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TECHNOLOGY****FORMALIZATION OF THE PRODUCTION ACTIVITY OF THE CONTAINER
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ABSTRACT

Container transportation, as an uninterrupted technology, has arisen for the accelerated passage of transport joints of railway-water, railway- automobile, automobile-water, and can also take place for railway-railway transport. At the same time, contradictory relationships of the market participants often negatively influence the development of container transportation. In such conditions, the main trend in the development of rail container transportation is the consolidating container companies.

KEYWORDS: container company, container terminal, container flow, logistics chain, simulation modeling, methodology IDEF0

INTRODUCTION

Container transportation, as an uninterrupted technology, arose for the accelerated passage of joints of transport, primarily in railway and water communications. Later, automobile carriers, discovering the prospects of this transportation technology, joined the process of containerization. Today, the market of transport services in the sphere of container transportation exists in the interaction of various parties (cargo owners, operators of rolling stock, carriers, freight forwarders, various regulatory bodies) [1]. A large number of participants, especially in international multimodal transport, gives certain advantages to a person who is able to take responsibility for the largest possible length of transportation. At the same time, contradictory relationships of market participants often negatively influence the development of container transportation. In such conditions, the main line of development of rail container transportation is the consolidating container companies (CCC).

FORMALIZATION OF THE PRODUCTION ACTIVITY OF THE CONTAINER COMPANY

We presented in [2] a functional model of the container company, while the IDEF0 methodology was used to form this model. The main elements of IDEF0 diagrams are functional blocks, each of which represents a specific function performed by the modeled object. On the left side of the block, the arrows of the input stream are directed, which, transformed by the control (from above) and the mechanism (from below), give an output stream. The schemes are built on a hierarchical basis: the first is a top-level diagram - a contextual one, then the decomposition is performed with the necessary level of detail. The applied methodology makes it possible to understand what is happening in the system under study, what functions are performed in it, and what its functions come into each other and with its environment [3].

On the context diagram, the research object is represented by a single block with boundary arrows. Often the mission of the company is used as a function of the context chart. Proceeding from the above mission of CCC as the function's name, let's take: to produce a competitive transport and logistics product (Fig. 1).

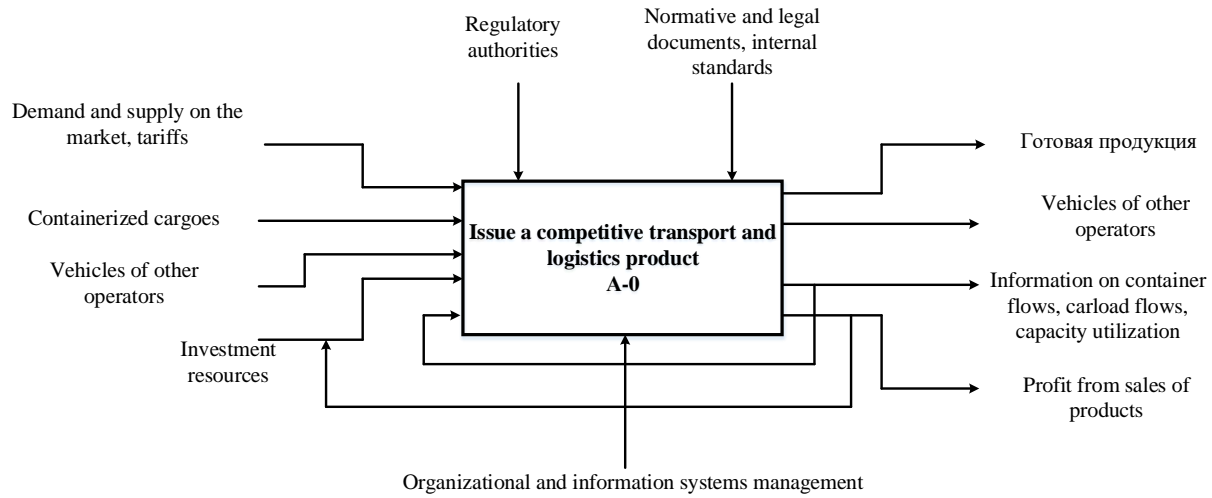


Figure 1 Context diagram (upper level)

The separation of information and material flows of incoming and outgoing is due to different ways of managing them. By means of vehicles here it is meant wagons, cars, ships, containers. Figure 2 shows the main processes in the container company.

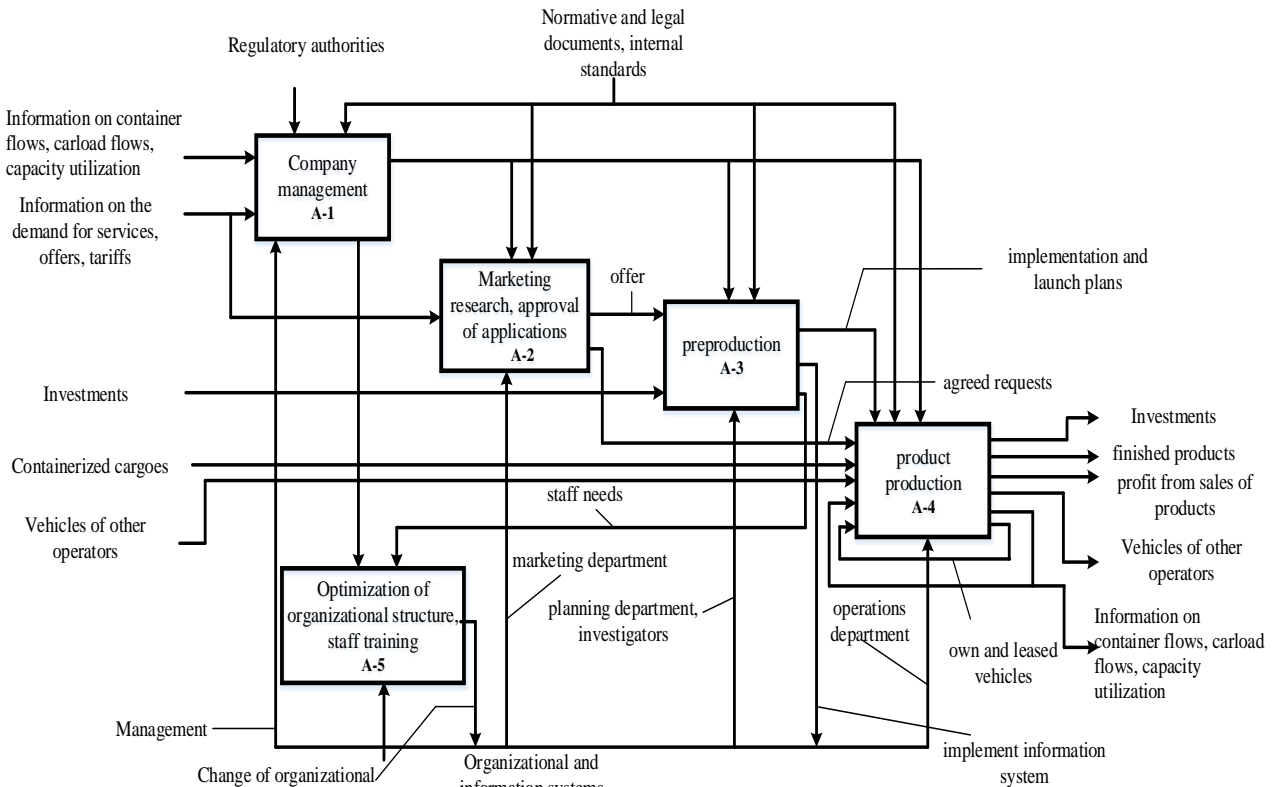


Figure 2. The main processes associated with production activities

Further, in the article, let's try to clarify the main processes of the container company specified in blocks A-2, A-3, A-4, A-5.

The decomposition of block A-2 shown in Fig. 3, provides for the management of marketing research, market analysis and approval of requests for transportation. Based on the analysis, proposals are made to provide new services, to modernize production, etc. Applications submitted to the company are analyzed and optimal logistics chains are determined on the basis of specialized information supply, which are then agreed with the involved parties (Center for Corporate Transport Services, etc.).

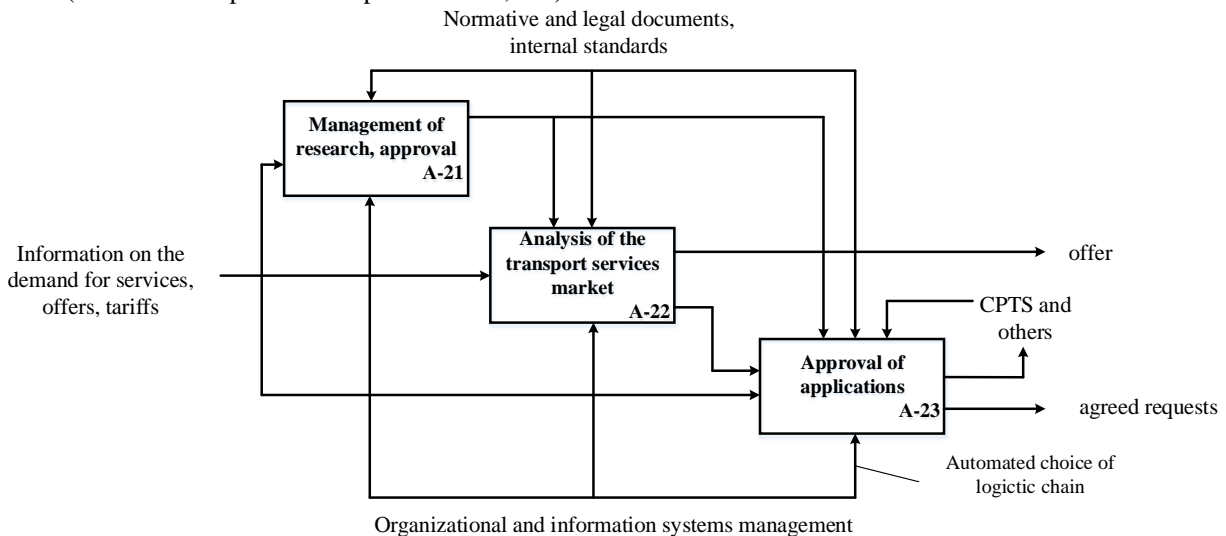


Figure 3. Carrying out of marketing researches and the approval of applications

In the decomposition of Block A-3 (Fig. 4), marketers' proposals are the basis for designing new products, new transportation technology (A-32), and new products (A-33) are being introduced on the basis of investment resources. A special place is occupied by the A-34 block development of actual information systems on its own and with the involvement of research institutes. For the container company, it is necessary to create an imitation simulation system that allows to determine bottlenecks in production and, with the help of a virtual experiment, to determine with sufficient accuracy the effect from the implementation of a particular development, saving time and

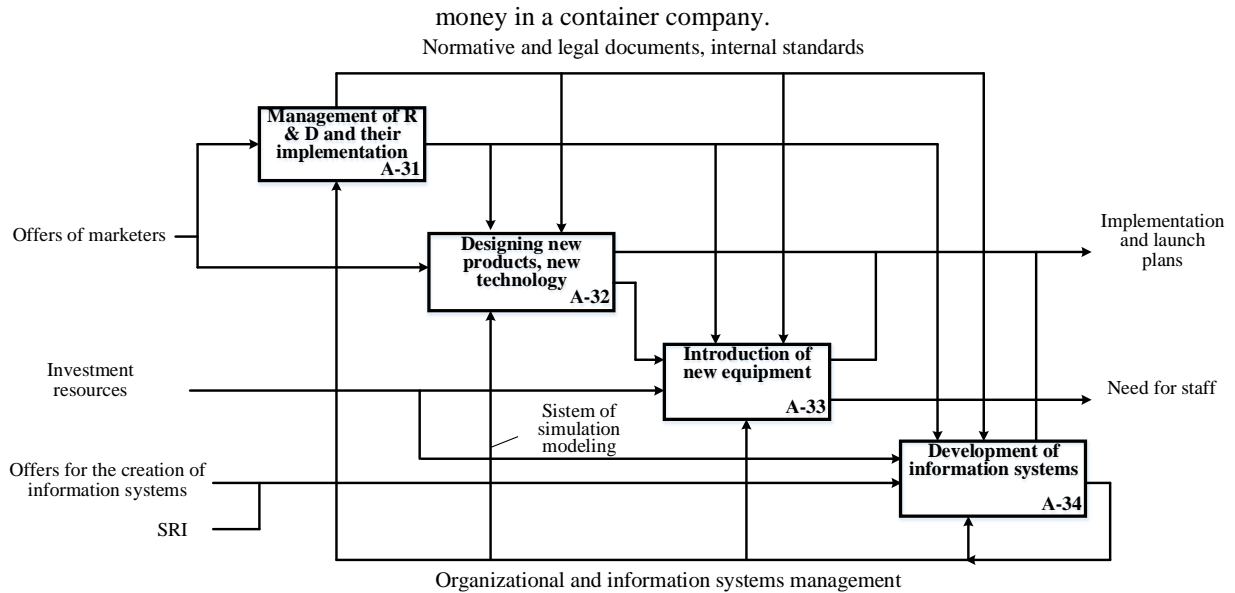


Figure 4. Preproduction

In Figure 5, it is considered block A-4: block A41 is the most important block, it specifies the parameters of the transport network, plans and manages the flows of the container company; In the A42 block, it is conducted the transportation of own containers, special platforms, as well as those attracted from outside, including by trailing container trains and flexible tariffs for rail transport; Block A-43 - carries out transportation by road and by water transport; Block A-44 provides multimodality and seamless transport, transshipment of containers from one type of transport to another, as well as storage of containers at terminals. Agreed bids by marketers, container loads and vehicles of other operators are the input streams for the A-4 block [2].

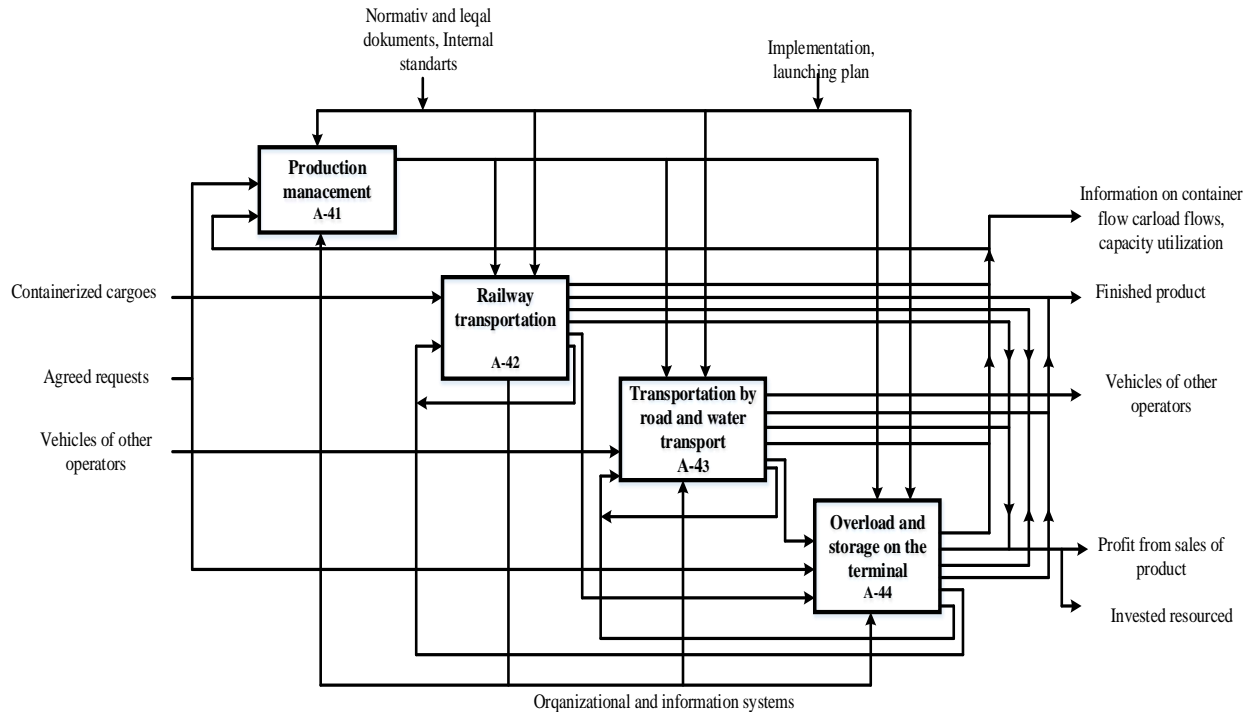


Figure 5. Production of the products

In Fig. 6 block A-5 is considered, the function of which is to train new personnel, to optimize the organizational structure.

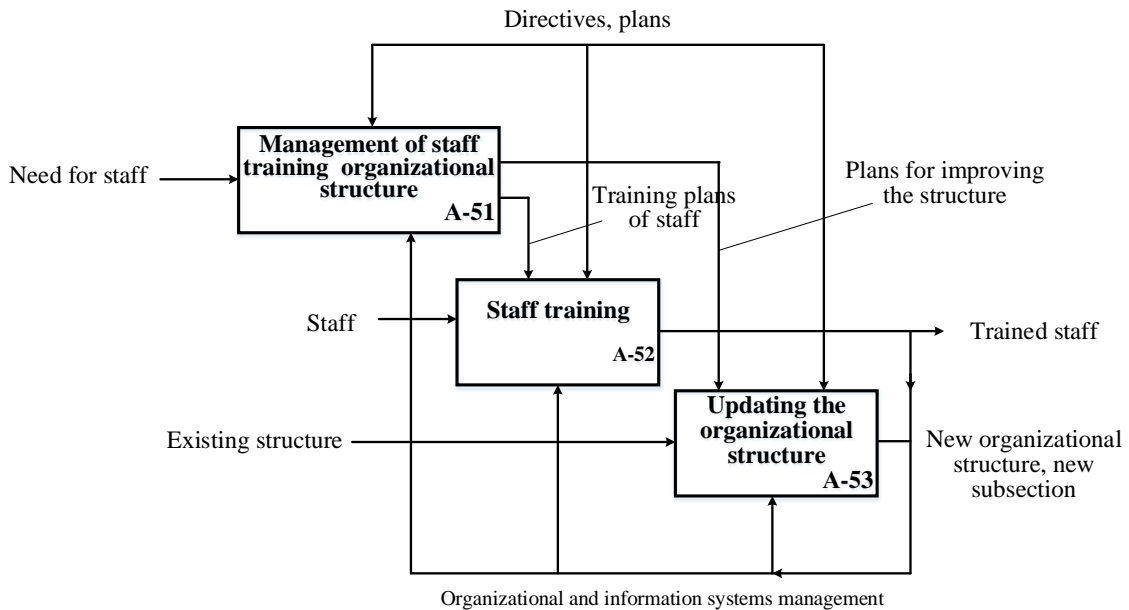


Figure 6. Optimization of organizational structure, staff training



CONCLUSION

The main direction of development of rail container transportation is the allocation of a consolidating container company. To study the production activity of the container company, we created a functional model, the sequential decomposition of which allowed us to identify the interconnection of the blocks for solving the problem of producing a quality transport-logistic product.

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