

Témata pro přijímací řízení do AR 2026/2027

Technologie a management v dopravě/Transport Technology and Management

Economic Evaluation of the Competitiveness of E-commerce Parcel Delivery Using Rail Transport After the Introduction of the EU ETS 2

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Form of study: full-time

Annotation

The objective of this dissertation is to evaluate an economic efficiency and environmental benefits of rail transport using for e-commerce parcel delivery in the context of the implementation of the EU ETS 2. The work will focus on comparing rail and road transport, quantifying cost differences, and estimating the modal shift potential between transport modes. Research questions will include, for example: How will the introduction of ETS 2 affect the cost structure of road transport in e-commerce logistics? Under what conditions does rail transport become a more economically advantageous alternative to road transport? etc.

The following methods, among others, will be used to solve the research task:

Total Cost of Ownership model – calculation of the full cost structure (direct costs, ETS 2 allowance costs, time-related costs, externalities).

Modal split model (Logit model) – prediction of the redistribution of shipments between road and rail transport based on relative cost changes and other factors.

System Dynamics model – simulation of long-term systemic interactions such as the impact of rising allowance prices on company strategies, infrastructure development, customer preferences, and modal split over time.

Supplementary methods: case studies of selected logistics corridors and expert interviews with industry stakeholders.