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УДОСКОНАЛЕННЯ ДІЯЛЬНОСТІ ПІДПРИЄМСТВА НА ОСНОВІ ЛОГІСТИКИ

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IMPROVEMENT OF ENTERPRISE ACTIVITIES BASED ON LOGISTICS

Анотація. У статті запропоновано методичний підхід, який визначає економічну результативність оптимізаційної процедури. Вона виражається через транспортний виграш — потенційне зменшення маршруту перевезення продукції порівняно з початковою схемою транспортування. З урахуванням відстані між підприємством виробником — ТОВ «Тростянецький м'ясокомбінат» — та пунктами поставок крупнооптових партій товарів, а також зважаючи на обсяги однієї поставки, автором запропоновано оптимальну маршрутизацію фізичного розподілу за критерієм мінімуму витрат.
У ході проведення наукового дослідження було визначено, що за сучасних умов на результативність роботи виробничого підприємства значною мірою впливають саме транспортні витрати. Тому є потреба в оптимізації транспортних потоків. Запропоновано структурно-логічну схему процесу вибору ресурсозберігаючої технології при організації перевезень вантажів дрібними партіями у міському сполученні для мясопереробного підприємства. Такий механізм забезпечить виконання ключових правил логістики та сприятиме, в подальшому, нарощуванню власного автотранспортного парку.
Економічна результативність оптимізаційної процедури виражається через транспортний виграш — потенційне зменшення маршруту перевезення продукції в порівнянні з початковою схемою транспортування. За сформованими чотирма кільцевими маршрутами транспортний виграш склав 2260 км. При тарифі перевезення в середньому 18 грн/км (за даними операторів ринку), економія затрат загальна склала 40 680 грн.

Ключові слова:транспорт, транспортно-експедиторська діяльність, оптимізація логістичної діяльності, розподільчий центр, логістика, транспортний виграш, результативність, інформаційні системи.

Abctract. The article proposes a methodical approach that determines the economic efficiency of the optimization procedure. It is expressed through transport gain — a potential reduction in the route of transportation of products compared to the initial transport scheme.
Taking into account the distance between the manufacturing company — Trostyanetsky meat-packing plant LLC — and the delivery points of large-scale consignments of goods, as well as considering the volumes of one delivery, the author proposed the optimal routing of physical distribution by the criterion of minimum cost.
In the course of scientific research it was determined that in modern conditions the productivity of the production enterprise is largely influenced by transport costs. Therefore, there is a need to optimize traffic flows. The structural-logical scheme of the process of choosing the resource-saving technology for the organization of cargo transportation in small lots in the city connection for the meat processing enterprise is proposed. Such a mechanism will ensure compliance with the key rules of logistics and further enhance its own fleet of vehicles.
The economic efficiency of the optimization procedure is expressed through the transport benefit — a potential reduction in the route of transportation of products compared to the initial scheme of transportation. For the four ring routes formed, the transport gain was 2260 km. With an average fare of 18 UAH / km (according to market operators), the total cost savings amounted to 40680 UAH.

Keywords: transport, freight forwarding activity, optimization of logistic activity, distribution center, logistics, transport gain, efficiency, information systems.

Formulation of the problem in general form and its relation with important scientific or practical tasks. *Given the constant development of logistic processes and the emergence of fundamentally new systems for managing them, the search for ways and opportunities to increase the competitive position of the enterprise becomes more and more urgent due to the improvement of freight forwarding activities.* Especially acute is the need for the meat industry, where the speed and quality of transportation depends on the quality and safety of the final product. This research is relevant because most of the enterprises in the industry have not only outdated equipment but also almost worn out car fleet. And in the conditions of development of the market of logistic services, and, in particular, in the field of road freight transportation, it is advisable to weigh all the pros and cons when making decisions in the use of services of transport and freight forwarding companies.

Analysis of recent research and publications. Famous scientists such as O. Bakaev, V. Sergeev, V. Nazarenko, Y. Nerush, D. Nikolaev, O. Protsenko have devoted their work to the research of issues related to transport logistics and freight forwarding services. Some questions regarding the optimization of the work of the transport complex are reflected in the works of: M. Kotlubay, L. Sotnichenko, Y. Tsvetov, O. Kornietsky and others.

Highlighting previously unresolved parts of a common problem. Despite the considerable number of publications covering the improvement of the activity of the enterprise based on the implementation of logistic systems, in the domestic periodicals the attention is still paid to freight forwarding operations, so in view of the challenges of globalization and intensification of competition this issue needs further solution.

The purpose of the article is to identify theoretical and methodological approaches to the organizations of freight forwarding activities of the meat processing enterprise and to determine ways of its improvement.

Presenting main material. The process of high-level freight forwarding is currently based on the creation and use of logistic transport circles, which are created between product manufacturers, freight forwarders and trade organizations.

The efficiency and management of the transport and logistics system is based on the manageability and flexibility of a number of properties that characterize the interconnection with the environment, (Fig. 1) [21, p.68]:

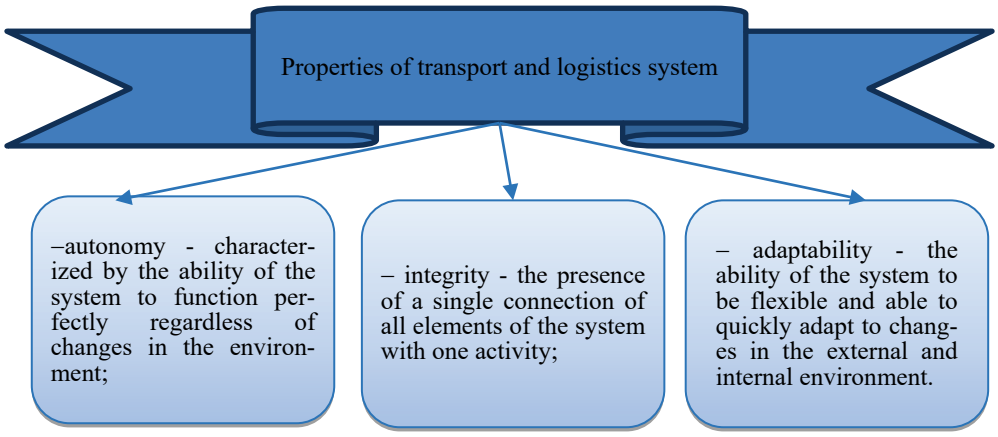

Figure 1.Properties of transport and logistics system

Logistics freight forwarding system is a self-sufficient structure, whose activity is aimed at ensuring the process of delivery of cargo, taking into account the safety and security of goods under the conditions stipulated in the transport contract, if present or registered in the services of the company providing such operations. For efficient operation, the freight forwarding system must constantly improve the management of current processes and be able to quickly optimize the cost of transport operations.

Special features of transport systems in comparison with logistic are the following features [1, p.69]: the presence of direct communication with the environment; presence of a single management center; orderliness of system elements; system flexibility; compulsory presence of a single information system that is connected to internal networks and has access to the external environment; limited communication channels the unity and purpose of the system.

Therefore, logistic freight forwarding systems are a form of organization of the transport process that allows to serve the production needs effectively. Transport systems can be of local, regional, national importance, and can serve interstate trade and industrial relations, and therefore the tasks to be addressed by the management are determined by the specifics of the transport system.

The main task of logistics solutions in the freight forwarding system is to ensure the efficiency and flexibility of the vehicle management system. At the same time, the interaction of management bodies from the beginning of creation of the goods to the moment of unloading to its customer must be established. In order to achieve the goal of transport logistics — to fulfill deliveries on the specified conditions in the appropriate quantity, quality and within the stated time, it is necessary to dwell on the issues of operational management of transport and logistics activities. [3].

An important role in the evaluation of freight forwarding services is played by an assessment of the quality of transportation, the following indicators can be attributed here: the degree of satisfaction of the needs of the national economy in the carriage of goods; speed of delivery of cargo; rhythm of customer service; complexity of performance of freight forwarding services; degree of preservation of cargoes during their transportation; level of customer service culture [2].

Regulation of activity in the field of freight forwarding services is carried out on the basis of the Law of Ukraine «On Freight Forwarding Activity» of July 1, 2004 № 1955-IV [4].

In the study of theoretical foundations based on the analysis of publications by leading scientists, the following was discovered. Important role in the management of freight forwarding activities is played by the organization of technical links with companies and enterprises that provide partial or full range of services in the freight forwarding activity. There are times when it is more profitable for an enterprise to hire a company to perform the basic functions of the activity, or to outsource part of its own fleet. These decisions are made after evaluating the performance of the transport department and include a number of indicators to choose a third-party carrier.

An important role in a market economy plays a particular role in the process of systematization of freight forwarding activities and the creation of stable information support for the work of this process, which should function both for external trade relations and for the internal market of Ukraine.

Currently in Ukraine the largest share (about 65 %) of cargo is transported by rail. However, the actual figures do not correspond to the official statistics, because the actual figures for road freight transport exceed the official data several times and do not include some key transport data.

Cargo transportation with awning cars is advantageous for different types and sizes of business, since the delivery of goods is often done according to the scheme: «factory-warehouse», «warehouse-warehouse» or «warehouse-shop». Such transportation does not require additional transportation costs from the point of arrival of the cargo, port or railway station to the final destination[5].

According to analysts, the freight market of Ukraine has high development rates [6]. The economy of the country, and in particular its industrial sector, depends entirely on the development of the freight transportation industry, and in a complex economic system, as in the human body, everything is interconnected, the success of one industry depends on the efficiency of other industries, development and strengthening of international relations.

The market of motor transport services in Ukraine is represented by more than 126.6 thousand carriers using more than 400 thousand vehicles. Namely, about 62.4 thousand are engaged in trucking with the use of the contractor 219 thousand trucks.

Companies providing their services in freight transportation in Ukraine are currently in constant development, increasing the range of services, including developing new freight delivery schemes, thereby expanding the geography of freight transportation. This development has a positive impact on the quality of services provided, compliance with the deadlines for delivery of goods, storage of goods.

Freight forwarding activity is a component of transport logistics and one of its defining functions. According to World Bank research, the Ukrainian market of logistics services currently has an expanded structure. The list of the main operators in the logistics services market is presented in Table 1.

Table 1

MAIN OPERATORS IN THE LOGISTICS MARKET OF UKRAINE [7]

Name, size of warehouse area, thousand sq.m.	Characteristic
KUEHNE+NAGEL (110 тис.кв.м)	International transportation and logistics company headquartered in Switzerland. Since 1992 it has been operating in 10 locations in Ukraine. It is engaged in maritime, air, road and contract logistics.
ZAMMLER 3PL (77 тис.кв.м)	The local company was founded in 2007. It provides services in the field of road, air, sea, rail, customs brokerage, as well as a full range of warehouse services. Ukrainian warehouses are located in Kyiv region, Odessa, Lviv and Dnipro.
Raben your partner in logistics (70 тис.кв.м)	A subsidiary of the Dutch company Raben Group, which operates in 12 countries in Europe. Provides complex logistics services, including fresh logistics, services in the field of maritime, air and road transport, as well as customs brokerage services in Ukraine since 2013.
ekol LOGISTICS 4.0 (61 тис.кв.м)	It is part of the international group of companies Ekol with headquarters in Istanbul, which operates in 15 countries. Offers customized solutions for international road haulage, national shipments, warehousing and customs clearance.
FM LOGISTIC (60 тис.кв.м)	An international group of companies with French roots, operating in 12 countries. It has been working in the Ukrainian market since 1996. Provides warehousing, storage, transportation and supply chain management services.
UVK Just-in-Time (45 тис.кв.м)	A local company operating in the market since 2001. It carries out international transport logistics using automobile, maritime and aviation connections. Provides warehousing services for storage of goods, brokerage services, fulfilment and other services. Delivers delivery throughout Ukraine and transportation of goods on a consistent schedule for online stores and retail outlets, covering more than 3 thousand points of sale.
ЛОГІСТИК ПЛЮС (27 тис.кв.м)	Local company operating in the market since 2008. Provides a full range of logistics services — international transportation, customs brokerage services, storage and processing of goods, pre-sale preparation of goods, fullfilment. Storage facilities are located in the Kiev region.
НОВА ПОШТА (23 тис.кв.м)	Local company that is a part of Nova Poshta group of companies since 2015. Provides services of receiving, storage, picking, packing and delivery of goods to the end consumer. Specialized in fulfilment.

The public joint-stock company Trostyanets Meat Combine is one of the market leaders in the production of meat and sausage products. A pig slaughter and production line was launched during the reporting period. The company is equipped with the latest technologies and has a qualified staff. The fleet of the studied enterprise is worn out and it is advisable to involve specialized logistics companies in the future work.

At the same time, the object of optimization should be routes of movement of large-scale consignments of goods from the manufacturing enterprise to points of sale, which differ significantly in territorial location, in accordance with the specifics of logistical management tasks at the strategic level [9, p. 79]. In order to improve the transportation system of the products of the studied enterprise, we proposed the following algorithm for developing a marketing strategy (Fig. 2).

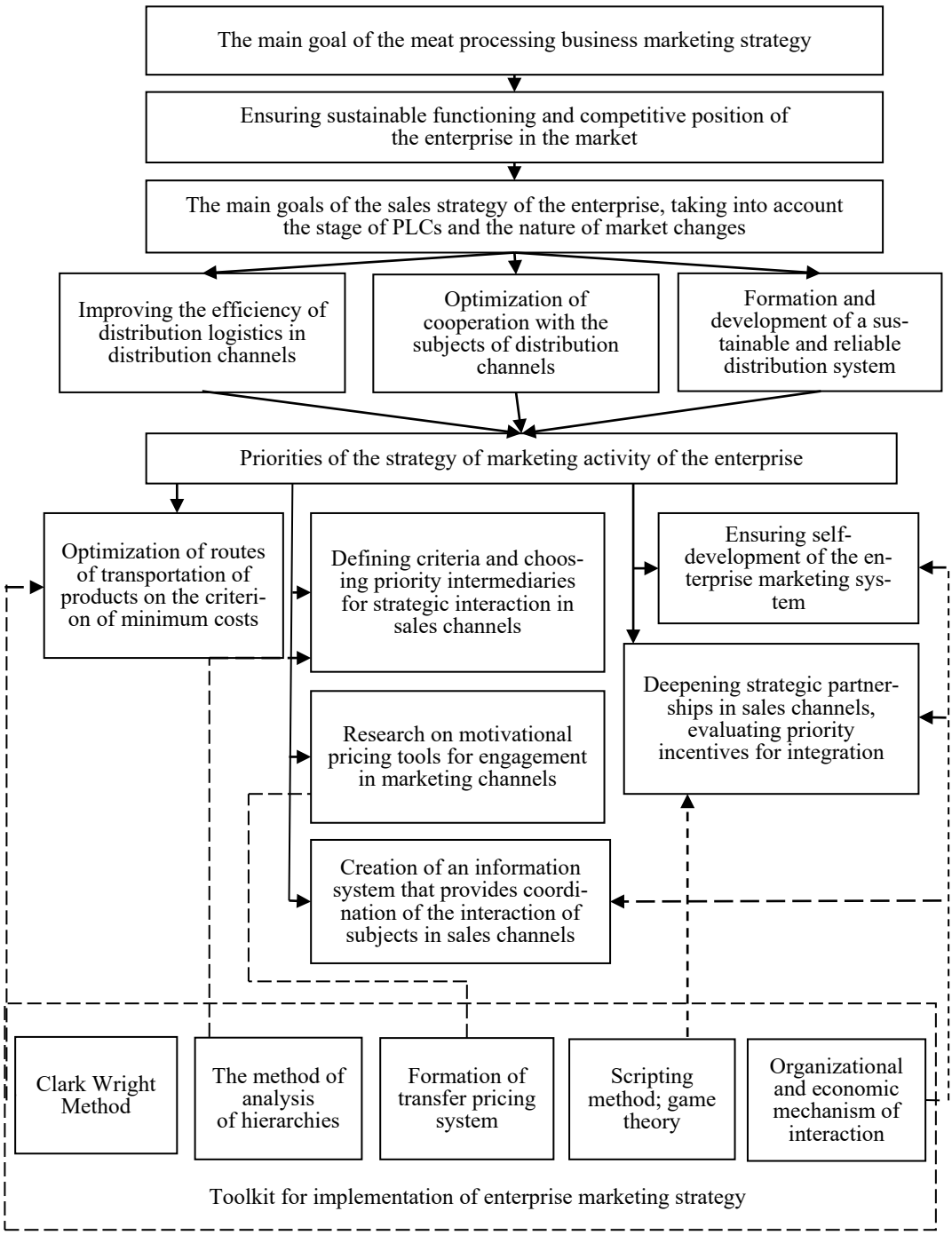

Figure 2.Formation of marketing strategy
for meat processing enterprises
and mechanism for its implementation

Among the existing methods of optimization of transport costs in the delivery of products considered in the works of D.J. Stok [10], L.V Savchenko [11], Z.S Cairo [12], V.K Gubenko [9], it is proposed to use the Clark Wright method, the advantages of which are the simplicity, low error of the decision, which is a testimony of reliability, and flexibility of the method, allowing to take into account a number of additional factors that influence the final decision of the problem. The steps of applying the proposed methodological approach are presented in Fig. 3.

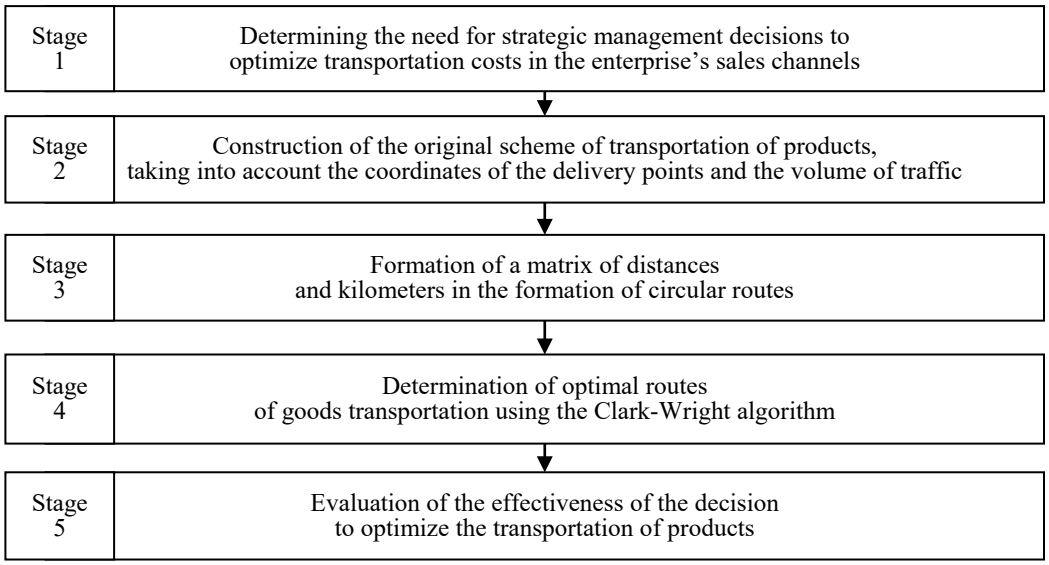

Figure 3.Sequence of the procedure of optimization of logistic distribution in the sales channels of PJSC «TROSTYANSKIY MEAT MAKING PLANT»

In the course of the analysis of works in the field of optimization of traffic flows at the manufacturing enterprise, the process of servicing the cargo owners in the delivery of cargo by small parties in the city connection, namely to the city of Vinnitsa, was considered [14]. Structural scheme of the problems that need to be solved in order to form resource-saving technology for the transportation of goods by small parties in urban traffic, as well as the choice of rational cargo and model of cars for work on the routes are formed.

In practice, each environment has its own unique conditions that reflect the nature of the functioning of the entire system. To choose the strategy of formation of freight (combined) routes at the trucking company (or transport unit) it is proposed to distinguish the following alternative technologies of servicing of cargo owners on the freight routes [13]:

– technology of formation of routes with the minimum operating expenses (transportation under the conditions of the minimum run);

– technology of formation of routes taking into account non-rigid time requirements of consumers (transportation by periods of days);

– formation technology with precise routes, taking into account the term of delivery (deliver «just in time»).

Each of these technologies has certain advantages and disadvantages and can be applied under the relevant market conditions that have developed for the current period of time. Therefore, it is necessary to justify the decision on the choice of rational technology in the conditions of constantly changing demand.

In the course of scientific research it was determined that in modern conditions the productivity of the production enterprise is largely influenced by transport costs. Therefore, there is a need to optimize traffic flows. The structural-logical scheme of the process of choosing the resource-saving technology for the organization of cargo transportation in small lots in the city connection for the meat processing enterprise is proposed. Such a mechanism will ensure the fulfillment of key rules of logistics and further promote the expansion of its own motor transport fleet (Fig. 4).

The processing of consumer orders involves the determination of such parameters as: the size of the consignment, the consumer's requirements for the time of delivery. Formation of route routes is performed taking into account the characteristics of the applications, the selected car load and is characterized by the total length of the cars on the route routes per day.

To accomplish such tasks, we propose to use leading information systems in logistics and to create an information logistics center. Among the leading information technologies in the field of transport logistics, which can be adapted to the activity of this enterprise may be:

– Experimental automated logistic process management system implemented on the basis of Visual Basic.;

– As of the beginning of 2013, the new version of VB.NET 2012 is new;

– Transport Management Galaxy;

– InterLogistics software platform;

– SAP R / 3 (with Logistics module) [14–17].

Directions were made using the free online application https://ant-logistics.com/index.html#. Having loaded into the program all the necessary data (about the car — make, tonnage, average speed; cargo — dimensions, characteristics; clients — their addresses, according to the drop-down list, work schedule; responsible persons). This program automatically builds routes and displays ready results.

Conclusions. Therefore, the proposed methodological approach can determine the economic effectiveness of the optimization procedure. It is expressed through transport gain — a potential reduction in the route of transportation of products compared to the initial transport scheme.

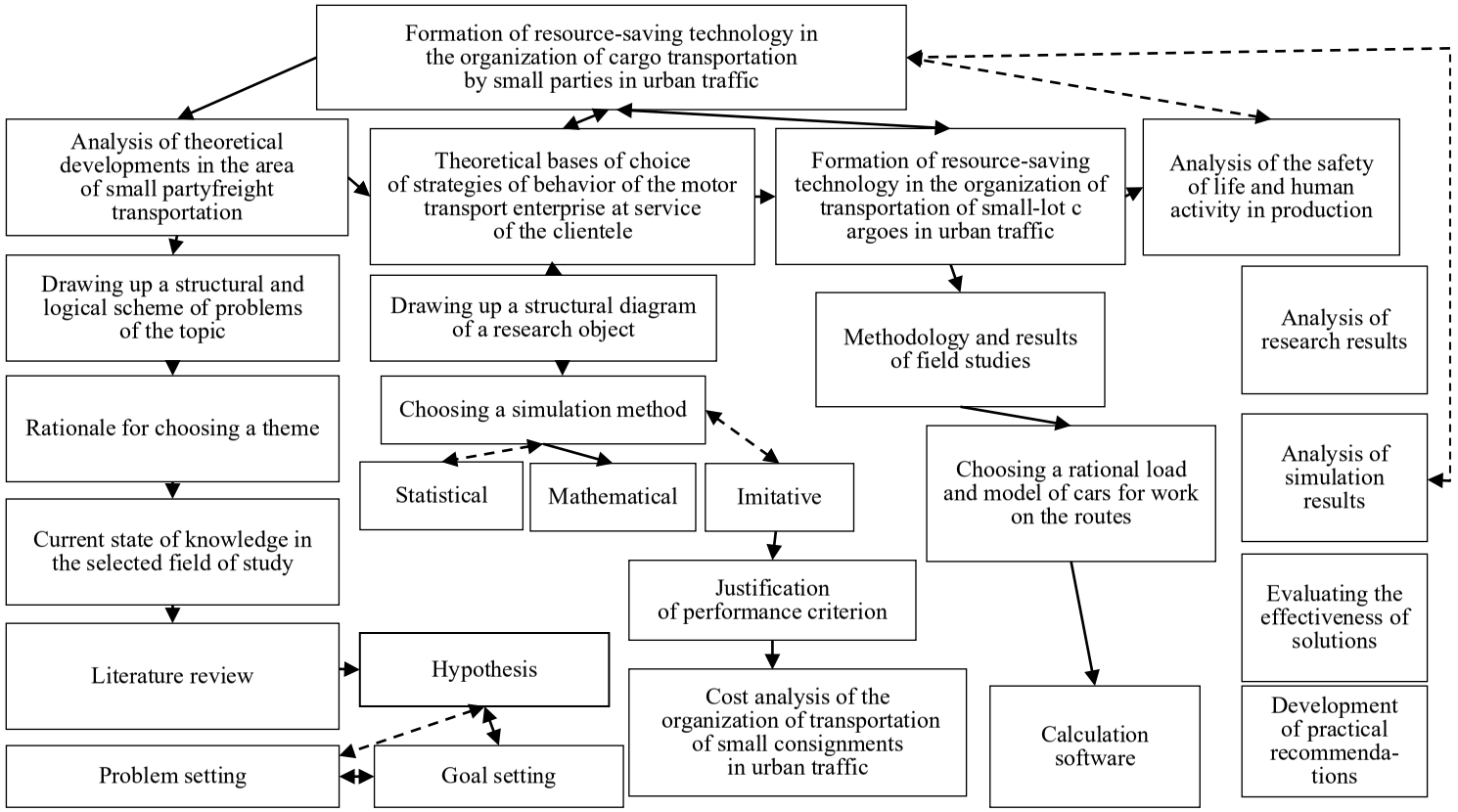

Figure 4.Structural and logical scheme of the process of choosing resource-saving technology in the organization of transportation of goods by small parties in a city connection for PJSC «TROSTYANETSKY MEAT-FACTORY

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