

BUILDING A MODEL OF THE DYNAMICS OF AGRARIAN ENTERPRISE DEVELOPMENT IN THE FORM OF THE ARTERY GROWTH

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Ensuring a high level of adoption of appropriate decisions in various directions of administrative activity of the agrarian sector of the economy requires the construction of a modern information society, which requires the development, implementation and use of new information technologies. In a difficult market economy one of the main directions is the increase of efficiency functioning of agrarian enterprises through the construction of automated control systems and the use of modern information technologies. In these conditions, the solution of the task of optimal control leads to the solution of the management problem in the form of distribution resources between industries. In modern conditions, the requirements for the efficiency operation of the enterprise do not meet the traditional management capabilities. The research focuses on the creation of information methods and models of automated control systems based on modern computer tools. The study allows to solve tasks of choosing management decisions for individual industries, as well as for the economy as a whole on the basis of comparative analysis of production functions.

The main purpose of this work is to develop models of objects and processes of management – the dynamics of agricultural enterprise development in the form of a development artery.

The artery of this dynamic economic enterprise model has the form as

$$\hat{k}(t) = \left(\frac{(1-a)b\alpha}{\mu+n+\delta} \right)^{\frac{1}{\beta}} e^{\frac{\rho}{\beta}t}$$

It plays an important role in the structure of the optimal solution. The management that implements this artery is found by a substitution $\hat{k}(t)$ in the differential equation of system development:

$$\dot{\hat{k}}(t) = (1-a)(1-u)x(t) - (\mu-n)\hat{k}(t).$$

Since $\bar{x}(t) = f(k, t)$, where $f(k, t) = f(k, t) = be^{\rho t}k^\alpha$ is a production function, then, solving the equation of the process with respect

to u , it is obtained $\hat{u}(t) = 1 - \alpha \frac{\mu+n+\frac{\rho}{\beta}}{\mu+n+\delta}$ in the assumption that $0 \leq \hat{u} \leq 1$.

The paper shows the adaptation necessity and updating models and methods of management of agrarian enterprises, using the volume of investments as a controlling influence, as well as clarification of delay model in the development of capital investments. The results of the research show the necessity of creation of the optimal development model of the agricultural enterprise on the basis of sufficient optimality conditions. This allows the development of main characteristic of the balanced growth (artery) of the agricultural enterprise. The task of optimization model is done with taking into account the delay of introduction of the main production means, choosing as a criterion of optimality common to any economy as maximum consumption.