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EVALUATING THE ENVIRONMENTAL IMPACT OF COMPLEX INTERMODAL TRANSPORT CHAINS

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Abstract

The paper highlights the problem of assessing the level of environmentally acceptable green transport in modern supply chains. Cargo owners put the elements of time and price of service into the forefront, where the degree of pollution (CO_2, NO_x, SO_2, PM_s) and the need for energy efficiency is too often ignored. Various studies highlight the lack of methodological approaches to the standardized evaluation of the environmental impacts of intermodal transport; thus, the aim is to formulate a modular approach to the analysis of three parameters (time, price and pollution) of sustainable intermodal transport chains. The research hypothesis assumes that there are differences in complex intermodal transport chains and that the elements of price and time of transport do not directly reflect the degree of produced pollution. The study elaborates a four-step approach, with the main focus on evaluation processes, where input data must be unified to provide comparable decision-based parameters of various transport solutions. The modular approach proposes transparent data presentation that could be used by intermodal operators or logistics companies when presenting their offer to cargo owners. The modular approach is used on the ocean transport route from Asia to the northern Adriatic, with final inland transport to central European markets that is promoted under the Belt and Road Initiative. The study determines that along the entire intermodal transport chain the pollution level is not directly reflected by the elements of time and price. Thus, there is a strong need for a unified approach in the evaluation and presentation of structured data to cargo owners. Consequently, the study provides a new contribution to the transport industry, with customer's becoming aware sooner of pollution from transport and greener transport decisions.

Key words: green transport, intermodal transport, pollution

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