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DEVELOPMENT OF REQUIREMENTS FOR THE AUTOMATED CAPACITY MANAGEMENT SYSTEM OF THE RAILWAY INFRASTRUCTURE OF UKRAINE

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At present, there is no experience in the public railway use of Ukraine in the allocation of capacity of the railway infrastructure. The stages of production processes of JSC “Ukrainian Railways” (JSC Ukrzaliznytsia) that are included in the capacity allocation procedure are automated in a fragmented way. Some stages of dispatching are automated, but there is no link to the process of developing a standard train schedule (FRG), and its manual-based assembly process is outdated. The Graphic Engineer ARM, which was developed in 1999, is currently in operation and does not have the functions required to allocate network bandwidth, including automatic plotting, delay modeling, etc.

In the context of the implementation of the model of reforming the railway industry by the vertical method of separation, there is a need to automate the process of planning the movement of train formations. In the first stage of the formation of the railways of Germany, Switzerland, Poland and others, this process was rather lengthy and performed manually, but with the introduction of automation the time to access the infrastructure was reduced from days to hours and minutes. Therefore, to develop the requirements of the automated system for JSC Ukrzaliznytsia it is important to analyze the existing systems on the railways of Europe. The analysis of the existing automated network bandwidth distribution systems proves the absence of many functions regarding the automation of the train formation planning process at Ukrzaliznytsia JSC, which requires the development of its own automated system.

Requirements for the creation of an automated system for managing the bandwidth allocation of railway infrastructure (ACS) on the basis of the distributed decision support system (DSS) have been developed for the implementation of a complex of scheduling problems of transportation from the application for route organization to the distribution of the thread of the train movement and analysis implementation of the transport process. The paper proposes to consider the AU of the Bandwidth Management in the form of a modular structure. This will allow to solve a complex of problems of transportation planning from the application for the organization of the route to the distribution of capacity, the development of the thread of the train movement and the analysis of the implementation of the transport process.

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