
Ways to Increase the Efficiency of the Development of Enterprises of the Building Materials Industry

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Abstract: On the basis of a scientific article, minimization of production costs in construction materials Enterprises, a special case of the quality of optimization of the functioning of the entire enterprise on the basis of minimization of production costs in enterprises is based on the optimization of construction materials costs through the use of an integrated organizational and economic mechanism consisting of material, financial and information flows

Key words: Production, Enterprise Product, economic efficiency, management efficiency, building materials, organizational mechanism, economic mechanism, cost, price, industry, tax, profitability, insurance, profit.

Introduction. As part of the economy sectors, the building materials industry is one of the sectors that is developing rapidly. It addresses the reproductive aspect of the economy and the major economic and social problems associated with housing construction. Especially in recent years, the construction sector has become one of the dynamically developing sectors of the economy. However, in the process of the development of the industry, a certain distribution of economic ties occurred between all participants in construction complexes.

The introduction into practice of approaches to the formation of logistic chains in the development of the capital construction process, taking into account the existing economic and organizational potential, is of great importance at the current stage of the development of the industry. The development of the production of these building materials, the application of materials and technological constructions, the level of expansion of ties between the economic enterprises of the horizontal construction complex, the increase in intensity in construction in economic flows and the necessary level of integration in connection with the branches of the industry in which their activities are carried out. In such conditions, the Coordination of information, material and financial flows logistically, the provision of an agreed process in the space being carried out at the time of the organization of technical configurations of construction, purchase, delivery, transportation and production to the lodgings under construction is significantly increasing objectively.

"The competitiveness of a construction materials industry enterprise in the construction market is largely determined by quantitative and qualitative indicators such as the availability and efficiency of the logistics system of capital construction, all investment and construction cycles, that is, the quality and efficiency of construction and assembly work from the delivery of the order to the Consumer" [1].

The use of logistics system development chains in construction ensures the high efficiency of the investment and construction cycle for production and technological equipment with the process of

construction and installation work, reducing various risks arising in construction, accelerating product movement processes and accelerating capital turnover, ensuring the synchronization of logistics resources supply, reducing various reserves, controlling unfinished production volumes.

Analysis of thematic literature. In the economic literature, various aspects of capital construction logistics and the management of logistics systems in construction are of great importance. In this direction V.V.Ananayev, V.N.Bartenev, A.G.Belousov, V.V.Volkov, E.G.Grebnev, I.L.Gutorova, A.P.Dolgov, V.V.Scientists such as Tsherbakov conducted research[2].

In our country, the problems of complex improvement of the micro-level production system in the field of construction are not adequately covered in research work. There are approaches to analyzing the importance of the problem of improving the activities of enterprises of the construction industry, the state and dynamics of trends, its analysis in the scientific literature. However, in conditions of uncertainty of economic conjuncture, there are no scientifically based and proven methods of improving the production system on the basis of a logistic chain.

Construction is one of the sectors of the economy that undergoes the greatest changes during the period of market changes, which is due to the commercialization of the entire production chain from the project stage to the production of building objects. The scope of the construction complex always expands, so it becomes an investment and construction complex.

In the process of carrying out the research, within the framework of the concept "project efficiency", modern methods of development of construction in the conditions of unified investment-construction cycle, design and construction (Lean Design, Lean construction), supply chain (Supply Chain Management) formation were considered.

"It should be noted that in accordance with the principles of engineering aimed at the interaction of the project implementation system, design, construction and delivery processes, logistic coordination of economic flows of construction and the formation of a logistics system with the participation of a construction firm, subcontractors, enterprises of the building materials industry and other participants in the investment and construction process is necessary"[3].

The study gave a characteristic of the economic flows of the construction materials industry, identified the role and importance of production and technological configuration bodies in the logistics chain of construction production, identified the main goals and objectives of logistics, features of the formation of logistics systems, logistic functions, structure of operations and costs of the production of building materials, considered possible ways of

"On the basis of technological cooperation between suppliers, trade intermediaries, enterprises purchasing products and large companies of the construction materials industry, their economic power is growing. They are reflected in:

- initiative of the market need for construction production, rationalization, aimed at simultaneously to reduce the duration of permanent construction, increase the life cycle of real estate and reduce construction costs in production;
- changing consumer requirements related to the design of innovation series homes and the development of new construction products;
- reorientation of construction organizations from narrow functional construction to solve the problems of customers who expand the boundaries of potential pairing of construction technologies, use various combinations of building materials, forms and methods of turnover;
- changing the level of industrialization of construction, combining basic construction technologies;

- participants in the material and technical supply of construction economic independence of economic subjects encourage them to further exploit the logistical potential of horizontal and conglomerate integration" [4]

The successful use of a logistics approach in the construction industry is classified into the following groups of factors:

1. Organizational factors. The scale of coordination of resource allocation in construction between contractors, production stages, construction objects, etc. provides for the creation of appropriate organizational structures. The presence of unified management creates general standards of decision-making and implementation aimed at increasing the efficiency of economic flows, forms information cohesion.

2. Technological factors. In the construction industry, it requires constant and full loading of production capacities, unification during construction processes, ensuring the unity of Service and production operations.

3. Economic factors. The interconnection of the financial and economic results of the activities of all participants in production in the construction industry and their impact on the final economic results of production in the construction industry will be their main service for creating a logistics system. In the construction industry, the general task of the production system is to ensure the completeness, timeliness and economy of the supply of building materials to the construction site.

"Construction Logistics is a separate branch of logistics, it is a kind of both scientific and practical activity aimed at material and technical support of construction for the purpose of launching a construction object with optimal resource costs and selling it in the real estate market"[5].

The development of the logistics system is a complex process that includes Planning, Organization, accounting, control, analysis, regulation processes aimed at achieving the strategic goals of the participants of the logistics chain. In its structure, the logistics chain in the construction sector brings together the focus (construction) company, as well as suppliers of building materials, construction (contractors), consumers and various intermediaries. As intermediaries, the logistics chain often operates companies – real estate agencies and management companies-that sell finished products (built-up objects).

Typically, a focus (construction) company is a construction company, developer, or general contractor engaged in the organization of logistics chain characteristics and interaction between participants. "The peculiarity of logistics chains in construction is that for each new project, it is necessary to coordinate the supply chain anew, based on the needs for materials, construction, the location of the construction site and a number of other factors. In studies, depending on the number of chain links in the system, the link form is separated directly, extended, and into the maximum supply chain"[6]. "Some experts have attempted to prove in their research that all three variants of supply chains are valid in the process of studying building supply chain management issues"[7].

The main trend in the construction market is seen as the merger of construction companies, their associations into groups, Holdings and corporations, often with the participation of a credit institution. This trend, on the one hand, has significantly facilitated the change in legislation in the field of attracting financing for the implementation of construction projects, the refusal to conclude construction participation agreements and the transition to calculations. "On the other hand, the conclusion of a contract for the complex development of territories is only at the expense of developers and the allocation of plots for the construction of Housing and real estate there is an increase in state requirements for the provision of social infrastructure"[8].

"One of the most important tasks at the present stage of the development of the world economy is the application of innovative methods and technologies for managing logistics chains to create effective supply chain management"[9]. The improvement of logistics chains can be considered not only as a method of inter-enterprise coordination, but also as a means of exchanging information between companies within the framework of a construction project. This requires the use of unified information support by all participants in the supply chain.

The practical and theoretical research carried out is to further develop the current movement of financial and material resources and information flows and achieve an increase in the production and efficiency of building materials on the basis of simplifying costs for these activities. This showed that a number of enterprises from the threat of their activities in the field of building materials did not have systems of integrative nature in the enterprises under consideration, that is, an insufficient ability to connect the structural components of the industry and mutually ensure its influence.

Research methodology. The paper made extensive use of comparative comparison, statistical data study and economic comparison and analysis, logical reasoning, scientific abstraction, analysis and synthesis, induction, and deduction techniques in improving enterprise development efficiency in the building materials industry.

Analysis and results. The logistics system consists of chains (loops)interconnected with each other. Enterprises indicate as chains of the logistics system in the activities of production enterprises and suppliers of material resources, their designated units, various intermediary organizations, trade, supply and transport enterprises, banks, exchanges and information and computer construction, financial institutions and communication enterprises, etc.

Features of chains consisting of logistics systems include:

- various forms of ownership and organizational and legal form;
- differences in the nature and purpose of the activity;
- different possibilities, concentration and types of technological equipment used and resources consumed;
- the spread of technical means and labor resources over a large area.

Logistics systems can be divided into micro, macro and Meso logistics systems according to their scope of activities and objectives (Figure 1).

Micrologistics systems are formed precisely in the structure of the enterprise, and this system is formed in order to optimize material and other flows for the supply, production and sales processes of the enterprise.

Micrologistics systems are classified into three types of systems, depending on their place in the activities of enterprises:

1. Internal logistics systems.
2. External logistics systems.
3. Integrated logistics systems. Macro-linguistic systems are intermediary, transport and trade organizations, and the enterprise infrastructure of various divisions is a progressive Economic Association, which includes economic disadvantages of certain companies or state organizations. Macro-linguistic systems can be created at the administrative-territorial level to solve commercial, social, economic, environmental, scientific and other tasks.

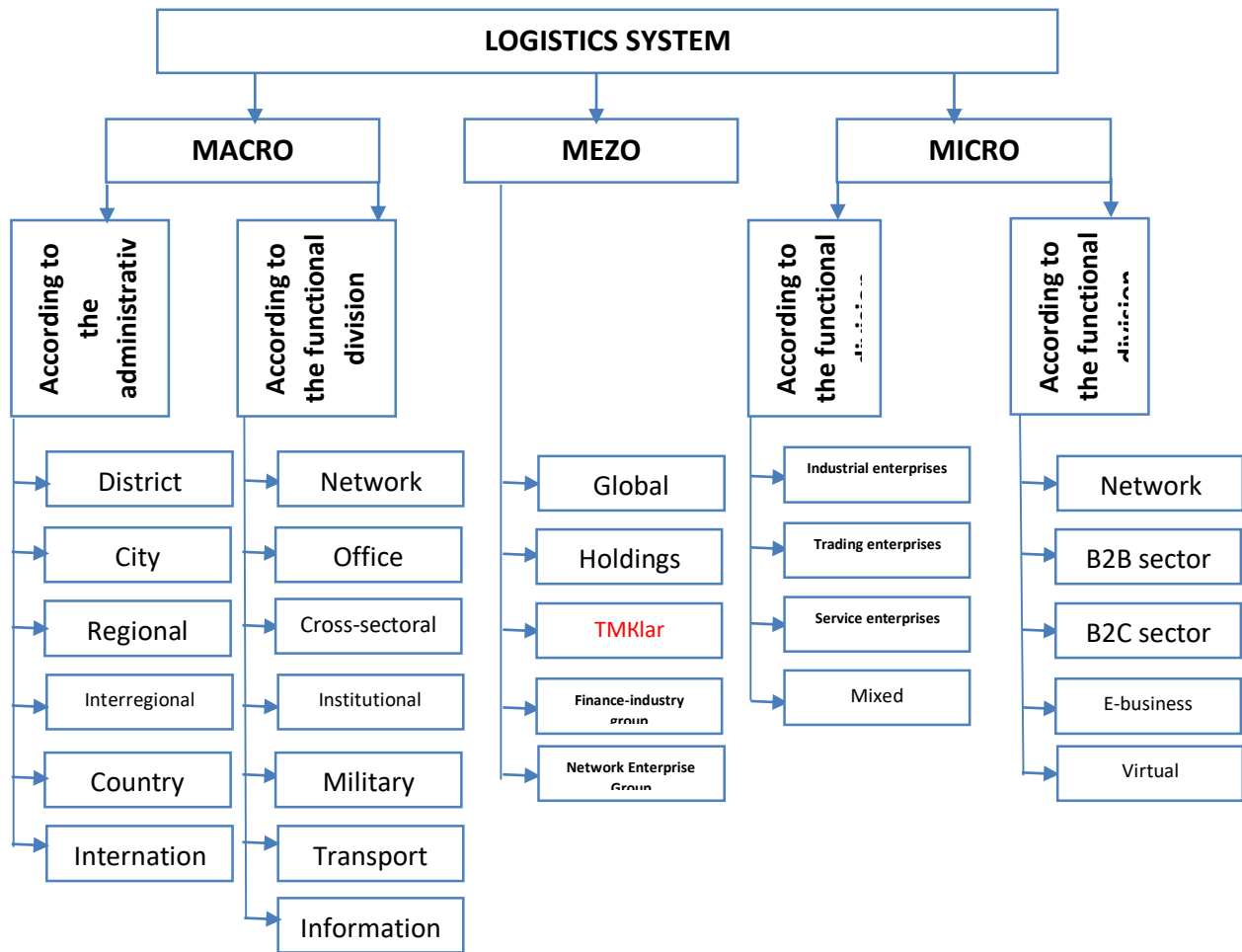


Figure 1. Classification of logistics systems[10].

Corporations form the basis of mesological systems. Corporations form the medium (mezo) link of the economy, activities are planned within corporations, and outside the market is the place where final products are provided. Manufacturing activities of corporations as a single system are mesological based on the use of global networks.

Depending on the type of logistic chains, logistic systems are classified into three main types (Figure 2):

- logistic systems with direct connections;
- logistic systems with indirect connections;
- flexible logistic systems.

Indirect logistic systems are systems that deliver material flows directly on the basis of economic ties without intermediaries. Indirect (multistage) logistic systems, on the other hand, deliver material flows through at least one intermediary. Flexible logistics systems, on the other hand, deliver material flows directly to the consumer and with the participation of intermediaries.

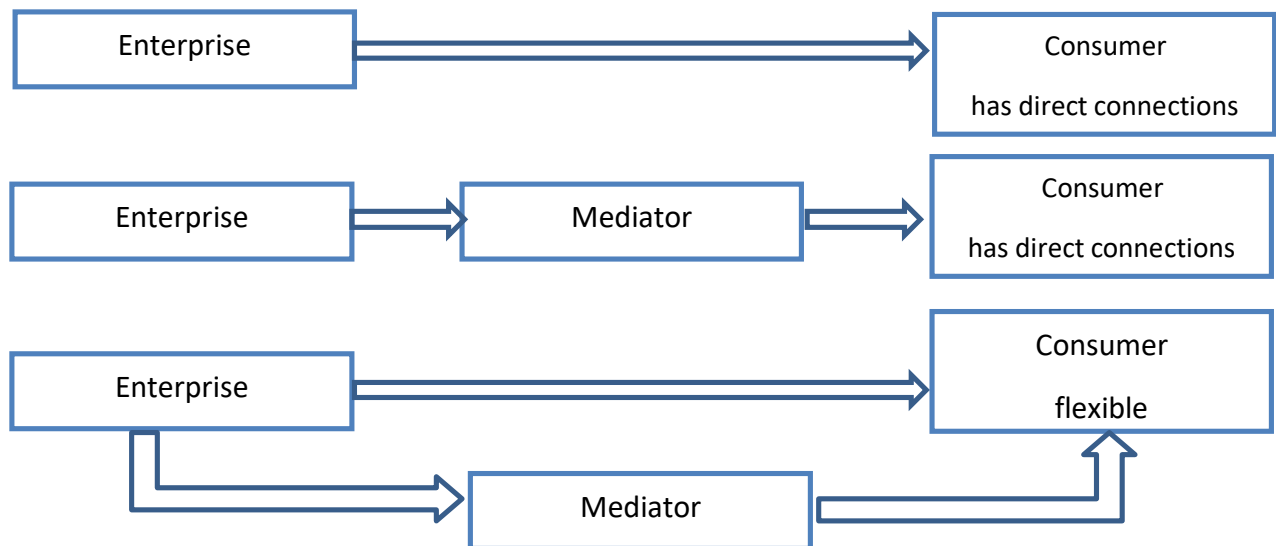


Figure 2. Types of logistic systems in the building materials industry [11]

While all three logistic systems differ significantly from each other through certain parameters, in general, the final purpose of the activities of these systems is the same (table 1).

Table 1. Comparative characteristics of logistic systems in the field of construction [12]

Features	Types of logistic systems		
	Indirect logistic system	Indirect logistic system	Flexible logistic system
Market	Vertical	Horizontal	Mixed
Logistics channel capacity	Large, medium	Medium, small	Large, medium
Consumer relations	Very close	Long or not available at all	Near
Logistics costs	Too high	Moderate to low	Optimally
Tariff policy	Flexible, takes into account the impact of the external environment quickly	Requires agreement between participants, not flexible	Flexible, but not fast
Zonality level	Tor (consumer gathering area)	Wide across the entire market	Full
Logistic construction options	Low	Medial	High
Profit Noma	High	Low	Medial
Degree of standardization of logistic construction	Low	High	Medial
Density of information flows	High	Low	Medial

From the comparative characteristics presented in the table above, it can be seen that it is much more convenient to use the third type, that is, flexible logistic systems, when using the service of logistic systems by enterprises or organizing logistic systems. While indirect logistic systems have a significant advantage, the cost level is very high and the area of activity is limited.

The logistics chain of the construction industry is applied to the activities of enterprises, leads to the formation of a holistic construction system, as a result of which the formation of integrative effects is ensured:

- coordination of all commodity and material resources, based on this, the purchase, distribution of building materials unfinished production and management;
- material-material development integration of today's and control functions;
- mutual integration of enterprises of the construction materials industry and technological cooperation processes;
- integration of information and material flows;
- formation of the organizational structure of the company for the purposes of rational business formation as a whole, which includes a logistics system.

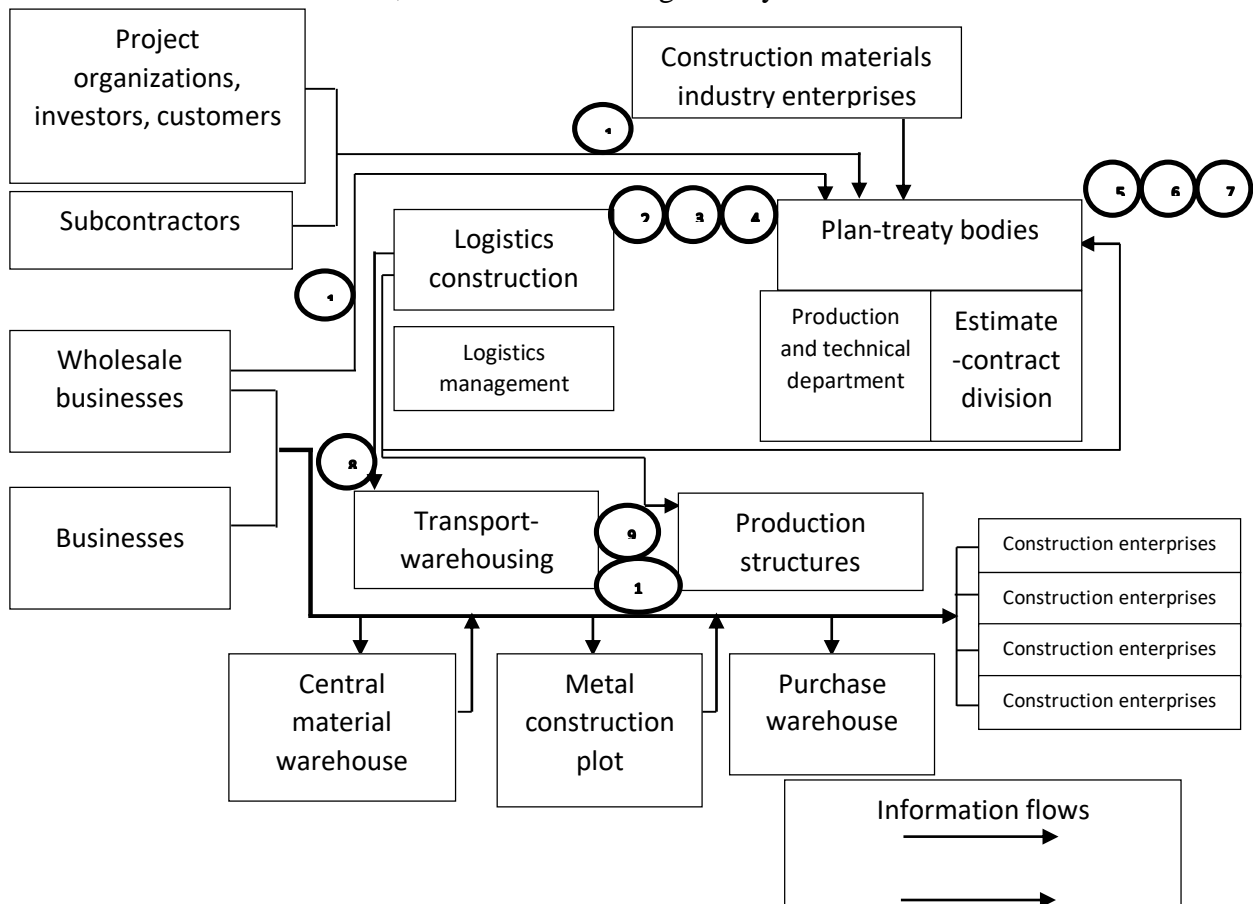


Figure 3. Building materials industry enterprise development model

The most important condition for the management of any system is its stability, in which it is possible to understand how to achieve the goal of a system working with a certain algorithm to work in conditions close to equilibrium. Adequate stability conditions are determined by the degree of symmetry of the structural structure and functions, which makes it possible to control the actual indicators of construction activity from the planned value and deviation from time.

In our opinion, it is advisable to take the most effective form of the forms considered as an extended supply chain for application in practice (Figure 4).

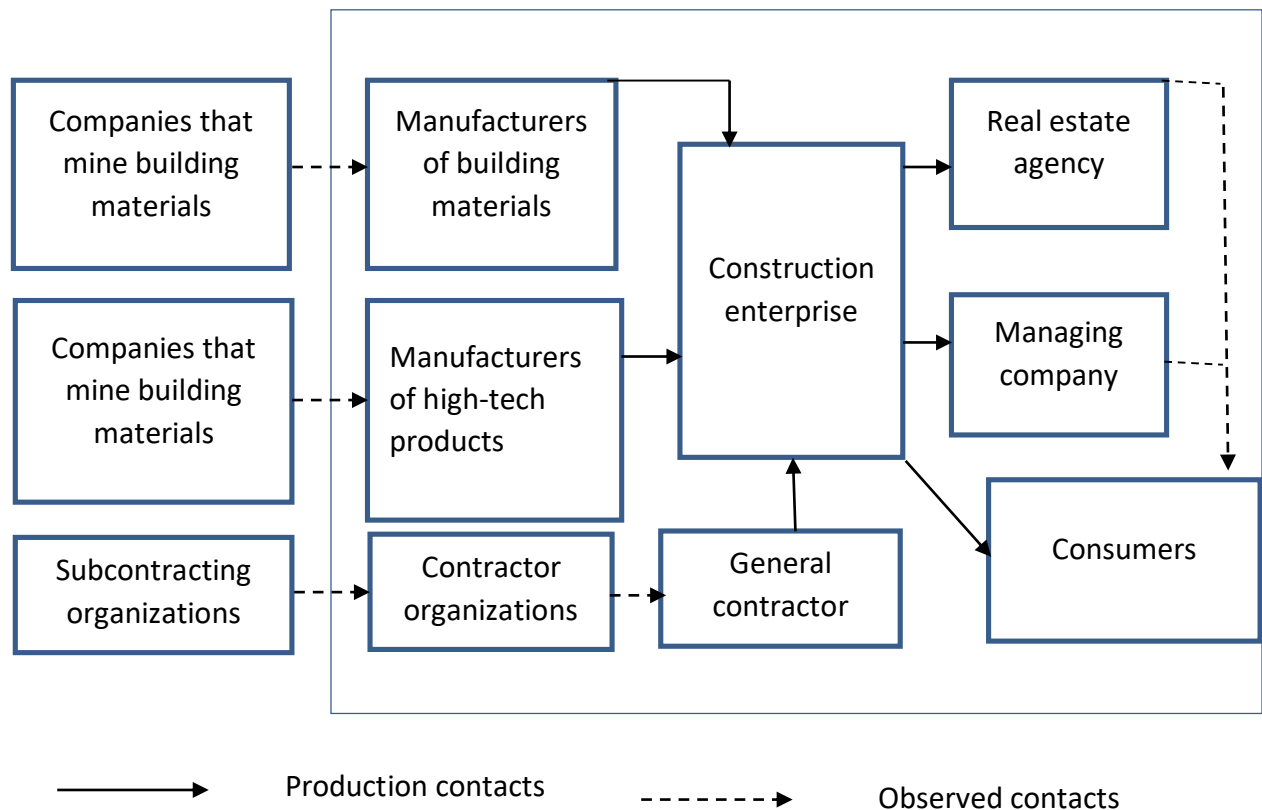


Figure 4. An extended form of logistics chain in the building materials industry.

As can be seen from the picture, supply chains in the construction industry are usually very short, combining several levels of suppliers in itself, except. The largest construction and focus companies prefer to contract directly with resource companies in order to reduce their significant costs and reduce delivery time. Similarly, the purchase of technological finished products such as reinforced concrete items, window and door blocks by large construction companies is also tried to be carried out in the considered form.

Different levels of contractors operate as separate branches of the supply chain. As for the other part of the supply chain, the sale of finished construction products (real estate) is carried out directly to the end consumer or through one intermediary (real estate agency or management company).

Conclusion. Enterprises in the building materials industry seek to create supply chains that provide several company projects, concluding long-term contracts with the main contractors. At the same time, the focus Company seeks to control some of the economic ties (production ties), and part of the ties are subject to indirect control (observed ties). At the same time, the peculiarity of extended supply chains in construction is explained by the almost complete absence of uncontrollable (observed) economic ties.

The selection of the most optimal contractors for the transportation of materials on the construction site, including the rental of special equipment, the storage process often forms the bulk of the costs within the framework of one construction project. Many companies are joining pre-formed groups to more effectively organize key logistics processes. The purchase of materials, products with high technological readiness, construction within a group of companies significantly reduces the logistics costs of construction companies and reduces the construction period of the object.

On the basis of minimizing the amount of production costs at construction materials Enterprises, a special case of the quality of optimization of the activities of the entire enterprise is proposed to combine all operations and functions under a single system –the introduction of a structure based on the optimization of construction materials costs through the use of an integrated organizational and economic mechanism consisting of the

At enterprises of building materials, it is recommended to include values \ u200b \ u200b of the material, information and financial flows in the management mechanism of production costs according to the groups listed below:

1. Material flows:

-Raw materials, materials and components supplied by suppliers to stock storage warehouses;

-Migration of raw materials, materials and components from the stock storage warehouse to the construction object;

- Ready-to-sell building object or apartments in it;

- Sale of a ready-to-sell construction object to customers.

2. Information flows:

- Orders for the preparation and delivery of specific types of raw materials, building materials, components;

- Information on the characteristics of orders;

- Expected data on payments from customers;

- Agreements on the financial capabilities of the execution of orders;

- Tasks assigned to the supply departments for the provision of raw materials, materials and the necessary amount of components;

- Documents for the purchase of the necessary amount of raw materials, materials and components;

- Formation of payment instructions;

- Information on the necessary payments for suppliers;

- Reports on financial funds paid to suppliers;

- Creation of a database for Economic Analysis and audit with suppliers;

- Data on customer payments, formation of payment balances;

- Customer order execution information;

- Submission of invoices.

3. Financial flows (transactions:

- Movement of paid financial flows for Ishchilaar;

- Bank transfer of financial resources to suppliers on delivered materials (services provided)

;

- Financial flows for other mandatory and tax payments;

- Financial flows when payments received from customers are transferred to my account by the bank.

The production of construction materials Enterprises is based on the optimization of construction materials costs through the use of an integrated organizational and economic mechanism consisting of the movement of material, financial and information flows in systems, the depreciation value of the main tools, the cost of wages, the organizational and economic mechanism that provides control and comprehensive planning of the movement of material

With the use of a mechanism for optimizing the movement of material, financial and information flows in the field of building materials, the possibility of forming costs in them is

expanded by the implementation of flows in sequence, and the level of competitiveness of the subjects that make up the joints in the production structure increases.

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