

## THE ALGORITHM OF DISTRIBUTING THE RESOURCES OF SYSTEM DISTRIBUTING INNOVATIONS

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The article describes the mathematical formulation of the model of innovative development of the region's service sphere taking into account the costs for scientific, research, experimental and construction works that are considered depending on their position in time. The possible model limitations are represented.

The aims of economy branches are formed under the influence of the degree of industrial and final demand. The achievement of these goals is provided by the innovative development of structural subdivisions of the branch, the aim of the state is to provide all programs on achieving the final aims of innovative development with resources.

It is necessary to have an economic and mathematical model that can be used as an instrument of evaluating the deadlines of accomplishing the final aims and the degree of balance of distributed resources between the structural subdivisions of the branch with consumer demands. While constructing the imitation models resource limitations are treated as known functions. The starting data for modeling are the characteristics of separate programs, in accomplishing of which the structural subdivisions of the branch and the system of priorities participate. The primary parameters of the model are the resources changing in time. The final parameters are the deadlines and the volumes of accomplishing the programs and evaluation of nonproduction costs of resources.

Model construction is based on two principal positions: firstly, branch activity in production and scientific spheres is subordinated by a number of programs; secondly, investment resources of the branch are distributed between separate programs depending on the conditions of their steady accomplishing.

The importance of the final aims of the branch or programs accomplished by the branch for the state is different. For branch in order to make decisions about cutting or excluding the part of programs it is necessary to get the necessary recommendations with the help of which it could be possible to distinguish the most

important programs. As ranging the importance of separate programs is closely connected with their implementation, interpreted as the provision with necessary resources, the above mentioned recommendations should be formed in the dialogue between the state and the branch. The recommendations reflecting the scale of importance can be formalized differently. From the point of view of modeling the variants of branch loading formed from a fixed packet of programs - orders portfolio, it is necessary to introduce the scale of programs priority.

Defining the nominal values of necessary resources is a complex problem that can be solved in two steps. The first step is to set the data about the necessary resources for accomplishing the program on each step. If final service or merchandise has a series character then consumption of resources in industrial sphere is set calculating for one unit. The second step is forming the dependence of the volume of program accomplishing (or the dependence of the nominal quality of the consumed production) from the critical level of priorities. The second step is implemented in the form of the dialogue with the expert group of the branch.

As the majority of the programs accomplished by the branch contain scientific, research, experimental and construction works on providing the quality of services or products, the developed models should take into account the interaction of the above mentioned program parts.

The peculiarity of developing innovative and introducing systems is in the interdependence of the accomplished programs. The following peculiarity can be observed in the industrial sphere as well, however in scientific, research, experimental and construction sphere it is revealed in the stronger form. The effect of interre-

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lation and mutual benefit can be taken into account while making the programs by correcting the volume of work on separate program steps depending on the order of their accomplishing. Such correction is done in the process of specifying the program on the basis of expert evaluation.

Constructing such a model will make it possible to take into account the described factors of innovative development of the economy of the region, as well as get the instrument for making the managerial decisions. The peculiarity of the model is in the possibility to take into account scientific, research, experimental and construction works of different types, including those targeted at increasing the efficiency of the activity in scientific and research work, in order to achieve the synergy effect.

With the help of this model it is possible:

◆ forming the mechanisms of the interaction between the participants of innovation pro-

cess, including the interaction between infrastructure companies;

◆ activating the system of forming high-quality and well-developed innovative projects perspective for investors;

◆ determining the necessary volume for attracting investment resources into the innovation sphere;

◆ the optimal distribution of means on innovative projects.

Mathematical model that has the following structure will contribute to the accelerated development of the competitive research and development sector, the transfer of the economy to the innovative way of development.

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