

УДК 004.051

**DIFFERENCES BETWEEN INTELLIGENT INFORMATION SYSTEMS AND  
INTELLIGENT TRANSPORT SYSTEMS***A. O. Доля**Національний транспортний університет*

Intelligent control based on intelligent transport systems differs from control using intelligent information system (IIS) not only in the type of system, but also distributed nature of management, a set of relations (spatial and informational), the type of information and the type of knowledge.

For this reason, intelligent transport systems occupy a special place among information intelligent systems. Intelligent transport system (ITS) is a distributed intelligent system of accounting, registration, coordination, control, management of transport flows and state of transport infrastructure, as well as relations between the transport sector and the municipal management. Intelligent transport system can be considered as a kind of intelligent information systems, however, there are a number of qualitative differences between most IIS and ITS for a number of factors, which determines the difference in the intelligent control of the system using IIS and ITS.

Locality and distribution. Most IIS are local systems and are located at a certain point in space. ITS are spatially distributed systems. It imposes additionally, the requirement to account and use spatio-temporal information and, in general, complicates the process of analysis and management in ITS.

Unity and massiveness of control objects. Most IIS control one object, although analyze large number of parameters. ITS manage several objects, taking into account their mutual movement and changing environmental conditions [1]. This imposes an additional requirement accounting and use of complex heterogeneous statistical and deterministic models and complicates the process of analysis and management in ITS. This imposes an additional requirement on ITS for solving problems of mass maintenance, coordination of management objects development and creation of coordination models management.

Local environment and heterogeneous environment. Most IIS control an object that is located in a changing but relatively homogeneous external environment. ITS manage several objects, taking into account their mutual movement in conditions of significant changes in environmental factors. This imposes an additional requirement accounting for significant changes in factors external environment and the use of complex heterogeneous models and dynamics models external environment and dynamics of interaction with it of the control object [2].

The scale of the information space. Most IIS manage the object based on the creation and use of information and intelligent models in local area. ITS manage many objects and individual objects on the organization and application of a single information space.

The minimum scope of the ITS is small region. Maximum scale action is a global space on the earth's surface. This feature of the ITS imposes additional requirements on the creation of a single information space at different scales. According to this there is a need to use network technologies for managing objects and resources.

Navigation. Most IIS manage an object in relatively stationary conditions in a local area space. ITS manage facilities whose position needs to be determined in geocentric coordinate systems on the entire earth's surface. This imposes an additional requirement on the ITS to decide navigation tasks for determining the location of transport objects in any geographic point of the earth's surface [2].

Integration with methods of geoinformatics. Most IIS control an object located in relatively stationary conditions in a local area of space. ITS manage objects using spatio-temporal data and technologies for their processing used in geoinformatics. This imposes additional requirement for ITS to integrate intelligent technologies with geoinformatics technologies [3] or use geoinformatics technologies in solving problems management in ITS.

Level of evolution. Most IIS use the latest advances in mathematics, logic and technological innovations. ITS on concepts and principles are intellectual, but due to much more complex management tasks are still intermediate state between information and intelligent systems. ITS lag behind IIS in terms of software, linguistic and logical-mathematical funds in the implementation of more complex tasks of transport management. They lag behind from IIS and while supporting human activities. Therefore, the current state of ITS gives reason to relate more them to "smart" systems than to intelligent ones. This imposes an additional requirement on the ITS to create new software, linguistic and logical-mathematical funds in the implementation of management tasks transport.

Management objects. IIS and ITS can be used for control. For ITS management is one of the main functions. ITS control objects are mobile objects [1]. IIS often manages one object. ITS manages many objects.

The nature of the interaction. IIS operate independently and are more often served one object or solve a complex problem not related to spatial information. ITS operate in real time and solve problems in real space, taking into account time constraints. Therefore, they require the unity of coordinates and time in the field of object management.

Completely, ITS have significant differences from information systems (IS) and IIS.

1. Information systems as basics use information, and ITS in first of all spatial knowledge [4] and secondly information.

2. Information systems process information and offer options for decisions that a person makes. ITS use knowledge and information and not only offer solutions, but they themselves carry out actions to make decisions without human participation.

3. In addition, unlike IS, ITS require two subsystems: supporting and providing.

4. IIS use knowledge as a basis, and ITS primarily spatial knowledge [4] and geoscience [5].

Intelligent control is one of the key areas of comprehensive improvement of performance and the basis for management development.

Intelligent control uses various types of intelligent systems IIS, ITS and Intelligent Logistic Systems (ILS). These three types of management differ qualitatively. In the first case (IIS) management is associated with the object and the environment or informational situation, in the second (ITS) with a system of objects, in the third (ILS) with information flows and material flows.

Intelligent management of transport systems uses spatial information. Intelligent control is designed to reduce information volume coming to the person and create a transitional situation to effective implementation new management, especially with high-speed transport [6].

Using intelligent technologies increases the validity of management decisions in a complex and a rapidly changing environment. Applying intelligent modeling opens up new possibilities for forecasting and management in the field of transport.

In general, intelligent control allows: predicting the consequences of certain management decisions; develop optimal control strategies in a rapidly changing environment, taking into account the impact external, internal, difficult to predict, short-term, long-term and other types trends and factors. Intellectual management allows you to solve the problems of ensuring a unified transport policy [7].

#### Література:

1. Tsvetkov V. Ya. Information Management of Mobile Object. 2012, Vol.(1), P. 40-44.
2. Розенберг И. Н., Цветков В. Я., Романов И. А. Управление железной дорогой на основе спутниковых технологий. 2013. с. 43-50.
3. Цветков В.Я. Модель геоданных для управления транспортом. 2009. с.50- 51.
4. Цветков В.Я. Пространственные знания. 2013. с.43-47.
5. Кулагин В. П., Цветков В. Я. Геознание: представление и лингвистические аспекты. 2013. с. 2-9.
6. Цветков В.Я. Интегральное управление высокоскоростной магистралью. 2013. с.6-9.
7. Розенберг И. Н. О единой транспортной политике в сфере железнодорожного транспорта. – 2015.- с.244-250.