011].

Knowledge of various types are accumulated in base [Ponomarenko 2016, p. 383–384]:

1) Probabilistic knowledge – least one condition, probability of transition in which is different from other probable transitions is available in system.

2) Structural knowledge – condition, in which transition is inappropriate that explained by constraints, which identified by internal and external environment turns out in system.

3) Deterministic knowledge – any transitions besides that, which defined by basic, according to which amount of knowledge contributes to reducing of entropy are prohibited in system.

Knowledge Base is structured according to organizational and informational architectonics taking into account requirements and restrictions of formal and informal institutions. Servicing of Knowledge Base is carried out to optimize its logical parts, in which knowledge for making decision are generated that by means of encoding / decoding are transmitted by communication channels for understanding of processes, factors and phenomena of enterprise activity.

Information system should be updated all time, because only one version of its design is not guarantee for effectiveness of expected result. Biggest mistake is forming of information system once and forever without further changes and adapt to conditions and factors of business environment, information and communication space, technological environment. Strategy of organize productive information system and obtain in future benefits from its functioning is unjustified, because level of performance will decrease over time.

Essence of information-analytical system is beyond traditional understanding of processes of processing, transmission and storage of data and determined by highly complex constructions of information relations with foundation of rational and irrational interpretation information for its onward transmission in order to obtain knowledge and making decision. Forming semi-open information platform, for which is inherent flexibility in comparison with traditional information systems is carried out as result of intellectual and technological approach to development of information-analytical systems.

Conclusions. Enterprises are personalized scenarios to provision of individual algorithm of development and leveling stereotype of standard transformational impulses and using strategies updating and actualization that equally corresponds requirements, factors, guidelines and restrictions of internal and external environment. Development scenarios carried out according to alternatives and ambivalence of factors of modernization, which taken into account when compiling card modernization as illustrative plan of evaluation this process for enterprise. Proposed matrix of information system modernization allows to identify most essential risks factors, determine weight of each in modernization scenarios, minimize inconsistency and uncertainty of managerial decisions concerning changes, transformations, activation in information environment.

For development of scenario maps of management in article have been formulated recommendations on organizational and methodological bases of forming plan of development with monitoring and coordination of business processes taking into account features of modern stage of economic systems development. Main conclusions and results that obtained in scientific research:

1. Scenarios of development enterprise according to temporal and spatial context of its activity have been formed for development of enterprise in active

at coordination of relations at management horizontal plane, communication phenomenon of which is to achieve continuous coordination between subsystems of economic entity management. Such scenarios of development contribute to efficiency of making decisions in accordance with characteristics of enterprise activity and its mission as main idea of economic development.

2. Formation of management scenarios is carried out in accordance with principles that are theoretical foundations of laws, standards, and postulates with defining general and individual characteristics, observance of which is a necessary condition for normative and methodological provision of enterprise activity. Principles for handling hypotheses of management and formation of reaction models for events and phenomena taking into account risk management are suggested. Such principles contribute to coordination of decisions concerning activity and development of enterprise that allows to establish effective information relations between management subsystems. Implementation of proposed principles involves identifying and continually reproducing in information provision of managing an enterprise the core constraints that focused on forming of universal information, which contributes to increasing variability of managerial decisions.

3. Personalized information is generated for each scenario of management that based on three important factors that necessary for provide qualitative changes, which corresponding to time requirements: hypotheses; actions; tasks. First components determine possibility of implementation defined task, each of which should be provided sufficient information for making decisions. Current situation in enterprise activity is characterized after monitoring changes and external conditions of business activity, for which information is taken from different databases and rules taking into account timeliness of data and conclusions. Hypotheses are formed using new data and posteriori knowledge, amount of which depends on qualitative and quantitative parameters of priori information. Such information should constantly be evaluated concerning conformity to temporal context of enterprise activity and level of subjectivity that allows substantially reduce information losses and increase level of efficiency implementation of data in operative managerial decisions.

Proposals and recommendations that are set out in scientific article and are formed for development scenario maps of management and aimed at making effective decisions that depends on specific tasks facing the business, as well as environment in which it operates. In future it is planned to develop results of research to determine constructive attributes of modernizing information and analytical provision of management an enterprise. It is planned to construct grid of information and analytical provision of managing an enterprise which are characterized by combination of factors management that correspond policy of managing an enterprise, its mission and development strategy.

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