



DESIGNING AND MONITORING OF CONSTRUCTION ENGINEERING PROJECT IN LOGISTICS ORGANIZATION

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Abstract

The marketing logistics as the mechanism of the marketing channel control is concentrated on integration of marketing and logistics functions while maintaining the great value of products and services. In order to evaluate the marketing logistics effectiveness, it is possible to use the concept of “perfect order.” Most companies produce marketing logistics on a functional basis. In its evolution and functional organization of logistics went through three key periods. The engineering construction project logistics management is the plan, the organization, coordinated and proposed that the establishment special physical distribution management group management engineering items of basic construction physical distribution guarantees the physical distribution effective operation. Finally, it distinguishes the key responsibility of logistics management owners, designers, main contractors and specialist contractors and manufacturers, suppliers and vendors. The first period is characterized by the distribution of logistics functions among the three most major areas of activity: Finance, production, and marketing. The second period is characterized by the release of physical distribution functions in an independent direction. Marketing began to implement forecasting sales of finished products, and all other features already belong to physical distribution. It is worth noting that in the second period, the physical distribution of gains recognized on the financing, production and marketing. The third period is characterized by a large extent for the integrated logistics. It is best formed, and in line with market demands structural construction.

Keywords: Marketing Logistics, Functional Organization of Logistics, Logistics Planning, Transportation

1. INTRODUCTION

Planning and control of marketing logistics are executed at the top-level of the organization, thus contributing to the logistics integration. The structure of the operational level includes logistics support, logistics operations (including distribution and purchasing), and logistics resources planning. When planning the marketing channel, it is necessary to consider that the integral component will be planning of marketing logistics. This planning is directed on quality improvement, and on the market. Therefore, it would be advisable to carry out the analysis of the following functions:

- Demand forecasting;
- Planning of physical distribution;
- Drawing up programs flows and means determination;
- Scheduling of warehouse and transport operations.

The engineering construction project's investment is quite generally big, particularly the big-scale work items of basic construction, usually the investment cost reaches as high as above several billions Yuan. The investigation showed that the material cost will probably occupy the engineering project construction cost 60%~70%, but the delivery service expense will account for the material cost about 17%, i.e., the physical distribution expense will approximately compose the engineering project construction

cost 10%~11%, obviously physical distribution activity in engineering construction project important economic impac^[1-3]. But in reality, the engineering construction profession far has not given regarding delivery service's value proper takes seriously, therefore, enhances the engineering construction project the physical distribution management level, to excavates the project delivery service the value fountainhead and the promotion entire engineering construction project benefit has the vital role.

2. THE CHARACTERISTICS OF THE LOGISTICS OF CONSTRUCTION PROJECTS

2.1. The meaning of the logistics of construction projects

The engineering construction project physical distribution is a multi-disciplinary

process, including all materials, fitting, commodity concretes, equipment and so on purchase, transportation, warehousing, loading and unloading, transporting, packing, allocation, information processing and so on entire process^[4]. During this process, before construction activity and in the construction active procedure's plan, the organization, command control, seeks in the appropriate time, the correct position, by the inexpensive cost and the high quality, guaranteed: Material supply (including material purchase and transportation), memory, processing, scene material management, scene infrastructure, scene arrangement, machinery, supply of equipment, plan control, labor force supply, as well as all and physical distribution and service class related information^[5]. The processes of the engineering construction project logistics was shown in Fig. 1.

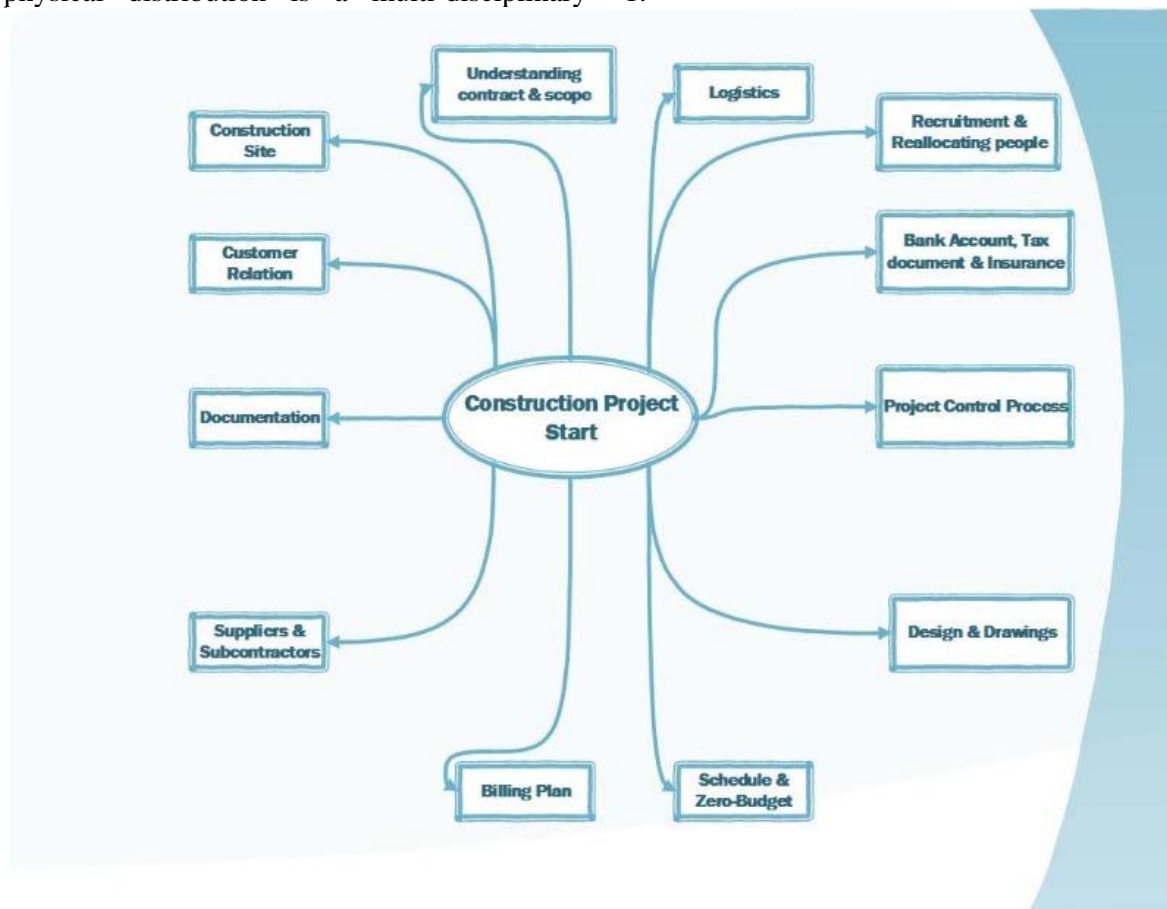


Fig. 1: Logistics Process of Construction Project

The engineering construction project physical distribution management is the plan, the organization, coordinated and the control carries on to the physical distribution activity^[6]. It is for the purpose of making the project process to be

easier and quickly, simultaneously obviously and controllable.

2.2. Characteristics of construction projects of Logistics

Compared with traditional logistics, from the structure and function point of view, the logistics of construction projects has the following characteristics:

The gathering logistics: It is one unidirectional, the gathering physical distribution; all materials, the equipment are transported finally to construct the scene, and complete the product with these materials. Constructs the factory to establish regarding this sole product [7]. The owner or the investor are consumers, usually before the construction process started already to determine, the construction completed the construction product through the quality testing department and so on examination, is considered qualified, indicated the project to be completed, items of basic construction on reassignment for the first party or owner, expression entire physical distribution process conclusion. Therefore, usually only then the material inflow physical distribution actually does not have the product to flow out the physical distribution or sells the physical distribution. This forms the contrast with the general Industrial enterprise's production physical distribution. Generally Industrial enterprise's production physical distribution not only includes the material the inflow, but also includes the product outflow, each product through the plant production, assigns for many customers or the downstream producer. Some also have the recycling physical distribution; therefore, the physical distribution activity circulation carries on.

3. MATERIALS AND DISCUSSION

Scientific works and development of the Russian and foreign scientists in the field of marketing logistics management, logistic processes state regulation formed a theoretical and methodological basis of the research. The work in the research process used in methods of analysis and synthesis; comparative analysis of the logical modeling methods, and others.

It should be noted that special value when planning would be played by the accounting subsystem of buyers' orders, and control of their execution. For obtaining answers to the main questions connected with planning broad studying of the markets, a product and logistic

systems is made. These studying precede planning of marketing logistics (Abramov et al., 2012).

- Consumers service - What is the current structure of orders and how it is transformed? How decisions are made on the orders sources? What is the current level of service?
- Materials management - What is the current material streams proceeding through the distribution centers? How decisions in the field of placement of warehouse capacities are made? What main indicators of effective management of material management?
- Transportation - What kinds of transport are used today? How carriers' activity is estimated? What main characteristics of transportation efficiency?
- Storage - What are the existing storage facilities and technology, and how are they used? How and what decisions are made by those who are held responsible for materials handling? What are the main characteristics of the efficiency of warehouse operations?
- Inventory management - How the available stocks promote the value added increase? Stockpile management - How decisions on inventory management are made? In what the maintenance of stocks manages to firm?

The operational planning creation of physical distribution happens according to data processing stages (Kunelbayev et al., 2016). Operational planning is based on information, which is got through demand forecasting and the consumers' orders accounting subsystem. Mate and Tixier developed judgment according to which the model of operational planning of physical distribution has to contain:

- Audit of the physical distribution system;
- Establishment of the resources volume (Zakharov et al., 2016);
- The development of the movement of goods in the course of program distribution;
- Programs development of the goods movement during distribution;
- Registration of products technical and commercial characteristics;

- Tracking of orders;
- Definition of needs for warehouse and their admissible power;
- Establishment of needs for vehicles;

In marketing logistics with the aim of controlling the grading system used in the field of internal and external performance. Evaluation of internal indicators is needed to compare current results with the results of previous similar works, as well as with the planned target specifications. Logistics indicators tend to share the following categories: Costs, service, performance, asset management, quality. In many works of American and European economists (Stepanov, 2010; Nikolaev, 2013; Mirotin, 2015; Henfield and Ernst, 2013; Gadzhinsky, 2015) lists the characteristics used in the practice of foreign companies on any of these areas.

Characteristics of logistic costs: Research of joint costs, specific costs, share of costs in sales, expenses on the entering deliveries, expenses on the proceeding deliveries, warehouse expenses, administrative expenses, expenses on processes orders, direct expenses on work payment, comparison of the actual losses to the budgetary indicators, research of losses dynamics, direct profitability of a product. Characteristics of logistic service: Norm of demand saturation, lack of reserves, miscalculations at shipment, efficiency of delivery, short delivery, duration of the order implementation cycle, the return interrelation with buyers, the return contact with trading agents, number of complaints from clients.

1. Indicators of logistic productivity: Number of shipments on one employee, units of sales on salary unit, number of orders for the agent - the trader, comparison to standards of the previous periods, target standards, productivity coefficient.
2. Characteristics of logistic assets management: Turnover of stocks, expenses on reserves support, reserves level, number of days on replenishment, outdated reserves, profitability of net assets (fixed assets), and profitability of investments.

3. Logistic indicators of quality: Frequency of goods damage, the price of the spoiled goods, number of complaints about indemnification, number of product returns from buyers, the price of the returned products (Kanke and Koshevaya, 2014).

External estimates are necessary for identification and implementation of consumer expectations as stable reference points of work, but also for the sake of the comparative activity analysis of other companies. More often, the comparative analysis is conducted in the following key areas: Assets management, costs, buyers' service, productivity, quality, strategy, technology, transportation, warehousing, orders processing. If the assessment of marketing logistics effectiveness is necessary, it is possible to apply concept of "the perfect order." "The perfect order" is the organization of activity that has to correspond to the following standards:

4. GLOBALIZATION AND FEATURES OF THE LOGISTIC MANAGEMENT REALIZATION

Now, the main engine of the world economy is globalization, which is an important factor in determining, particularly manufacturing and marketing products. At present, the international community sees globalization as a natural historical process. Due to globalization and the increasing internationalization of the world economy and the transport and logistics system do not stand aside. The key parameters of logistics globalization are, first, the economic growth and development of the international markets (Makushkin et al., 2016); secondly, global competition and regionalization; thirdly, development of infrastructure of logistic systems. Now for the enterprises of Russia the activity optimization question under modern conditions of development of economy is acutely, in the Russian Federation the market economy principles take roots is particularly acute, the competition grows. In this case, it is necessary to pay special attention to system, which gives the chance to increase effective management of financial streams that will lead to optimization of all economic activity. When the foreign capital comes to the country, it increases the competition. In many spheres reserves of

competitiveness increase in Russia are almost settled. Just the logistics is engaged in search of new competitive decisions.

The logistics plays an important role in economic activity in the conditions of market economy, as the factor forming key competences. Now the Russian Federation government pays special attention to the logistic infrastructure development and its relationship with the international logistic environment, expansion of domestic and foreign trade and integration of our country into the global international market, namely, a question of Russia's accession to the World Trade Organization. Also on the agenda of the government, there is a question of powerful macroeconomic demand formation for the international logistic infrastructure development, as one of the main basic factors influencing the dynamic and steady growth of national economy and strengthening of its position in the international market.

The main document that defines the basic priorities of infrastructure development of the logistics system, including international, for a long period, is "Transport Strategy," approved by the Russian government. This document defines the state values of the projects implementation period, which lasts until 2020.

5.MAIN PROBLEMS AND WAYS OF TRANSPORT LOGISTICS DEVELOPMENT

Transition of the Russian Federation to market economy served formation to the new direction of logistics, which was once clear to exclusively small number of professionals. In a number of the foreign states where the logistics found active formation in 2 final decades, closer made and have effective functioning of logistic association, there is huge a number of the repeating editions on various orientations of logistics, the world and European congresses on logistics are conducted.

In those days, there were such modern concepts and technologies as "integrated supply chain management" (The integrated management of a logistic chain), "lean production" (Lean production), "E-logistics" (electronic logistics), etc. Currently, demand for logistics services is increasing everywhere. This circumstance is caused by the economy rise and increased competition among manufacturers. Low competitiveness improvement optimized warehousing operations, transportation, and products dispersal between buyers. Formation of the road transport system in Russia is of great importance. Transport, in its own value is considered one of the tools to achieve public welfare, financial and foreign policy and goals. Therefore, the transport logistics guarantees cargo delivery by different types of transport, in most cases there is a need of transportations realization not by one way of movement, but several. In a consequence, there is the main discrepancy in this sphere - infrastructure low-development. Eventually, define ways to development though with the changing demand, the latest technologies are necessary.

Logistics is based on a combination of individual and interrelated parts in a single process with a definite purpose in the prevention of irrational and inefficient spending of all the company's resources. There is one of the fundamental problems in the transport infrastructure development, the earth unsettled relations, first, this device redundancy and retirement areas. No reservation about the territories under construction objects of road infrastructure such as new roads. We need to develop a special federal law to reserve territories for the purpose of construction and reconstruction of road, rail, water, air and other modes of transport in the Russian Federation also the law of the transfer order of the territories law from one group to another (Pimnev et al., 2016).

Table 1: Features of different transport types and their sphere of effective use

Transport type	Advantages	Disadvantages	Sphere of usage
Railway	Rather high ability in the goods admission and passing; transportations low cost; regularity in transportations	Big costs of construction and railways maintenance; metal big expenses	Practically unlimited
Sea	Ability in ensuring intercontinental goods transportation; low prime cost; capacity is almost not limited	Dependence on climatic and geographical navigation conditions	Practically unlimited
River	High carrying ability; small cost of transportations; rather small material investments on the navigation organization	Dependence on climatic conditions; unevenness of river depths; transportation small speed	Practically unlimited
Automobile	Maneuverability and mobility; high speed in cargo delivery; economic capital investments in development of goods turnover at short distances	Low labor productivity; bad condition of roads on short distances	Practically unlimited
Air	High speed of delivery; short route ways	High prime cost, high expenses	Practically unlimited

6. THE KEY RESPONSIBILITY IDENTIFICATION OF ALL PARTIES IN PHYSICAL DISTRIBUTION MANAGEMENT

For a construction project, it is a process for proprietors, contractors, providers, and designers to share information, make plans and interaction. Therefore, improving the physical distribution management requires the efforts of all parties. However, one of obstacles of the application of engineering construction projects in physical distribution management is that the beneficiaries are hard to identify. Thus, in order to identify the contribution of each party to the improvement of physical distribution management and ensure the responsibilities of each party, it should be illustrated the key responsibilities^[15].

6.1. Proprietors

Proprietors expect that builders that the handover can be made efficiently and cost friendly. Thus, in order to provide assistant for

the further unfolding of the project, proprietors should prepare the plan of the early-stage of the project in advance by appointing some certain parties. Additionally, they should ensure all key participants sign the plan to explicit the duties. Thus, key points for the proprietors: Proprietors should explicit the plan of the project in early stage. Proprietors should prepare the guide, which will assist participants to understand the duty of the physical distribution providers.

6.2. Designers:

Designers play a crucial role in the achievement of an efficient physical distribution. It would be supportive if designers draft the flow sheet in the early stage of the project. Additionally, they should prepare bill of materials (BOM), which is a part of the physical distribution project. This requires the participation of the technicians who have the statistic and cost accounting background. Designers need to highlight the importance of

physical distribution to all members and explicate by training.

6.3. Major contractors and professional contractors

Construction managers are always regarded as crucial crew in the coordination of physical distribution projects. However, some research indicates that the functions that construction managers make in the coordination of physical distribution do not reach the expectation. Nevertheless, major contractors still take responsibilities of projects. They are very important in the negotiation and drafting physical distribution plan with other parties at the early stage. MOB is a crucial data in the plan. And every contractor should make plans which are related to their major, which include how to optimal the skilled workers. Therefore, the key responsibility of the main contractor and professional contractors are: The main contractors have to prepare the logistics plan with other participants in the project in the initial stages of the project.

6.4. Manufacturers, suppliers and sales

The key part for the logistic of construction is to ensure that the products can arrive at the site within the required time and quantity. It is not only relying on the efficiency of the supply network, but also the advance planning about the required materials and products in construction site. In addition, this logistic also rely on the project's planners and the unit who provide the material and products, that is the communication between the suppliers.

7. HOW TO REDUCE COSTS ON TRANSPORT LOGISTICS

Transport costs optimization is one of the main tasks connected with reduction of costs at the enterprise in any branch, but in retail especially. The retail essence consists in goods movement from the producer (supplier) to the final client therefore logistics costs here is certainly significant, and optimization of logistic processes becomes a key condition in fight for decrease in prime cost of goods on the shelf. Work on the business processes optimization starts with the fact that they are broken up into components. The main objective of logistics in the industrial company is the uninterrupted ensuring production with the minimum

expenses. The solution of this task depends on two factors: Sales plan and production loading. In an ideal, the difference between planned and actual indicators of purchases (deliveries) should not exceed 5%. To achieve it, it is necessary to organize process of delivery of accessories competently. The economy due to involvement of the third-party companies hired to attract profitable traffic. Resort to services of the last more often as they have extensive bases of the checked carriers and can pick up the necessary option in a short time. Besides, there are specialized Internet resources connected with a cargo transportation. Here it is possible to place the demand and very quickly to find a suitable carrier.

8. CONCLUSION

Marketing logistics is planning, operational management and control of the physical flow of materials and finished products, starting with the location of the feed streams, accessories, etc. and finishing adjusting the final products to consumers, in order to more efficiently meet their needs. Marketing logistics based on a combination of the marketing and logistics ideas. It solved the problem assortment production load generated by marketing services portfolio, technology determined the optimal move resources and products produced by standard packaging requirements, product quality, identify centers of time loss, waste of material and human resources, equipment and facilities. In view of the engineering construction project physical distribution's characteristic, has analyzed the engineering construction project scene physical distribution management major effect factor. The scene physical distribution's key question is the information flow optimizes, the plan to formulate and to control, the scene arrangement, the owner, the design business and contractor's tertiary role, has carried on the preliminary discussion to it. And proposed that the establishment special physical distribution management group management engineering items of basic construction physical distribution, guarantees the physical distribution effective operation. Today distribution of logistics and logistics management became the main direction in improvement of the customs union. The leading strategy of functioning in the international markets is the clearness and high speed of the conclusion of transactions, i.e., the

key activities in developed countries becomes reinforcing the role of logistics.

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