NEW APPROACHES TO THE SOLUTION OF NON-STANDARD BUSINESS PROBLEMS IN TURBULENT ECONOMY

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Abstract

In article solutions of the non-standard economic, organization and technic tasks facing the Russian industrial enterprises in the conditions of high turbulence of the economic environment, the international sanctions are proposed. The following approaches to the solution of non-standard business challenges are offered: methods of the solution of inventive tasks, technologies of innovative marketing focused on formation and development of the offer value. The definitions of priorities developed algorithm at the solution of non-standard business challenges are presented, which will promote adoption of the mutually advantageous, but not compromise solution for all elements of business system. In marketing activity of the industrial companies it is offered to be guided both by innovations, and by offer values as in total it will allow to reach at the same time both differentiation, and decrease in expenses. The developed technique of an efficiency assessment of the solution of non-standard business problems in turbulent economy is considered. This technique will allow due to systematization and ranging of non-standard business challenges and creation of approximate areas of their efficiency to increase validity of the decisions made on further development of the industrial enterprises.

Key words: turbulent economy, inventive task, management of innovations, business systems, offer value

JEL Code: M20, M21, M31

Introduction

Transition to a market way of development, the international sanctions, need to diversify many productions, aggravation of population employment problems the in connection with an economic crisis cause requirement of the solution of the extraordinary economic, organizational and technical tasks facing the industrial enterprises now. Therefore

development of the directions of an exit does of non-standard impasses to sharper a problem of search of new forms, technologies and methods of business activity. In modern conditions the Russian industrial enterprises are compelled to look for internal reserves of production development due to more economical use of materials, decrease in product cost, search of more effective instruments of production management (Lyasnikov, Dudin, Sekerin, Veselovsky, Aleksakhina, 2014).

The industrial enterprises try to solve the available problems traditional means: raising a question of financing, allocation of soft loans and grants for realization of actions for the development. As a rule, such means it is allocated less, than it is required therefore realization of state programs of development goes slowly and difficult (Boyko, Sekerin & Šafránková, 2014). New, extraordinary approaches to its realization which basis ways and methods of the solution of non-standard enterprise problems with the minimum expenses, and also introduction new the technologies, a know-how and administrative innovations are could accelerate process of reorganization of economy (Šikýř, 2015).

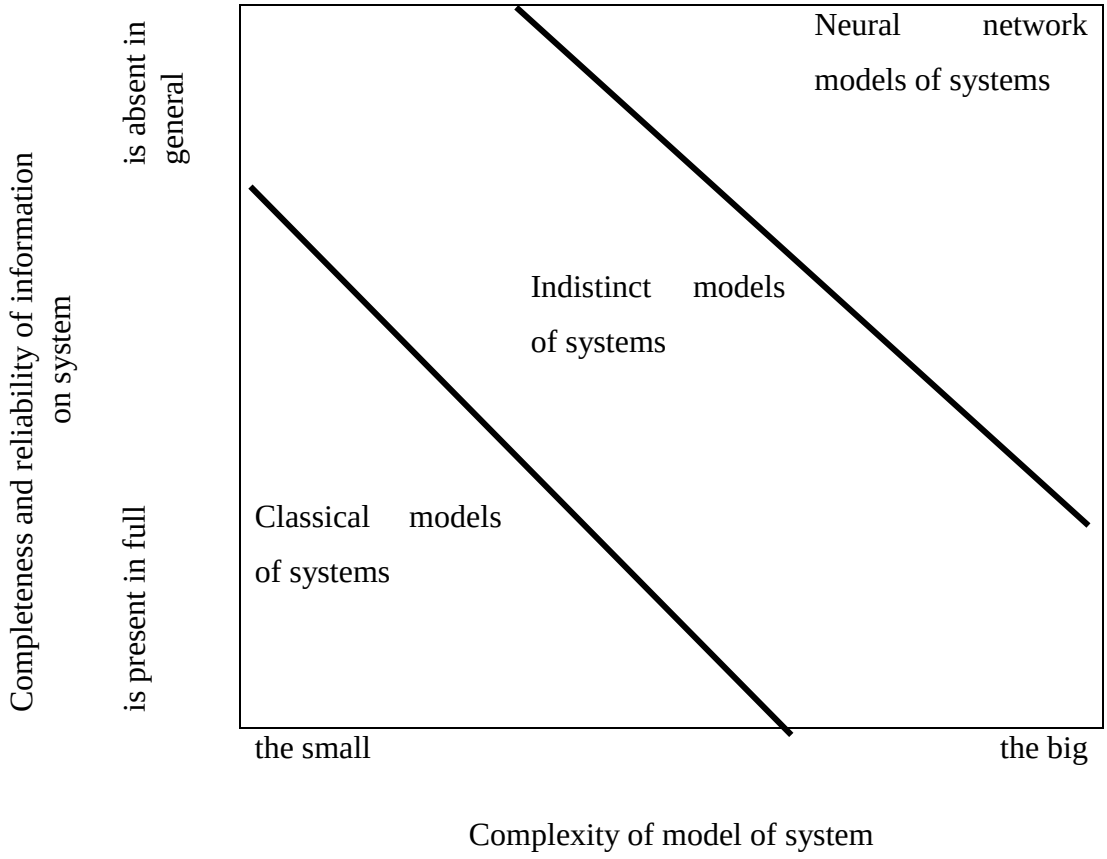
1 The review of methods of decision-making support in the conditions of uncertainty

The decision-making problem in the conditions of uncertainty takes an important place in a common problem of decision-making. The concept "uncertainty" is treated quite ambiguously, its sense depends on character of the solved task. Traditional approach to a problem of decision-making is based on use of classical methods of the multicriteria analysis and assumes development and creation difficult, often multilevel, the systems of decision-making support which are based on mathematical models, providing the accounting of a large number of parameters and criteria (Merton, 1968). It is characterized by considerable computing expenses and high cost of development. Problems of decision-making support in the conditions of uncertainty represent semistructured and unstructured tasks.

Now other approach gained development. The modern theory of decision-making widely uses the device of the theory of indistinct sets to the description of uncertainty. Application of the theory of indistinct sets allows to build formal schemes of the solution of the tasks which are characterized by this or that degree of uncertainty which can be caused by incompleteness, internal discrepancy, ambiguity and blurring of the basic data representing approximate quantitative and quality standards of parameters of objects (Byun, Sung, & Park, 2017). This uncertainty is systematic.

Now the increasing attention is paid to development of hybrid approaches to the multicriteria analysis of the difficult systems realizing combined use of various methods of artificial intelligence forming new information technology. Decision-making in the conditions of uncertainty depends on completeness and reliability of information on research object and on complexity of model of this object. Areas of effective application of models of systems are reflected in fig. 1.

Fig. 1: Areas of effective application of models of systems



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On the basis of fig. 1 it is possible to tell that modern non-standard problems of business are problems of area of indistinct models of systems.

2 Definition of priorities at the solution of non-standard business challenges

One of approaches to the decision non-standard business of problems in the conditions of turbulent economy is expansion of practical use of methods of the theory of the solution of

inventive tasks at the industrial enterprises (Šikýř & Šafránková 2016). In theory of the solution of inventive tasks communication between the applied decision and undesirable effects arising owing to it is called a contradiction**,** and the situation containing a contradiction – an inventive task (Zhang & Yang, 2013). There are methods which allow to analyse the revealed contradiction and to synthesize the decision eliminating it. The methods of theory of the inventive tasks solution focus thinking in the direction of the decision satisfying the revealed contradictions. As a result the mutually advantageous decision, but not compromise is developed.

It should be noted that these methods don't give ready decisions, they allow to create a certain template, to specify a decision format, and then work on filling of the received cliche as the contents, the corresponding specific specific conditions has to be performed. And the specified work has to be performed by experts in concrete subject domain.

It is expedient to apply methods of theory of the inventive tasks solution for really difficult tasks which were earlier not arising or the tasks interfaced to emergence of considerable negative consequences. These methods allow to find the solutions eliminating contradictions with the maximum advantage for consumers.

It is unlikely that the inefficient organization of a personal labor and lack of an order in priorities can prevent creativity more strongly. As by the nature creativity means uncertainty growth, it is very important to find opportunities for carrying out the analysis and establishment of feedback. It will allow to reduce risk of expenditure of forces for not answering the purpose or chaotic activity. Maintenance of methodical approach, establishment of feedback in questions of performance of a task and advance to the purpose, the analysis of an operating procedure and specification of plans and the purposes is an important part of that, for what the head answers and ability to what is exposed to serious check when the innovation is required.

We suggest to use the following algorithm of definition of priorities at the decision non-standard business of problems:

1) studying of a problem,

2) generation of ideas (answers to questions that?, where?, when?, why?),

3) check of ideas on feasibility and compliance to the purposes of the company,

3.1) Whether it is possible to carry out technological operation? not to eliminate a defect?, not to check a mistake in the past?, to transfer a problem to higher level of management?

3.2) Definition of the possible undesirable phenomena, operational zones and operational time.

4) organization of introduction of ideas.

3 Innovations in marketing

It is advisable to consider economic activity of the industrial enterprises from a position of formation and Business Systems Development. The structure of business system includes a product, the market and the organization (the industrial enterprise). Understand as the valuable offer not only production created by enterprises for the consumers, but also various technologies including business processes, production, organizational marketing technologies (technologies of production advance on the market, technologies of work with the market) (Onetti, Zucchella, Jones, McDougall-Covin, 2012). Thus success of functioning of the industrial enterprise is defined by degree of coherence of work of all elements of business system with each other.

But the importance of synchronization with each other of all elements of business system that is caused by growth and complication of people needs, change of markets structure, development and deployment of achievements of scientific and technical progress in economic activity increases in modern conditions for providing a sustainable development of the economic subject. As practice shows, often introduction of changes in one elements of business systems is followed by emergence of undesirable effects in other elements of business systems.

Researchers revealed the following main distinctive characteristics of the innovative companies in comparison with the usual safe companies: orientation to action, proximity to the consumer, an autonomy and business, motivation of employees (Šikýř, 2015) to increase in productivity of their work, flexible response to the happening changes in the external and internal environment, existence of philosophy of the company, development only of the specialization (avoiding transformation into conglomerates with various productions) (Frattini, De Massis, Chiesa, Cassia, Campopiano, 2012), existence of simple organizational forms and limitation of administrative facilities.

It is easy to see that the main characteristics of the advanced companies activity reflect the truth which is already checked by practice: increase of efficiency of business activity is connected with interest in people, and also with formation and development of close

connection with the consumer that gives the chance not only to improve quality of production, but also is a direct source of innovations (Šikýř & Šafránková 2016).

Strengthening of an innovative orientation of modern economic processes determines new requirements to the contents, methods and forms, the organizations of different types of administrative activity, including marketing. In modern conditions of manifestation of diverse market factors, ambiguity of their influence and behavior of participants of the market relations complex use of the basic principles and instruments of traditional marketing and new technologies of marketing, first of all innovative marketing, promotes adoption of optimum, effective decisions (Lyasnikov et al., 2014). Marketing as an element of market infrastructure reflects tendencies of social development, specifics of time and environment. The new understanding of the marketing concept is based on strengthening of communication with target groups of consumers, the main component of success is degree of compliance of production to requirements of the market (Symeonidou, Bruneel, & Autio, 2017). In marketing in the conditions of economy innovative development transition from concepts of goods, sale, classical marketing, social and ethical marketing, marketing of relationship to the concept of innovative marketing is carried out. In modern conditions in marketing activity of the industrial companies becomes important as orientation to innovations, and to values as in total it allows to reach at the same time both differentiation, and decrease in expenses. According to the experts, on innovations in chains of values of the made production, i.e. on stay and development of extensive and unoccupied niches, 14% of business undertakings are necessary, 38% of the income and 61% arrived (Zemlickiene & Maditinos, 2012). It follows from this that formation of new valuable chains gives more than 2-fold increase in the income and 4-fold increase of profit in comparison with activity in the competitive markets. So good results are caused by uniqueness of a market position.

4 Estimates of efficiency of the solution of non-standard business problems in turbulent economy

Mathematically to describe areas of efficiency of the non-standard business problems solution, with the demanded extent of specification it is necessary to present in the form of final number of real parameters (criteria) of X_1, …, X_n reflecting features of business problems and their technical and economic indicators. We will present a point of $X = (X_1..., X_n)$ in n-dimensional Euclidean space of E^n possible conditions of the improved project or production, the called space represents space of states.

For the accounting of economic results of improvement of projects or production we will use function of a type of $P(X_1..., X_n) = P(X)$ determined on a great number of $\{X\} \in E^n$. We will designate efficiency areas E_{eff}, thus $E_{eff} \in E^n$. Then, in case of existence of economic efficiency, i.e. existence of a set $\{X\} = E_{eff}$, for every X, belonging to efficiency area, the P(X) function is positive, i.e. the expected economic effect will be more than zero.

In the course of research of areas of rational use of progressive innovative solutions at the industrial enterprises it is possible to allocate the following main stages:

1. Formulation of a task (problem definition).
2. Definition of a range of design, design, technological and technical and economic data of innovative solutions which reflect results of its improvement at introduction, i.e. formation of a n-dimensional vector of $X = (X_1... X_n)$.
3. Definition of a type of the P(X) function – function of efficiency of an innovative solution – and the formulation for it boundary conditions.
4. The analysis of the P(X) function for its possible simplification and receiving settlement formulas for the set boundary conditions.
5. Definition of area of efficiency, i.e. $\{X\} = E_{eff}$.
6. Analysis of results.
7. Conclusions.

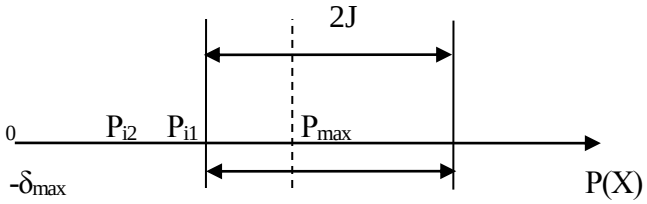
The offered algorithm of an assessment of efficiency in the conditions of uncertainty has the most general character and doesn't depend on parameters of deficiency of information. In the theory of decision-making operate with concepts of three main degrees of deficiency of information on the studied object (ranging is made in decreasing order of probability of emergence of risk situations): uncertainty conditions; risk conditions; risk conditions under which it is possible to make experiments for specification of factors of development and implementation of administrative decisions.

In the conditions of uncertainty the analysis of the P(X) function and finding of solutions of an inequality of $P(X) > 0$ give the chance to define her most essential arguments and to determine the maximum borders of their change in efficiency area limits. The area of efficiency characterized in this way will allow the persons making administrative decisions to increase the accuracy of an assessment of possible negative influences of risks of the project on its efficiency.

Possible errors of calculations in the negative (adverse) side are continuously distributed on a scale of errors in the range of $J = [0; -\delta max]$. To choose rational option only

boundary values of this interval as they reflect the expected nominal prize and the maximum loss at introduction of the decision are applied. Possible dispersion of economic effect is in borders of an interval of values equal 2J which can be broken into two parts (it is shown in fig. 2). The right part reflects favorable outcomes of introduction of this administrative decision at which rather great values of the expected economic effect turn out, and the left part - adverse at which the minimum values of economic effect turn out.

Fig. 2: Interval of possible dispersion of values of economic effect



Source: authors

The person making administrative decisions can choose as admissible some values of economic effect meeting P_{i2} condition $<P(X)<P_{i1}$. Thus usefulness (value) of values of the P(X) function which satisfy to P(X) inequality $<P_{i1}$ and lie about the left border of a zone of relative loss, decreases at approach to border of the specified zone.

Conclusion

In article solutions of the non-standard economic, organization and technic tasks facing the Russian industrial enterprises in the conditions of high turbulence of the economic environment, the international sanctions are proposed: methods of the solution of inventive tasks, technologies of innovative marketing focused on formation and development of the offer value. The algorithm of calculation of efficiency of the industrial enterprises in the conditions of uncertainty which allows due to systematization and ranging of the considered options of innovative solutions is offered, and also creation of approximate areas of their efficiency to increase validity of the decisions made on their further development, especially at early stages of life cycle of products.

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