

An Approach for Ensuring Data Flow in Freight Delivery and Management Systems

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Abstract : This research aims at developing the approach for more effective freight delivery and transportation process management. The road congestions and the identification of causes are important, as well as the context information recognition and management. The measure of many parameters during the transportation period and proper control of driver work became the problem. The number of vehicles per time unit passing at a given time and point for drivers can be evaluated in some situations. The collection of data is mainly used to establish new trips. The flow of the data is more complex in urban areas. Herein, the movement of freight is reported in detail, including the information on street level. When traffic density is extremely high in congestion cases, and the traffic speed is incredibly low, data transmission reaches the peak. Different data sets are generated, which depend on the type of freight delivery network. There are three types of networks: long-distance delivery networks, last-mile delivery networks and mode-based delivery networks; the last one includes different modes, in particular, railways and other networks. When freight delivery is switched from one type of the above-stated network to another, more data could be included for reporting purposes and vice versa. In this case, a significant amount of these data is used for control operations, and the problem requires an integrated methodological approach. The paper presents an approach for providing e-services for drivers by including the assessment of the multi-component infrastructure needed for delivery of freights following the network type. The construction of such a methodology is required to evaluate data flow conditions and overloads, and to minimize the time gaps in data reporting. The results obtained show the possibilities of the proposing methodological approach to support the management and decision-making processes with functionality of incorporating networking specifics, by helping to minimize the overloads in data reporting.

Keywords : transportation networks, freight delivery, data flow, monitoring, e-services

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