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Selection of rational composition of IT-services of information system with the purpose of increase of efficiency of transport logistics companies functioning

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When the automation of transport logistics companies there is a problem with the gap between the existing business processes and means of automation.

This circumstance makes it necessary to search for options for creating a software infrastructure (SI) for transport logistics enterprises. One of the solutions to this problem can be the transition of the enterprises to Service-Oriented Architecture (SOA). In essence, this means not considering the applied information system as a whole, but considering its individual functional components - IT services.

The proposed SOA architecture is recommended to be formed from a set of business-oriented IT-services that collectively satisfy the tasks and business processes of the enterprise in transport logistics. When investigating the SI of the transport logistics system (TLS), it was established that the same function is often represented by different services as well as by different suppliers with different costs for providing access to services, speed of service provision, service availability, etc. Then the process of determining the necessary selection of services should be considered as a solution of the multicriteria problem of service composition for selected indicators. It is known that methods for solving multicriteria problems are divided into two groups. In this case, these groups are reduced to different strategies. The first strategy is based on the principle of the worst reaction of the external environment. The second strategy is based on the principle of equilibrium (the Nash principle). In addition, in most practical applications, the tasks of forming a rational composition of services have to be solved in conditions of significant uncertainty under the influence of the following factors:

1. The lack of a uniform and universally accepted methodology for the development and implementation of IT strategies at transport logistics enterprises.
2. Availability in the IT market of a big number of alternative IT solutions that implement similar functionality to automate the business processes of the enterprise.
3. The need to take into account the total costs associated with their acquisition and operation of IT services, etc.

These factors form elements of uncertainty, which causes the need to use the mathematical apparatus of fuzzy sets. And then, the process of formation of a rational composition of IT services in the TLS infrastructure can be represented as a solution of multicriterial problem under fuzzy sets.

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