



## **A STUDY OF COST AND EMISSIONS CONSIDERING SPEED OPTIMIZATION IN TRANS EURASIA TRANSPORTATION BASED ON INTELLIGENT TRANSPORTATION**

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*Abstract—People attach much importance to greenhouse gas emissions, and there is an increasing concern on cost and emissions on account of speed reduction for international shipping. Low steaming encountered these challenges of time constraint and technical requirements, while the cost and emissions of railway transportation distinctly differentiate from international shipping and it is a good substitute for international shipping to some extent. Intelligent transportation system (ITS) has proven to be a useful tool in providing efficient, environmentally friendly and safe transportation systems within inland and shipping. The paper focus on the selection and cooperative process between the shipping and railway, and discusses the cost and emissions by speed optimization for international shipping and railway transport aiming to select effective and environmental transportation mode based on ITS infrastructure. Firstly this paper reviews ITS and investigates the relationship of cost and speed along with the relationship of energy consumption and speed respectively for shipping and railway transportation, and then presents the speed optimization both shipping and railway transportation based on ITS so as to minimize cost and emissions. Subsequently it compared and analyzed the cost and emissions for mode selections, and it found that it is more effective and environmental to employ railway transport to some route leg. Finally A numerical case is presented and the results showed that it is necessary to shift model from sea to land on some section.*

**Index terms:** cost effectiveness, CO2 emission, intelligent transportation, railway transportation, international shipping, green logistics.