

Digital transport platforms - How new business model innovations could revolutionize the information exchange in transportation

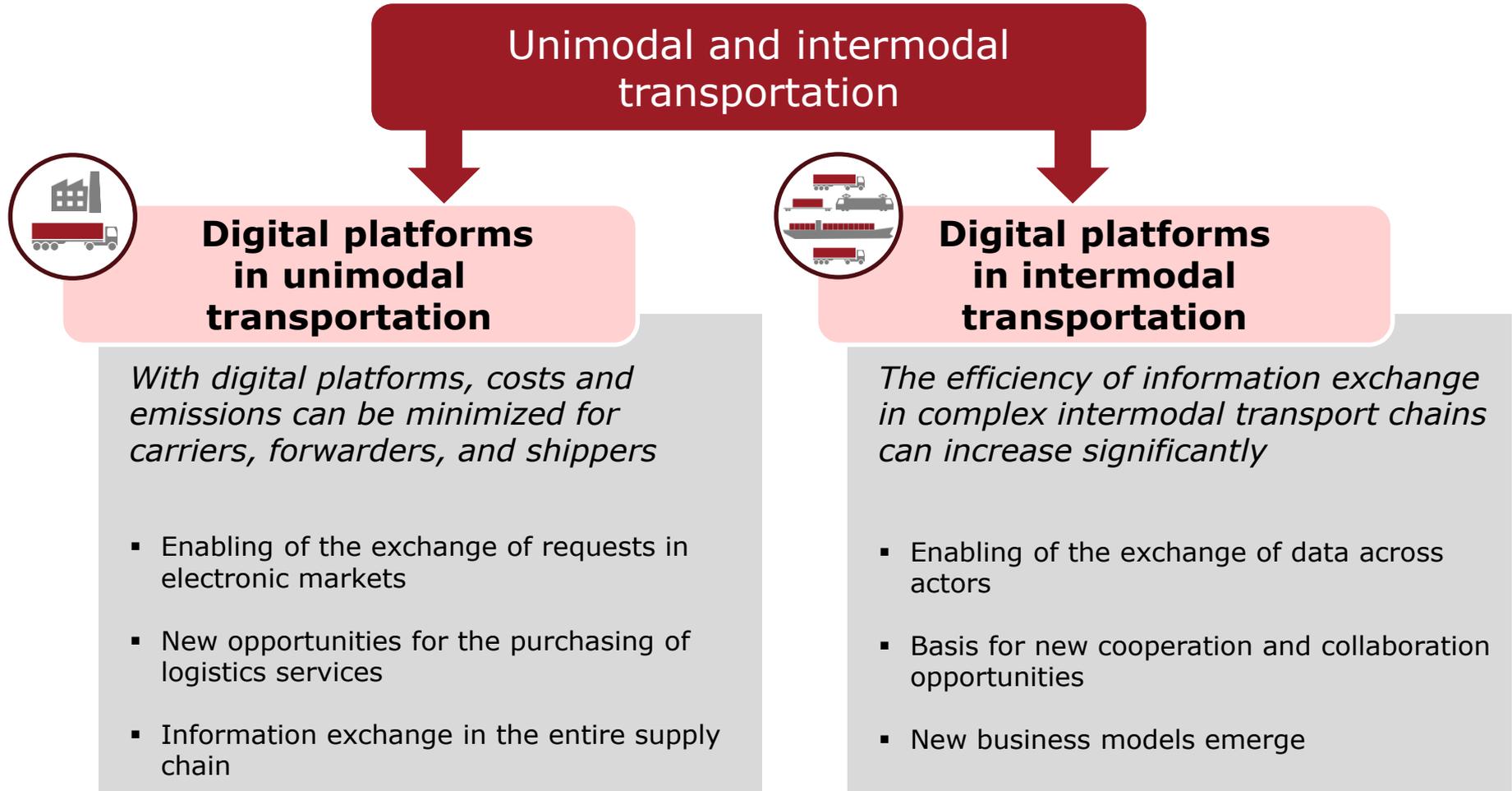


TECHNISCHE
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Bachelor and Master Seminar – Winter Semester 2022/23



Digital transport platforms have the disruptive potential to change the organization of transport chains fundamentally

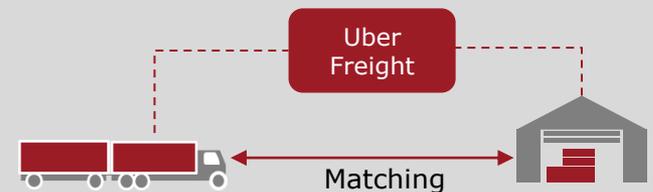


Road freight transportation offers a wide range of applications for platform-based business models

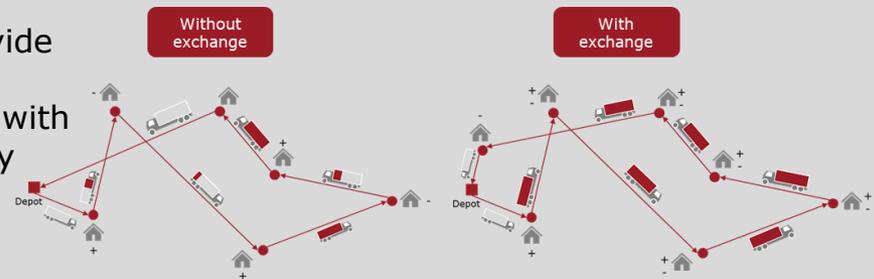
Application examples of platform-based business models in logistics

Examples: Unimodal transportation

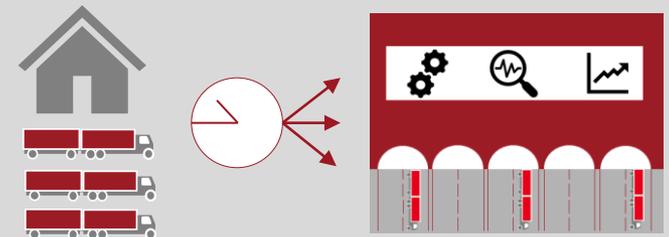
- **Uber Freight** brings customers (shippers) and providers of logistics services (like carriers or forwarders) together



- **Operators of digital platforms** like **TIMOCON** provide for carriers and forwarders the opportunity to offer their free loading space and exchange their requests with other forwarders. This leads to an avoidance of empty tours for forwarders.



- Large industrial and commercial enterprises use so-called **web-based time window management systems** from providers like **Transporeon** to optimize incoming and outgoing goods processes in their warehouses

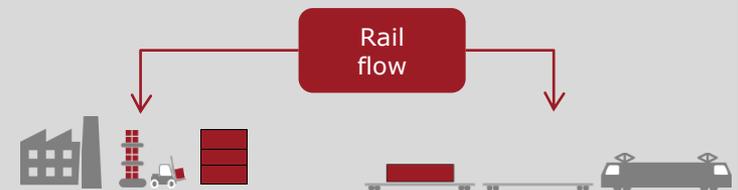


Likewise in intermodal transport, platform-based business models offer enormous potential for improvements along the transport chains

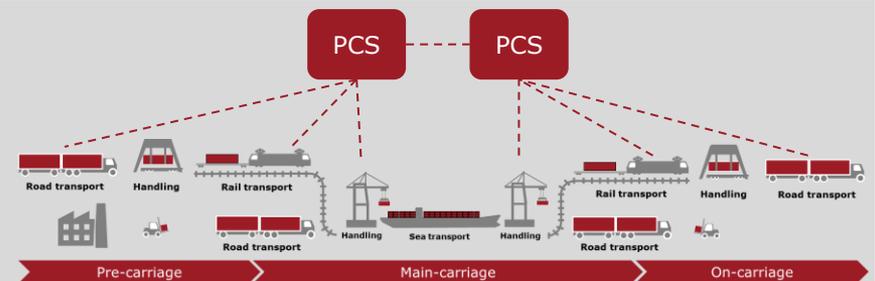
Application examples of platform-based business models in logistics

Examples: Intermodal transportation

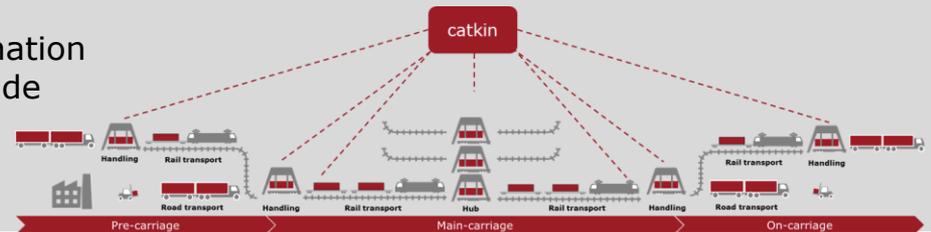
- Companies like **Modility** or **Rail flow** match the supply of intermodal-operators with the demand of forwarders and shippers



- Cargo-Community platforms** like Port Community Systems (PCS) ensure information exchange between the individual actors at the infrastructure node



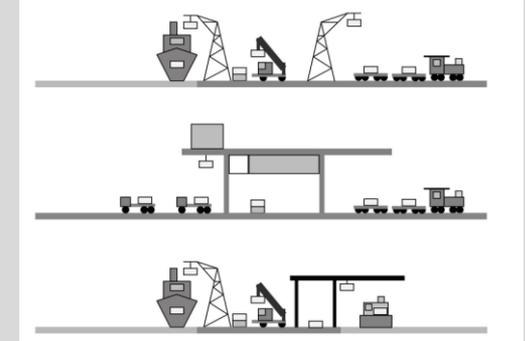
- With digital platforms like **catkin**, the flow of information along the transport chain can be centralized and made available to all actors



In intermodal transport the individual strengths of the various modes of transport are cleverly combined

Complexity of intermodal transportation

- In contrast to unimodal transport, intermodal transport requires an efficient cooperation between the different modes of transport
- The problem of connecting the different modes of transport and different services and markets is receiving a lot of attention in theory and practice
- In the intermodal transport network, vehicle routing, pick-up and delivery problems, hub location, service network design and multi-commodity flow problems are the focus of attention for solving complex planning problems



Benefits of intermodal transportation

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



The seminar explores how new business model innovations could revolutionize the information exchange in transportation

Seminar focus

New opportunities for unimodal transportation

- Which effects could an exchange of requests in an electronic market have on carriers and forwarders?
- Can new platform-based business models contribute to reduced costs and CO₂ emissions?
- Is the information exchange along entire supply chains the first step in the direction of complete automation?
- How could operators of digital platforms benefit from a complete automation of the transportation chain?

New opportunities for intermodal transportation

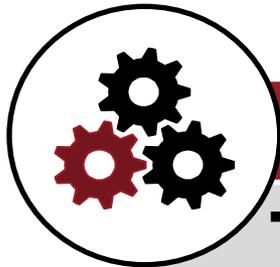
- Can the introduction of platform-based solutions effectively increase the modal shift in favor of intermodal transportation?
- Can direct network effects contribute to increasing the demand for intermodal transportation?
- How can digital platforms help to improve the availability of intermodal transportation and what effect do they have on the reduction of CO₂?
- Is the exchange of information helpful to increase the efficiency of intermodal transportation chains?

The seminar focuses on the literature-based analysis of platform-based solutions in intermodal and unimodal transportation



Objective

- Research on the state of platform-based solutions in intermodal and unimodal transport
- Compilation of an overview regarding current fields of application and research projects
- Identification of potential fields of application



Methodological approach

- Systematic literature reviews on various topics related to digital transport platforms
- Practical research/market analyses on current applications of these technologies
- Use of simulation software if interested/required

Important dates

01.11.2022

13:30–15:00

Room: S2|02 C110

Kick-Off

Presentation and assignment of topics

07.12.2022

13:30–17:00

Room: S2|15 51

Interim presentation/question session

Discussion of the work status

12.01.2023

Until 23:59 (via moodle)

Submission of the term papers

19.01.2023

09:50–13:10

HOLM

(House of Logistics & Mobility,

Bessie-Coleman-Straße 7,

60549 Frankfurt am Main)

Final presentation

Group presentation, Q&A session and discussion

Grading of the seminar

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



Organizational information

Participants

Bachelor and Master students

Group size

3-4 students

Supervision

Prof. Dr. Ralf Elbert
Chair of Management and Logistics

Contact persons

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