



# MODELING INTANGIBLE ASSETS OF A LOGISTIC ORGANIZATION

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**Abstract**—The article presents the results of It will be relevant to fill this gap, presumably arising from insufficient elaboration of approaches to the assessment of scientific knowledge, which, along with managerial knowledge and practical competencies of management in the field of logistics, generates intangible assets. In other words, it is required to show that the "science intensity" of the logistics business is a capitalized asset.

**Key words**—logistics, modeling, asset, consulting, base, technology, Relationships, Purpose

## I INTRODUCTION

Starting from the second half of 2008, the estimated cost of logistics organizations tends to decrease due to the crisis in the economy, as well as a decrease in the return on tangible assets (MA) of organizations, in connection with which the search for new sources of growth becomes urgent. Such a source can be the latent, undocumented market resources concentrated in the so-called intangible assets (intangible assets). However, their identification, assessment and modeling is hampered by insufficient theoretical and methodological study of the logistics sections dedicated to intangible assets [1, 2, 3].

The degree of elaboration of the problem. In recent years, the problem of identification, assessment and modeling of intangible assets, including in the field of logistics, has attracted more and more attention of scientists and practitioners. Thus, the works of G.G. Azgaldov, P. Boer, S.V. Valdaitseva, A.N. Kozyrev, V.L. Novoseltseva, R.L. Parr, R. Razgaitis, R. Reilly, S. A. Smirnov, G. V. Smith, M. A. Fedotova, D. Friedman, G. Harrison, R Among the foreign authors working in the field of valuation of intangible assets can be called B. Lev, who conducted a comprehensive scientific study of intangible assets. However, there is still insufficient attention to the identification, valuation and modeling of intangible assets in the field of logistics. In the field of assessing the role of intangible assets in increasing the competitiveness and efficiency of logistics organizations, scientific,

educational and methodological and scientific and practical works are single. There is also a shortage of scientific papers that would comprehensively cover the issues of identification, assessment and modeling of intangible assets of logistics organizations, raised by the practice of logistics business. As for the economic assessment in the real sector of the economy, a large number of works are devoted to it.

Goals and objectives of the study. The purpose of the work is to develop theoretical and methodological provisions for the identification, assessment and modeling of intangible assets of a logistics organization [4].

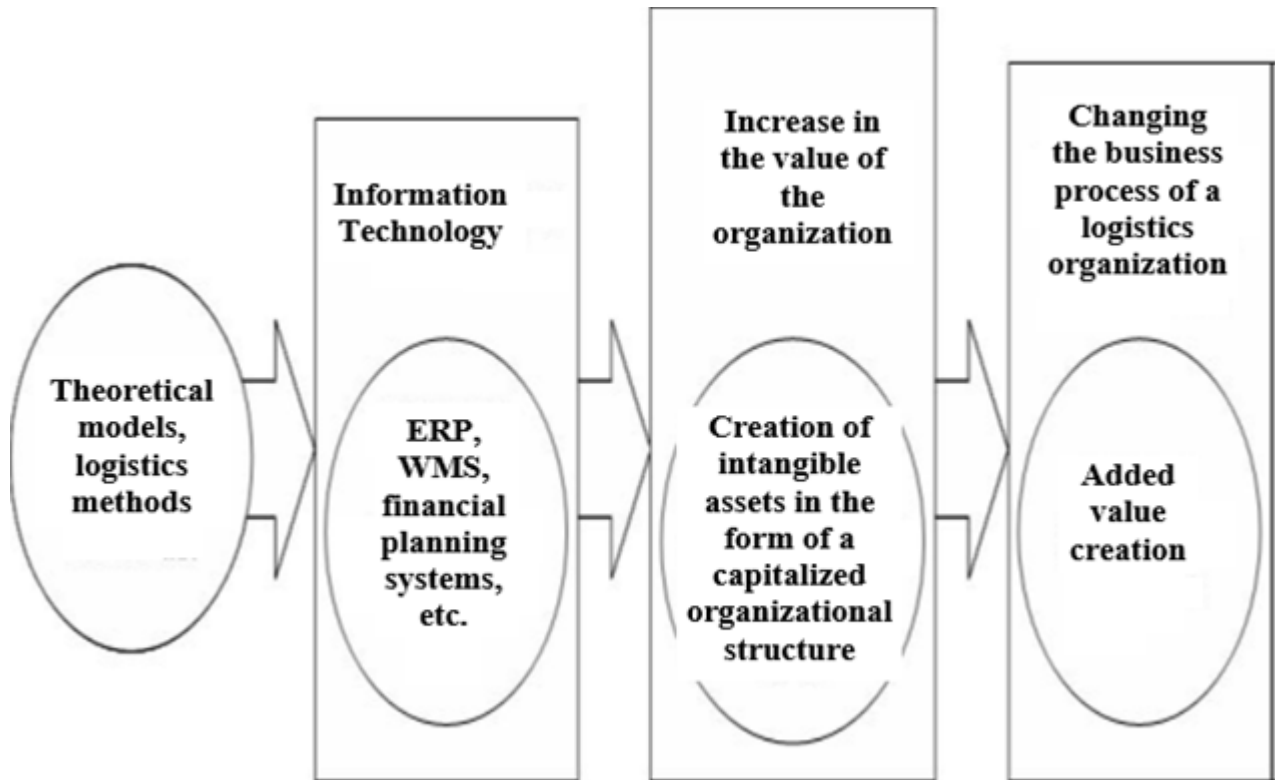
The results of the work can be used to assess the importance of intangible assets of a logistics organization and to model their effective structure in order to obtain additional competitive advantages, to select an investment strategy and to identify the investment attractiveness of a logistics organization represented by an investor. The results of the work can be used to prepare training courses for students and postgraduates studying in the specialty "logistics", economic specialties of universities, advanced training courses for warehouse workers, transport, customs [5, 6].

In the first chapter "Theoretical foundations of identification of intangible assets of a logistics organization" intangible assets are considered as a source of income in logistics, and the types and significance of identifiable and non-identifiable intangible assets are described. It is shown that information technologies traditionally recognized as intangible assets can, along with tangible assets, have an estimated value and bring added value to an organization (Fig. 1).

## II MAIN PART

It is also assumed that there are other intangible assets of the logistics organization that have value potential. It is shown that the business process of a logistics organization is formed by tangible and intangible assets [7].

Intangible assets are a key element of the business process because:



**Fig. 1:** Scientific knowledge underlying new information technologies, as a source of intangible assets of a logistics organization.

- The cash flow generated by the business process forms access to tangible assets, while the presence of intangible assets, other things being equal, regardless of the cash flow (Fig. 2)
- The inclusion of tangible assets in the business process is determined by the availability of knowledge about their use. Thus, the created value of tangible assets in a logistics organization is related to the value of knowledge and other non-identifiable intangible assets.
- The factors of production that form competitive advantages in a logistics organization are intangible in nature: unique knowledge of labor resources, entrepreneurship, information, etc.

The analysis made it possible to compile a list of intangible assets and compare it with the classifications of intangible assets given in the Civil Code of the Russian Federation, RAS and IFRS (Fig. 2).

Thus, the majority of non-identifiable intangible assets in logistics can be conditionally attributed to: organizational structures, know-how, accumulated knowledge and opportunities (privileges of access to certain resources, markets, etc.).

"Modeling intangible assets as a tool to improve the efficiency of a logistics organization" shows the solution to a practical problem of modeling intangible assets, as well as developed a methodology for assessing intangible assets of a logistics organization and presents the process of modeling intangible assets of a logistics organization.

When designing a logistic process, special attention is paid to the balance of various types of costs attributable to warehousing, transport shoulder, communication nodes, partnerships, etc.

Traditionally, to achieve the goal of promoting goods from a supplier to customers, the minimum total costs per unit of goods are calculated (the goal is to increase the marginal profit).

A vivid example: the organization of a distribution system based on the construction of transport routes through the warehouse system to cover a market segment. As a rule, the solution to this problem is the routing of traffic flows based on the optimal composition and load of vehicles. This approach is expanding in the work. The solution to the problem is considered from the point of view of the creation and implementation of intangible assets and its compatibility with alternative intangible assets. Using the example of a practi-

Analysis	Stage
Quality	Determination of initial intangible assets
	Definition of KSK
	Allocation of missing intangible assets for KSK
Quantitative	Conducting investment analysis based on calculating the "conditional liquidity" of missing intangible assets and finding the maximum value of "total liquidity" by combining the original and missing intangible assets
Quality	After restructuring, tracking the "contingent liquidity" of intangible assets (demonstration of the readiness to use this intangible asset in the business process)
Quantitative	Definition of "private liquidity" of intangible assets (certification of changes in the business process and value creation of an individual intangible asset)
	Determination of the "total liquidity" of intangible assets (calculation of the change in the value of the aggregate intangible assets to analyze the nature of the influence of new intangible assets on the total capitalization of a logistics organization)

TABLE 1: METHODOLOGY FOR ASSESSING INTANGIBLE ASSETS. STAGES OF QUALITATIVE AND QUANTITATIVE ANALYSIS.

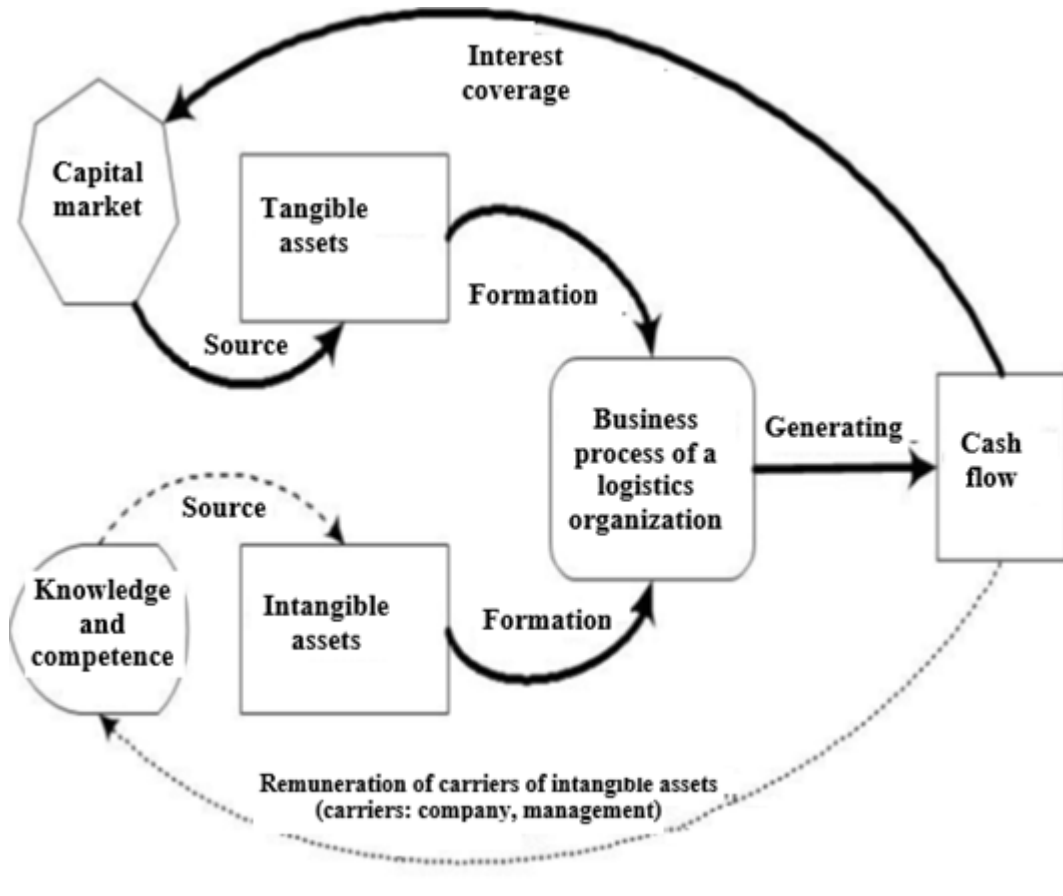


Fig. 2: The relationship of tangible and intangible assets with the business process and cash flow.

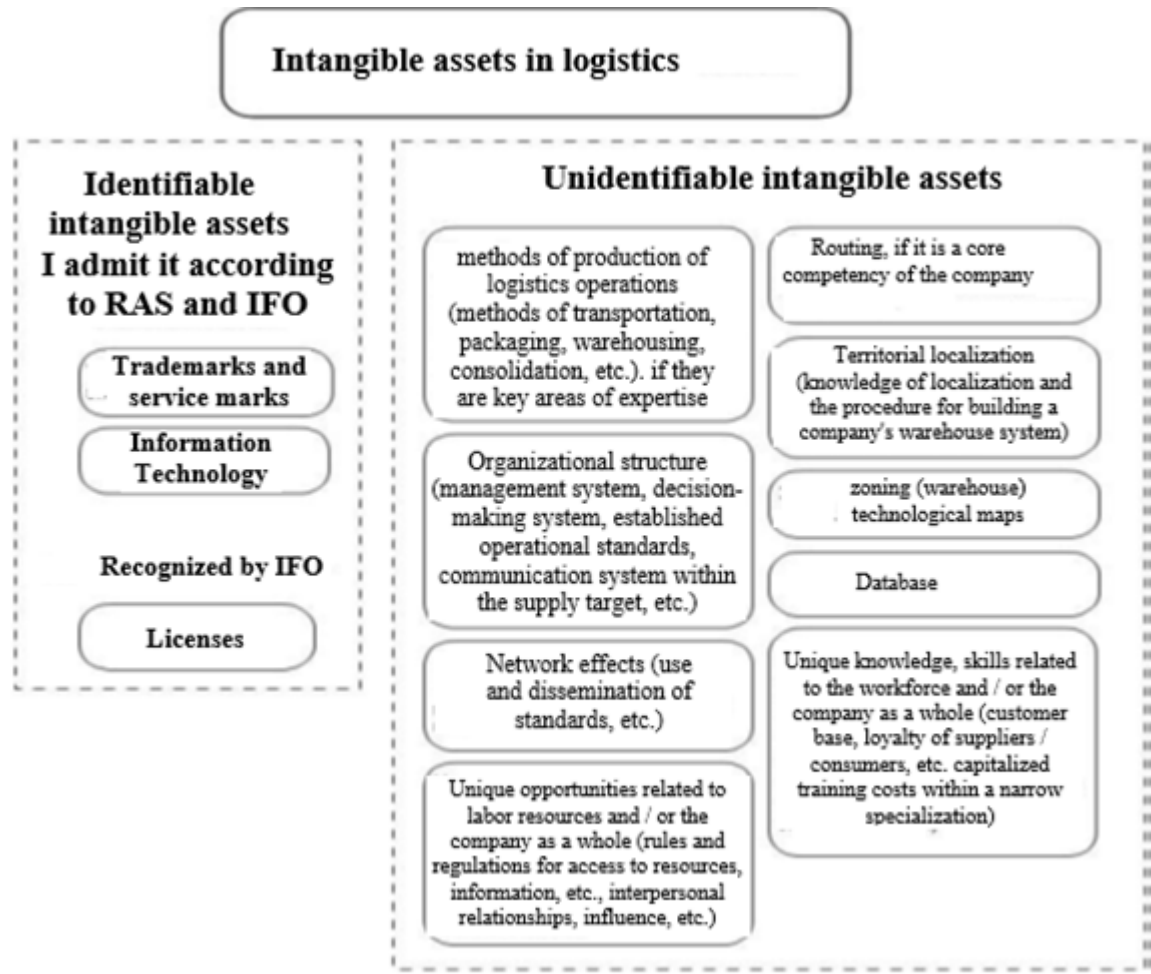


Fig. 3: Identifiable and non-identifiable intangible assets in logistics.

cal problem, it is shown that the result of calculating the optimal routes for the movement of vehicles is the creation (and implementation) of intangible assets, namely, knowledge of routing. The interchangeability of one intangible asset was also demonstrated in the form of knowledge about routing by an alternative intangible asset in the form of knowledge about territorial localization.

In this work, on a practical example, the process of modeling intangible assets is illustrated, based on the developed methodology for assessing intangible assets of a logistics organization and building an objective function for maximizing the total value of intangible assets.

The objective function is based on the calculation of the "total liquidity" of various combinations of intangible assets. The objective function is to maximize the overall liquidity indicator. The general constraints of the objective function are: a) positive values of "private liquidity" of the modeled intangible assets ( $CHLNMA > 0$ ); b) the presence of demand for

an additional basket of services created with the help of the intangible assets being introduced, at a set price for the organization's client; c) the availability of capital for introducing intangible assets.

One of the options for the practical implementation of the developed methodology on the example of introducing intangible assets in a large Uzbekistan logistics organization gave the following results:

- The key areas of competence of the organization were identified and the intangible assets used in the business process were analyzed.
- To enhance competitive advantages within the framework of the KSK, it was decided to create and implement three additional assets, the total value of which amounted to 422.4 million sum.
- Analysis of the aggregate intangible assets of the orga-

nization after restructuring showed a synergistic effect due to the increase in the value of the original intangible assets by 475.2 million sum.

The use of the methodology for assessing intangible assets developed in the dissertation research made it possible to substantiate the need to increase the competitive advantages of the organization associated with expanding the list of warehouse services, which made it possible to increase the volume of cargo transshipment at the cross-docking section.

### III CONCLUSION

The main results of the article are summarized. It resulted in:

1. Substantiation of the mechanism for creating the value of intangible assets, which consists in transforming the theory of logistics science, managerial knowledge and management competencies into the results of the economic activity of a logistics organization.
2. Theoretical substantiation of the presence of both identifiable and non-identifiable intangible assets, including intangible assets, which are transferred scientific methods, theories, etc. in the logistics business, which reflect the contribution of scientific knowledge to the business process of a particular organization.
3. A method for identifying intangible assets of a logistics organization based on a process approach and functional cost analysis, and criteria changes in the business process to justify the inclusion of intangible assets in circulation.
4. An approach that takes into account both qualitative and quantitative characteristics when assessing the non-identifiable intangible assets of a logistics organization.

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