The Future of Sustainable Transportation - How can intermodal freight transport contribute to reach the EU´s climate goals?

Master Seminar – Summer Semester 2022

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Intermodal Transport – Making use of efficient combination of transport modes

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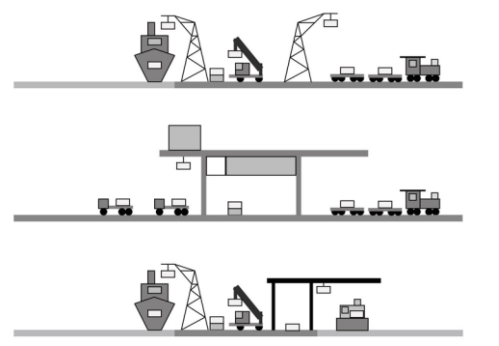
Complex of Intermodal transport

- In contrast to unimodal transport, intermodal transport requires the efficient cooperate between multi transport modes
- The connection problem between different transport mode as well as between service and market gains much attention
- In the intermodal transport network, route planning, pick-up and delivery problems, hub location, service network design and multi commodity flow problems are the focus of attention



Benefits of Intermodal Transport

- Leveraging the respective strengths of different modes of transport, such as the flexibility and time advantage of road transport, the safety and cost advantage of the rail and water transport
- Economic benefits such as reduced road congestion, cost advantages due to mass transport, low toll costs, optimization of working time, high transport safety
- Environmental benefits such as reduced fuel consumption and reduced carbon emission by reduction of energy-intensive road transport

European Green Deal – The aim and further realignment

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EU Green Deal in 2019:

- Climate neutrality until 2050
- Until 2030: Reduction of greenhouse gas emissions at least **40%** concerning the statistics of 1990

Realignment in 2021:

- Until 2030: Reduction of greenhouse gas emissions at least **55%** concerning the statistics of 1990
- Until 2055: Europe as first climate-neutral continent

- Increase **further reduction** of emissions cap and increase annual reductions from 1.74% to **2.2% per year**
- Emissions trading revenues will be invested in **climate and energy-related projects**
- By **2030**, renewables should provide **40%** of energy generation and emissions from passenger cars and commercial vehicles have to be **55%** lower than in 2021 (and 100% lower by 2035)
- Expansion of **refueling and charging stations** for electric cars and hydrogen powertrains
- Provide ships and aircraft on **green** electricity and use more sustainable fuels to meet emission caps

https://ec.europa.eu/commission/presscorner/detail/de/ip_21_3541

How can intermodal freight transport contribute to the EU's climate goals?

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Seminar focus

New opportunities in transportation

- What new technologies or strategies have been developed in transport sector to achieve the climate goals?
- Can climate measure facilitate a shift toward environmentally friendly transport mode?
- Can synchromodality in transport contribute to emission reduction?
- Which barriers exist in transport market for shifting to intermodal transport?

Green opportunities in transportation

- How significant is the relationship between global transportation and emission aims?
- Which effects occur for transport actors by EU’s climate goals?
- Can increased reliance on renewable energy increase efficiency and reduce costs for transport actors?
- How can climate changes be realized by the transportation sector in perspective?

This seminar focuses on the literature-based analysis of issues in intermodal transport

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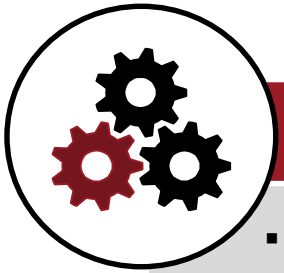
Objective

- Research of the state of intermodal transport
- Compilation of an overview regarding current fields of application and research projects
- Identification of application potentials



Methodical approach

- Conducting a systematic literature research on various topics
- Practical research / market analysis on current applications of these technologies
- Use of simulation software if interested/required

Important dates

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27.04.2022 14:30 – 16:00 Room: tba	**Kick-Off** Presentation and assignment of topics
19.05.2022 9:50 – 13:10 Room: tba	**Interim presentation/question session** Discussion of the work status
15.06.2022 Until 23:59 (via moodle)	**Submission of the term papers**
21.06.2022 14:00 – 17:00 Room: tba	**Final presentation (Day 1)** Group presentation, Q&A session and discussion
22.06.2022 14:00 – 17:00 Room: tba	**Final presentation (Day 2)** Group presentation, Q&A session and discussion
23.06.2022 10:00 – 15:00 Room: tba	**Final presentation (Day 3)** Group presentation, Q&A session and discussion

Grading of the seminar

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Group performance
- Term papers (30-40 pages)
- Presentation materials

60 % of the grade

Individual performance
- Final presentation (20 minutes per group)
- Moderation of the following discussion (20 minutes)
- Participation in the discussions

10 % of the grade

Mandatory events
- Only one group member is allowed to be absent from each session
- In case of non-participation an excuse is necessary
- Each seminar participant should present content at least at one of the appointments

30 % of the grade

Organizational Information

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Organizational information

Participants	Master students
Groupe size	3-4 students
Supervision	Prof. Dr. Ralf Elbert Chair of Management and Logistics

Contact persons

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