

Innovation in freight transport – What does the freight transport of the future look like?



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Seminar Summer Semester 2024



Quelle: Johannes Rentschler

EU plans for green, smart and affordable mobility



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10 key areas for action

- **Sustainable mobility – An irreversible shift to zero-emission mobility**
 - Boosting the uptake of **zero-emission** vehicles, vessels and aeroplanes, renewable & low-carbon fuels and related infrastructure
 - Creating zero-emission airports and ports
 - Making interurban and urban mobility healthier and more sustainable
 - **Greening freight transport**
 - Pricing carbon and providing better incentives for users
- **Smart mobility – Achieving seamless, safe and efficient connectivity**
 - Making **connected and automated multimodal mobility** a reality
 - Boosting innovation and the use of **data and artificial intelligence (AI)** for smart mobility
- **Resilient mobility – A more resilient single European transport area: for inclusive connectivity**
 - Reinforcing the single market
 - Making mobility fair and just for all
 - Step up **transport safety and security** across all modes



Source: European Commission (2021)

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Seminar focus

Policy & financial circumstances

By establishing regulatory frameworks and making strategic investments in infrastructure, policymakers can lay the groundwork for a more efficient transportation system.

- Climate targets and modal split for freight transport
- Policy measures for efficient and smart transport
- Financial circumstances in rail freight sector

Equipment & Standardization

Standardizing infrastructure, equipment, and data exchange significantly reduces the obstacles to leveraging rail freight transport.

- Innovative transshipment equipment und vehicles
- Data and information technologies
- Internet of Things (IoT)
- Smart Terminal
- Autonomous technologies

Operational Process

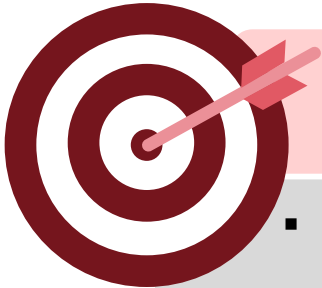
Within intermodal transport, there is a distinct emphasis on optimizing operational processes and incorporating technological advancements.

- Inter-actor communications
- Interoperability between railway systems
- Disruption management
- Robust planning strategies
- Intermodal transport

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

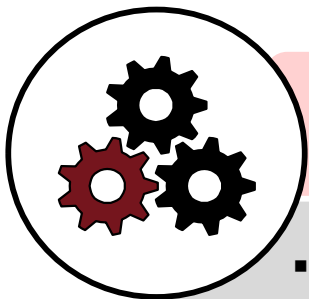


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Objective

- Analysis of the state of research on innovative concepts or technologies in freight transport
- Compilation of an overview regarding current fields of application and research projects
- Discussion of future trends



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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24.04.2024

13:00 – 14:30

Kickoff - Meeting

Presentation and assignment of topics

06.05.2024

09:00 – 17:00

Excursion

Contargo Frankfurt-Höchst + Fraport

15.05.2024

13:00 – 17:00

Interim presentation/question session

Discussion of the work status

21.06.2024

Until 23:59 (via E-Mail)

Submission of the term papers

03.07.2024

14:00 – 17:00

Final presentation I

Group presentation, Q&A session and discussion

05.07.2024

09:00 – 12:00

Final presentation II

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

Bachelor and Master students

Group size

3-4 students

Supervision

Prof. Dr. Ralf Elbert
Chair of Management and Logistics

Contact persons

Hongjun Wu
wu@log.tu-darmstadt.de

Aylin Altun
altun@log.tu-darmstadt.de