APPLICATION FEATURES OF ECONOMIC-MATHEMATICAL MODELING METHODS IN LOGISTIC SYSTEM OF CONSTRUCTION COMPANIES PURCHASING ACTIVITY

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In this article the author considers the features of economic-mathematical models and specifies the use of network modeling in the purchasing activity of construction organizations. The network modeling application purpose is optimization of costs and terms of objects construction in purchasing logistic system.

The process of organizing purchasing logistic consists of many stages, activities by creating the basis for organizing the purchasing - and-distribution system of construction organization in general. The specific methods of logistic administration are used at every level, all priorities are set out. The methods of network planning and material management have special position in the methods of logistic administration.

Network modeling is one of the most important groups in the system of economic-mathematical models (EMM) that reflect the most significant characteristics of object or process with the help of equation system.

Adequacy and completeness of primary data, possibilities of its collection and processing in many ways define the choice of EMM types. On the other hand, researches in economic modeling set new requirements to information system.

Taking into account the specificity of construction from the great variety of economic-mathematical models the most important tool of management of construction projects became network models. For formalization of construction processes such methods of modeling as public service networks, aggregative models, scheduling theories, Petri networks, phase-decomposition method, column models, structural schemes are used.

Previously construction processes modeling was made with simple line models. Then network modeling misplaced it.

Purchasing management in construction organization is accomplished by network planning. The essence of network models is that they reflect the range of activities and events and its interrelation through time. The usage of the system of network models helps to analyze construction plan and define reserves.

The usage of network models provides the detailed plan at construction ground; creates conditions for effective management in construction process. The whole process of construction can be reflected in a graphic model - network graphic in which all types of work are taken into account: projecting and installation, defined the most important activities from which the dead-line of construction depends on.

On the basis of the theory and practice of network modeling of material flows of purchasing logistic all activities can be divided into the following stages:

1. Receiving technical requirements
2. Previous analysis of requests
3. Control of budgeting documentation.
4. Definition of conditions and terms of deliveries.
5. Delivery contracts awarding.
6. Ultimate analysis of requires.
7. Confirmation of the list of subcontractors and requests for technological equipment.
8. Order to suppliers.
9. Setting of sums and order of payments.
10. Ultimate confirmation of price
11. Material and technical resources purchasing.

The presented complex of activities is general and it unifies all the main stages of purchasing logistic in construction. For every construction object expenses, supplies, the plan and terms of decision making are different and that is why network modeling has its own specific character.

Telichenko V.I., Lapidus A.A., Morozenko A.A. Information modeling of technologies and business - processes in construction. M.: Publishing house of Association of building high schools, 2008.

Trushkevich A.I. Organization of construction designing: Minsk: High school, 2009.

Dickman L.G. Organization of building manufacture: Publishing house of Association of building high schools, 2006.

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