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DESIGN METHODS OF HUMAN DEVELOPMENT MANAGEMENT SYSTEM

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Abstract: *The article discusses the concept of "human development" and the schematic diagram of the organizational design of regional management systems in relation to human development. Management as an organizational process in the study is considered as part of all social subsystems, specifies regularities of development and formation of new structures and functions. In the study applied the following methods: allocation of levels of models, techniques of domination, the allocation phases of the operation, the construction of generalized indicators, etc. As a result of research design problems of systems management human development revealed that the primary means of successful adaptation of organizations to changing conditions is an effective mechanism for management of human capacity, which will provide the best in current economic terms the end results that allows you to apply the concept of "innovation potential" in relation to the process of human development.*

Keywords: *the system of human development, human potential, the theory of human potential, human development concept*

1. Introduction

Contemporary strategic management considers that market changes go beyond the normal planning cycle. It becomes essential to reduce the organization's reaction time to external changes. Organizational planning can be defined as a process of management of development and preservation of the company's strategy and organization, on the one hand, and of external changes - on the other hand.

According to Lloid T. strategic management is such organization management that is based on human potential, guides production

activities to satisfy customer's needs, quickly responds to changes and implements timely changes in the organization to meet arising challenges and to promote competitive advantages that taken as a whole gives the organization a chance to survive in the long term while achieving its goals (Dosi, Orsenigo, 1988), (Lloid, 1997).

Rationalism considers planning as a way of decision-making when «decisions precede actions». In this case, there is a step by step process of justifying the selection of goals, aspirations, choices, consequences and results. This method is known, as the planning method by the best possible results. It should be noted that there is a danger of creating planning models not adequate to social realities and ignoring the human factor.

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The main purpose of this article, however, is not to criticize the existent approaches, but to consider alternative, based on the evolutionary paradigm (Dosi G., Fagiolo G., Roventini A., 2010). With this approach, we attempt are being made to consider quite a range of phenomenon, from microeconomic behavior in situations, to industrial development and structures or properties of aggregate growth. Similar phenomenon are seen as the results of non-equilibrium interactions "partially rational" diverse agents with endogenous preferences, are able to rationalize their behavior according to the used technologies, organizational forms and their patterns of behavior.

Management turns into an integral feature of social life in all its subsystems, structures, into the regularity of development and the formation of new structures and functions when a person becomes the main object of social policy. In historical time scale the final product and purpose of management in the society is the state of an individual rather than his well-being as the highest goal (Dosi, Nelson, 1994), (Machlup, 1984). To carry out scientific management we should know tendencies and directions of development of the system, its mechanisms and patterns of functioning. Functional aspect of management has been researched better than the structural one, as universally valid criterion of an objective character that would be able to serve, as a regulatory mechanism of structural changes is yet to be identified. As for the interaction of function and structure here according to H. Spencer there are at least two points of view. According to the first point of view, function's changes cause changes in the structure. The second position is based on the mechanism of the transition of quantitative changes into the quality. It is noted that with considerable changes in the behavior of the system there happens an abrupt change in the structure that makes the essence of management based on the principle of structural optimization of the systems. Current the prevailing concepts are based largely on the opposite principles,

in particular on the separation of coordination and dynamics.

2. Literature Review

2.1. Methodology of study

The results of scientific research of various aspects of the securities market are presented in the works of such scholars as Dosi G., Freeman C., Nelson R., Silverberg G., Soete L., etc.

The purpose of this study is determined by analysis of management of the development of human potential in organizational change. The main content focused on the problem of justifying a method of designing control system of development of human potential.

The methodological imperative «Dynamics first!», formulated S. Winter, suggests that the explanation for the existence of something or a certain value of a certain variable should be based on the study of the process in which they came to this state. In other words, such a process is described either through some dynamic system, either through a good qualitative historical reconstruction.

The concept of bounded rationality should be extremely broad and relates not only to limitations in access to information, memory, computational abilities, but in a more fundamental sense, fundamentally flawed ideas about the environment in which agents act; to the widespread restrictions of abilities of the agents to master physical and "social" technologies; to vagueness, and sometimes incoherence and instability of ideas about their preferences

Permanently exists the potential of innovation. Knowledge is always dynamic, agents are always able to access new technologies, new ways of organizing and new forms of behavior. The assumption about the immanent possibility of novelty - the most important theoretical and modeling challenge (Dosi, Nelson, 2010).

Interaction, coordination and selection.

Imperfect adaptation and permanent discovery generate variety, collective interactions within markets and beyond their limits, function as mechanisms for information exchange and coordination.

The actions of the organization, and the results of its operations substantially depend on intra-organizational relations. It examines Agency theories of the firm, and are much more active than in the economic theory of transaction costs, where the key and the most natural was the problem of R. Coase about the boundaries between organizations and markets.

The organization is a complex, tuned to the solution of problems of institutional formation. There is solved work tasks and search tasks.

2.2. Approaches to solve problems

The managed system has the ability to shift from one state into another which determines the point of its development management. Here the state of the system is often understood as its spatiotemporal characteristics qualitatively determined. In general, the system's state may be expressed by a vector each component of which represents a separate parameter of the system varying within predetermined limits. Direction of change for each of these n parameters is considered as measurements of n -dimensional space of the states. In turn, the aspect of the quantitative study of social phenomena is based in particular on the provisions of the theory of self-organization. The ability to regulate the functional manifestations of aggregate components at once taken height of limited diversity is a difficult art of structural policy of management, art of harmonizing the structural elements of the whole synonymous to optimal behavior under conditions of incomplete certainty (Dosi, Nelson, 2010), (Mahbub ul Haq, 1995). In a certain sense we can say that management is a struggle against entropy in socio-economic systems. Management is a purposeful transfer of the

system from less ordered to a more ordered state, from a less organized into a more organized state, from a state with a large variety into the state with lower variety.

Relative character of the notion «system» determines the program which implementation may lead to one or another specific definition of the system. Distinctive features of any system is the link, integrity and stability of the structure. However, if we say that stability of the system is relative than we recognize that the system also has some instability. Instability is a fundamental feature of changing systems, it forms a necessary condition of their evolution and development. Systems that do not have instability, cannot evolve (Dosi G., Fagiolo G., Roventini A., 2010), (Hudson, 1993). Instability is structural cause of qualitative changes in the system. Economic systems belong to the changing ones. In a state of stable equilibrium economic system does not evolve, but undergoes damped oscillations near this state. However, this state itself is the result of the previous evolution of the system. In view of this last process any equilibrium situation of the market economy is the situation of maximum efficiency, and vice versa. Highly no equilibrium economy interacts with its future.

Proponents of organizational development believe this direction to be the method of planning when agents external to the system cause organizational changes. Organizations are also seen as socio-technical systems in which «the flow of organizational changes is the process of learning, aimed at the formation of consciousness and behavior of members of the organization» (Dosi, Freeman, Nelson, Silverberg, Soete (eds.), 1988), (Nonaka, Takeuchi 2005).

To implement a successful economic system design one should take into account that such a component as communication between people is present in complex open systems, even at a high level of autonomy of subsystems where true cybernetic effects prevail.

Like system design, planning is a process of solving problems facing the social systems. It is very likely that the only real difference between the planning and designing of systems is in some orientation of planning, and in its symbiosis with management. Apparently, one can try to achieve only technologically feasible goals. It is best to deal with phenomena that allow linear model and forecast of their development. Assuming a competitive character of free enterprise system solutions are considered «progressive» to the extent they serve the purposes of an individual.

Planning is the process of acceptance and evaluation of a number of interrelated decisions that precede a certain activity when there is awareness that the desired future condition will not take place without some actions and that these actions will increase the likelihood of a favorable outcome.

It is in the increased ability of each part of the organization including human resources to contribute to the improvement of the entire company activity is the advantage of planning.

Planning is seen as an open system affecting its environment and other systems and experiencing, in turn, their influence. Thus, planning is a kind of intelligent system designed to translate plans into action. In turn, Bir proposed to classify systems not by subject basis, but only in terms of complexity. In order to operate efficiently within the concept of complexity we create an organization (which reduces the entropy) (Dosi, Freeman, Nelson, Silverberg, Soete (eds.), 1988), (Nonaka, Takeuchi 2005). Planning here is to study the possible future consequences of our present actions and is an integral part of the systems designing.

3. The main results of the study

The main means of successful enterprise adaptation to uncertain and rapidly changing environmental conditions is an effective

control mechanism providing the formation and implementation of such a scenario, which will ensure the best under the circumstances final results.

We note that issues of capacity building, in particular innovation potential building has not been overlooked in economic papers, but the concept of «innovation potential» particularly in relation to the process of human development has no clear interpretation (Becker, 1964), (Bowles, 1970), (Dosi, Levinthal, Marengo, 2003), (Dosi G, Faillo, Marengo, Moschella, (2011), (Prusak, 1997), (Wiig, 1993).

Innovation processes are implemented within the appropriately chosen innovation strategy.

Management process in the economic system can be represented as a set of routine (template) processes to solve problems. Problematic situation arises when maintain the existing process in the new environment does not result in the achievement of the desired goal, or, in other words, when the goal cannot be achieved by known (template in this sense) modes of action. Lack of change mechanism leads to the isolation of the management apparatus when organizational structure and not the content of management process and its results become primary. This reduces the efficiency of the economic system.

The designing of the system of an economic system management includes identification of problems, creating models, data collection and analysis. Model of the economic system is necessary to anticipate its behavior and especially to monitor connections between the actions of management system (control mechanism), the behavior of the economic system and the environment, which is crucial in the management of the development and design of control mechanisms.

The complex of three main mechanisms of development management satisfies these requirements (Bowles, 1970), (Dosi, Marengo, Paraskevopoulou, Valente, 2011), (Stewart, 1997).

The main mechanism of the design of economic system development comprising a forecast of possible changes in the external and internal environment, setting goals, the problems encountered on the way to achieve them, formation, comparison and selection of effective programs of actions to solve the problems is the mechanism for identifying and solving problems.

Activity is realized in the form of specific operations and elementary actions. Accordingly, the process of performance management is cyclical in nature with each management cycle containing the same stages and the same procedure and execution operations of different nature. In other words, the model of management cycle is invariant (unchangeable in structure) with respect to the operations of different nature. This property of management processes technology naturally follows from the described structure.

Specificity of management mechanism designing consists in the need to present element being developed as part of a complex system. There are currently many concepts of the system, which are characterized by unity of regularly arranged in the concatenation parts or as an organized set of tools to achieve a common goal (Dosi, 2000), (Dosi, Egidi, 1991), (Dosi, Nelson, 2010), (Dosi, Winter, 2002), Edvinsson L., Malone M. (1997), (Griliches, 1970), (Legge, 2003), (Mahbub ul Haq, 1995), (Elkin, 2016), (Nelson, 1995).

The main objective is to identify specific parameters of each projected element on the basis of assessment of the effectiveness of the economic system as a whole. To achieve this task the methods of designing efficiency together with the methods of systems analysis, mathematical methods to research operations and other system areas are used. The object of research at this stage is the project of the being created mechanism of human development management which is regarded as really existing and functioning in the system. It is important to note that at the

last stage the being designed mechanism can only be considered as a part of the whole economic system performing certain task. In fact this is system-communication aspect of the analysis which object is not an economic system, but the project of mechanism to manage it.

Thus, the transition to effective methods of designing of any systems and mechanisms requires well-determined conditions. Speaking of the currently available examples of constructive representations of the basic mechanisms, we shall note, first, typical scheme of mechanisms of integrated performance assessment. This scheme allows us to specify a set of initial indicators to assess the activity or condition, to choose a scale to assess the significance of indicators, the procedure of estimates parameters aggregation in local estimates by group of indicators and, finally, it contains a convenient apparatus of matrix convolutions allowing flexible configuration of complex (final) assessment of a wide variety of purposes. With efficiency assessment unit we can design a wide class of competitive priorities and mechanisms. Thus, if we add to the efficiency assessment unit (referring to the expected efficiency) the resources (plans) determining unit based on the performance evaluation, we shall get the system of designing of competitive or priority mechanisms.

Another important condition is connected with the necessity of experimental verification of created mechanisms projects prior to their implementation. Such experimental testing can be reliably performed using business games and simulations. As for the CAD systems of management mechanisms, there are a number of additional features and conditions that are appropriate to consider separately.

Computer-aided designing is the integration of methods of technical sciences based on the use of databases, libraries of programs and communication subsystems. Such mechanism includes deterministic

assignment of system goal, system elements and rules (procedures, limitations, functions, and so on) regulating and determining the actions of the elements in the predetermined structure. Proceeding from this definition of the mechanism of functioning mechanism of management or organizational mechanism can be decomposed into the description of interconnected blocks-components. As a basis of decomposition the separation of management functions is used. The result is blocks-components of planning, assessment, operation, accounting, promotion. Thus, the organizational mechanism of the active system is understood as a system of cyclically occurring organizational processes of planning, evaluation, stimulation of active elements. Cyclicity of organizational processes varies depending on the hierarchical level of the organizational system.

On the basis of the methodology applied here we can characterize CAD system of management mechanism which is achieved through analysis and synthesis of organizational mechanisms models (Dosi, Freeman, Nelson, Silverberg, Soete (eds., 1988), (Dosi, Levinthal, Marengo, 2003), (Dosi, Marengo, Paraskevopoulou, Valente, 2011), (Nonaka, Takeuchi H. 2005), (Prusak, 1997), (Elkina, 2014), (Roxborough, 1988).

The system should include two main modules: the module of analysis of mechanisms models and the module of mechanisms synthesis.

Thus, the architecture of the system is connected with the identification of user needs and further designing of a system that meets the requirements as efficiently as possible within economic and technical constraints.

When there is the need for rather exact control of the object's operation based on the knowledge of its internal and external relations, when an object is deliberately designed there appears a systematic approach. Its main function in human activity is to provide deliberate designing of

an object in view of the final results.

System designing in accordance with the requirements of its final results suggests a distinct vision of these requirements. And if these requirements can be met by traditional already mastered ways, then there is no need to create a new system. The latter makes sense only when meeting the requirements is problematic. «The system is the means by which the solution to the problem is carried out» (Dosi, Egidi, 1991, (Legge, 2003).

Goal-setting is the most important process of systemic approach since the goal implies objective requirements and at the same time it governs all activities to establish a system and determines the trajectory of system activity. Awareness of the goal allows to reveal the function understood as the operation of the system to achieve the goal, the method of achieving the goal. Purposeful functioning is the way of life of system objects. Purposeful functioning is provided by the system's construction that includes elemental composition and structure. Finally, it occurs in certain environments which impose restrictions on the work of the system and at the same time on the approximation to the goal and the solvability of the problem situation.

System is purposefully functioning structure capable to resolve the problem situation under certain environmental conditions. This approach provides a constructive definition of the system, since it reveals the way to identify it through the goal and the problem situation (Hudson, 1993).

When the behavior of the system depends not only on the structure, but also on the spontaneously changing composition we are dealing with organizational systems and accordingly with the organizational variant of the systemic approach, which is its most complex and advanced form. In principle, everything can be constructed and described in terms of designs. The novelty of this approach is the specification of the theoretical and methodological principles to the level of operating methods in the

management of social processes and the design of organizational structures.

Law of entropy has important consequence - the dependence of potential of the system on the degree of its organization or the nature of its structural elements interaction. On the basis of this law we can determine the dependence of the system's potential on the potential of its structural elements for an organized system that allows you to develop recommendations for the rational organization and management of the system.

We will consider the concept of management process where the process is dynamic characteristics of the phenomenon. Management process is cyclical in nature, which means that it flows continuously and is a set of successive cycles. Each cycle begins with the identification of the goal and finishes with it achievement, and then on the basis of the results achieved a new cycle begins.

Management process consists in the analysis of the situation, in the development and making management decisions, organization of its execution and in final control, which closes the management cycle. Thus, management process is a system whose elements (operations) have an organic relationship and focus on consistent achievement of intermediate and final results by building a «tree of goals». It follows that in the management process there are the stages of the situation analysis, decision-making, implementation and monitoring of the decisions execution.

At the heart of improving of economic entities management is designing of organizations, i.e. promotion of institutional projects that provide identification and solution of management problems through the development of innovations that meet the needs, perspectives and the particular conditions of specific organizations, and measures to ensure their implementation. The object of organizational design that accompanies any managerial innovation is always the system of the same class. The

main property of the organizational and economic systems is that these people are the elements of their structure. Organizational-economic system is a social and economic system created deliberately or formed spontaneously for the implementation of the process of joint work. To transform elements into integrated set (the organization) it is necessary to combine them expedient to the designed system of interrelations - information and real-power communications providing streams required for the operation of the whole system.

In other words, the organizational system should be purposeful, self-regulating, self-developing and self-learning. There is a need in mechanism of management and distribution of management functions ensuring these properties of the organizational system.

The designing stages of the organizational system management include identification of problems, models generation, data collection and analysis. Model of organizational systems is required to forecast its behavior primarily to monitor communications between the actions of management system (control mechanism), the behavior of the organizational system and the environment, which is crucial in the management of the development and design of management mechanisms. A complex of the following three basic mechanisms of development management satisfies all the requirements.

- 1) Mechanism for identifying and solving problems. It includes a forecast of possible changes in the external and internal environment, identification of goals and problems encountered on the way to achieve them, formation, comparison and selection of effective programs of action.
- 2) Mechanism of decisions and interests coordination. It involves coordination of interests through incentive mechanisms.
- 3) Mechanism for monitoring and changing of management system

(mechanism of management system development). Its main purpose consists in monitoring the first two mechanisms and analyzing their performance by the results.

The combination of these three mechanisms is the variant of management mechanism development from which the basic management functions and their distribution follow. Thus, the organizational system is a reasonable, mutually beneficial association of people (and resources) in a holistic separate body acting purposefully and in a coordinated manner through the introduction of a specific structure of the relationship between the system elements and mechanisms governing the functioning and interaction of these elements.

This implies that the technique of the process and management actuators structuring in constructing effective management system should come from results to the content of management processes and from them - to the organizational structure. The goal can be achieved in various ways, using one of the many management mechanisms.

The system is a means of achieving goals. Common goals, a certain structure and certain rules of elements interaction are essential features of the organizational system. Organizational mechanism is a set of rules governing the actions of the organizational system elements during functioning.

The mechanism of management is a set of procedures to ensure the specific development of an organization in time. We can judge the quality of management mechanism only if we are able to assess the state of the organization in terms of its goals. Restructuring almost always requires a change in mechanism, while change of mechanism can be done without structural changes. Therefore, the task of developing effective organizational mechanisms with a given structure is a necessary element for assessing the effectiveness of the structure itself.

Systemic approach and analysis determined the development of new design techniques in the face of uncertainty and conflict. The purpose of modern designing consists in the organization of designing as a process causing changes in an artificial environment. Presented in this paper an innovative model of development based on systemic transformations provides an opportunity to change not only internal but also external environment of the enterprise. In this model, the company is treated as an artificially created system being constantly redeveloped to meet new challenges and is strongly correlated with the development of human potential (Figure 1).

Based on the conducted study the author assigns the key role in achieving the positive dynamics of the enterprise development to the innovative activity, which is characterized by the creation of high technology and modern production capacity by finding the optimal management of human development. Management of innovative processes based on systemic transformation is associated with an increased risk and uncertainty, but can bring an enterprise on a new level of development. National and international experience shows that during the crisis, the innovation policy of an enterprise focused on the growth of human development indicators allows faster and less costly to overcome the consequences of destabilization of the economy and more confidently move forward in its development.

Learning means assimilation of knowledge and information. Obviously, variation and change are general principles that characterized the development and learning. Development emphasizes consistently made systematic steps, which mean further progress (Figure 2). Formally, the change is an individual process of understanding the world and, at the same time, the structural process of influence on the ability of perception and other actions.

The system changes are to be understood as the change of the main components of an organization: goals, strategies, technologies, internal structures, human resources. They require simultaneous transformation. The principle of changes viewed in terms of integrity can be approached in some ways. In organizations, changes are connected with

stability, or homeostasis. The system always tends to be in equilibrium. Changes take place according to system-specific laws. Structures are frozen rules. Finally, the context of the system, for example, in the form of market conditions is also involved in making decisions about the scope and depth of the changes.

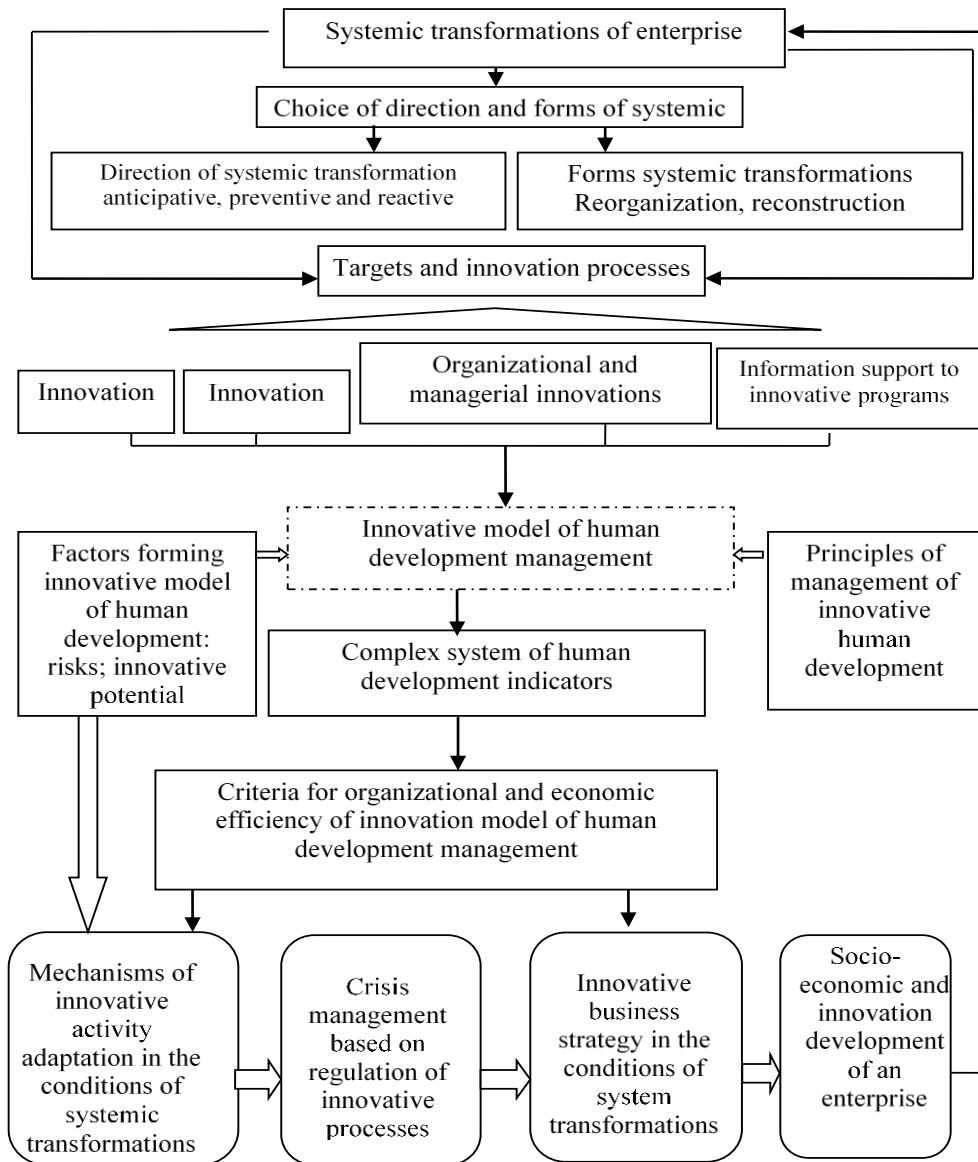


Figure 1. The concept of innovation system of human development management in the conditions of systemic transformations (compiled by the authors).

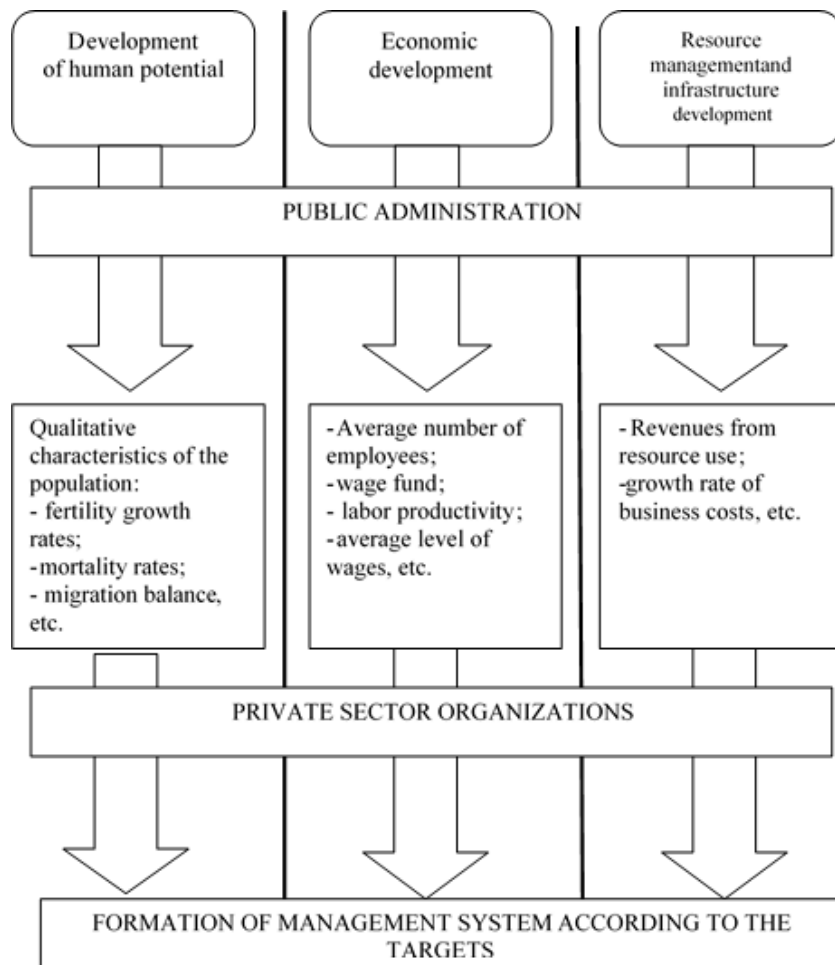


Figure 2. Functional target-oriented management model (compiled by the authors).

Conducting systemic transformations requires significant investments in the future of the company, and this limits the current economic growth and reduces the profitability due to the growth of the company debt during this period. In this regard, there appears the need to implement the principle of balancing of innovative development and systemic transformations of the enterprise. Otherwise, a crisis situation may arise. To plan an innovative activity at every stage of the systemic transformations of an enterprise an algorithm that provides a balance of innovative development with ongoing organization's changes is required. Development of the plan of systemic

transformations implementation is constructed based on its features, strengths, weaknesses, and external factors. The difficulty lies in the inability to predict the market situation with a high degree of probability, so it is necessary to provide a plurality of alternatives and implement a flexible system of regulation of the systemic transformations implementation when using innovation. Basing on the conducted studies the author offers an innovative model of development based on systemic transformations allowing increasing enterprise value and improving effectiveness of the transformation based on the use of human potential.

4. Conclusions

Thus, the scientific novelty of the research consists in the development of the methodology for design of the human development management system through the development of human potential management mechanism. That will provide effective results in the current economic conditions, which allow applying the concept of «innovation potential» to the process of human development.

Scientific novelty can be summed up in the following statements:

- 1) Management, as an organizational process aimed at the development of social subsystems becomes effective only if based on corresponding to its parameters strategic development goals the human potential. Therefore, the multiplier effect can be obtained, if the purpose of the management becomes not organizational well-being, but the characteristics and components of human potential;
- 2) Planning as a way to justify the selection step process goals, options and consequences should lead to the best possible results. This is

possible provided if the project model corresponds to economic realities and is based on the parameters of human development, which it uses, and can convert in accordance with the objectives;

- 3) Innovative potential characterizes the process of human development and is the most important means the organization of successful adaptation to changing conditions. An effective mechanism for managing human potential is only possible based on the impact on its innovative components;
- 4) Schematic diagram of the organizational project of management systems with regard to human development should be based on its effective mechanism for managing human potential. The mechanism should be seen as a socio-managed system, due to the economic laws and institutions, endowed with limited powers, resources, having a specific structure, can influence the change and development of innovative human potential.

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