Из этого вытекает, что решение задачи с многоканальным характером обработки может быть сведено к решению задачи, имеющей по одному каналу обработки в каждом из пунктов назначения. Причем в простейшем случае есть основание считать, что время на обработку единицы ресурса в многоканальном пункте обработки в $z_j$ раз меньше времени, затрачиваемого одним каналом, и равно $t'_j=t_j/z_j$.

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## TIME-BASED TRANSPORTATION PATTERNS AND THEIR ADJUSTMENT FOR RESOURCES PROCESSING TIMETABLE AT POINTS OF DESTINATION


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*Classical minimum-time transportation problem [1, 2, 4] doesn't assume any supplementary processing of resources at the points of destination. The elementary variant supposes that the processing of each consignment begins immediately after it arrives at the destination. It is a model without process queues.*

*The model of commensurability of transportation and processing costs considers process queues.*

*The problem under consideration supposes that the resources should not only be shipped from the origin to destination point but also should undergo a secondary processing at the destination. The problem is solved, once all the resources within a transfer operation have been delivered and processed. The study examines a case of such a processing and shows that the transfer length linearly depends on the volume of present consignment.*

*Besides, each point of destination (processing) can be regarded as a multichannel service system. The features of such a system include aggregate capacity of processing of arriving resources as well as the time of processing by one of the channels of a resource unit (tj), which doesn't depend on origin point of carriage, and the quantity of the channels (zj), being equal to the quantity of resources that a given j-point can process during tj time.*

*The solution of a problem with multichannel processing can be reduced to solution of a problem of one processing channel at every point of destination. In an elementary case it is reason to believe that the time of processing of resource unit at multichannel processing point is zj times less than the time of processing of similar unit by a sole channel and is equal to t'j=tj/zj.*

*The examined problem has much in common with excess fare transportation problem [3]. The solution of excess fare transportation problem is found with the help of approximate method (linearization of efficiency function) or of labor-consuming combinatoric method. See the minimax character of the defined efficiency function, the solution of the examined problem reduces to finite sequence of problems whose computational complexity doesn't exceed a polynominal one. Meanwhile there is the assumption that a processing time at any destination point depends on the volume of processed consignment. That is why such problems are generalized minimax transportation problems. The Hungarian method, that is a variant of sequential reduction of misalignments, permits to solve the problem. A proposed technique of adjusting of a lower bound of the efficiency function reduces the number of steps within the algorithm.*

*The adoption of the model permits to consider limited processing capacity of the points of destination (for instance of sea ports) during planning of train arrivals (especially those with exported freight) in order to reduce unloading time and to avoid traffic jams on house tracks.*



**Key words: transport problem, criterion of the minimum of time, resources, station of destination, processing costs.**


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