



RESILIENCE IN INTERMODAL TRANSPORT – HOW TO SUCCEED IN TIME OF UNCERTAINTIES?

Seminar Wintersemester 2024/25

AGENDA

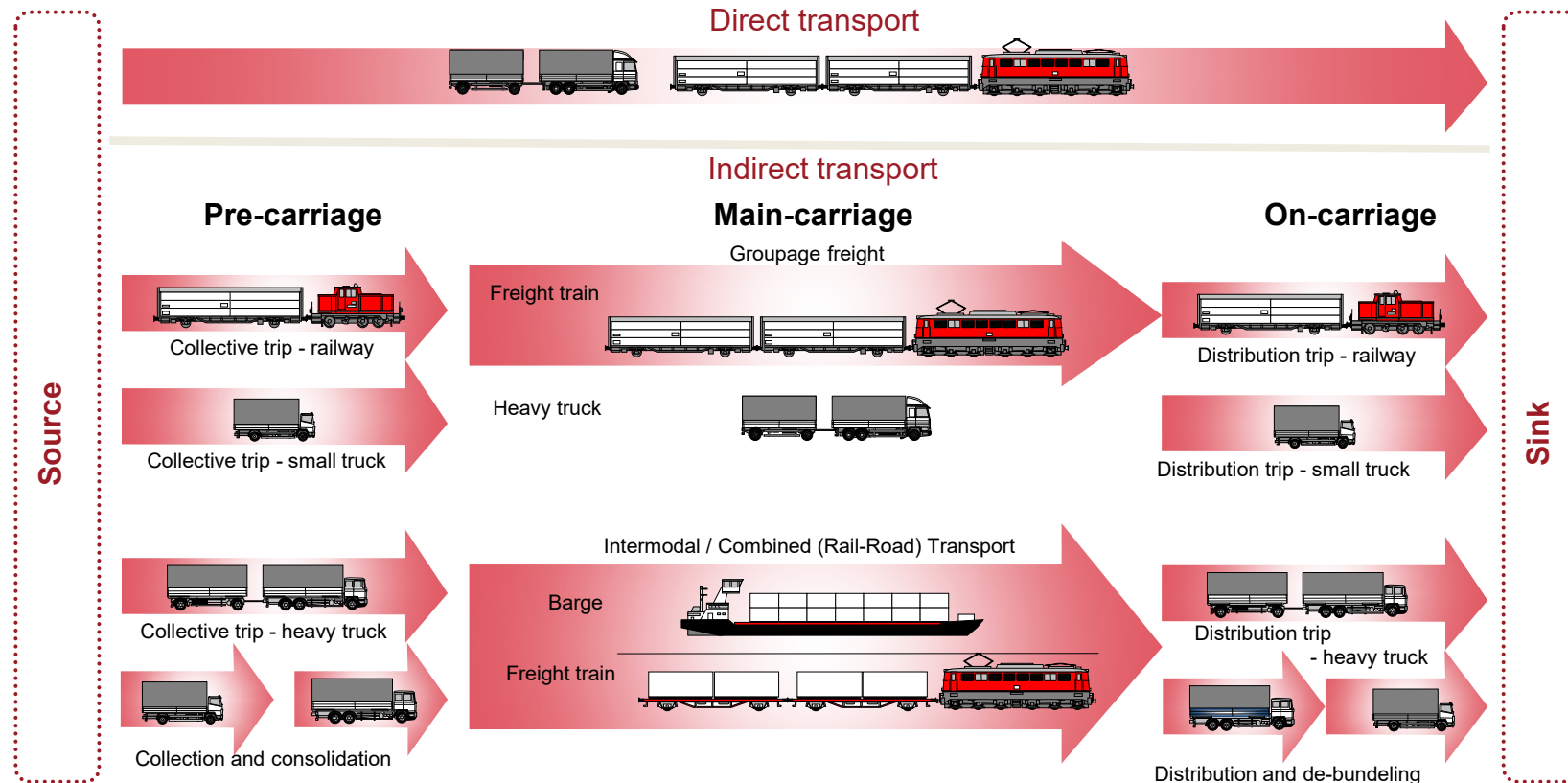
1. Introduction of the contents of the seminar

2. Elements of the final grade

3. Scientific Writing

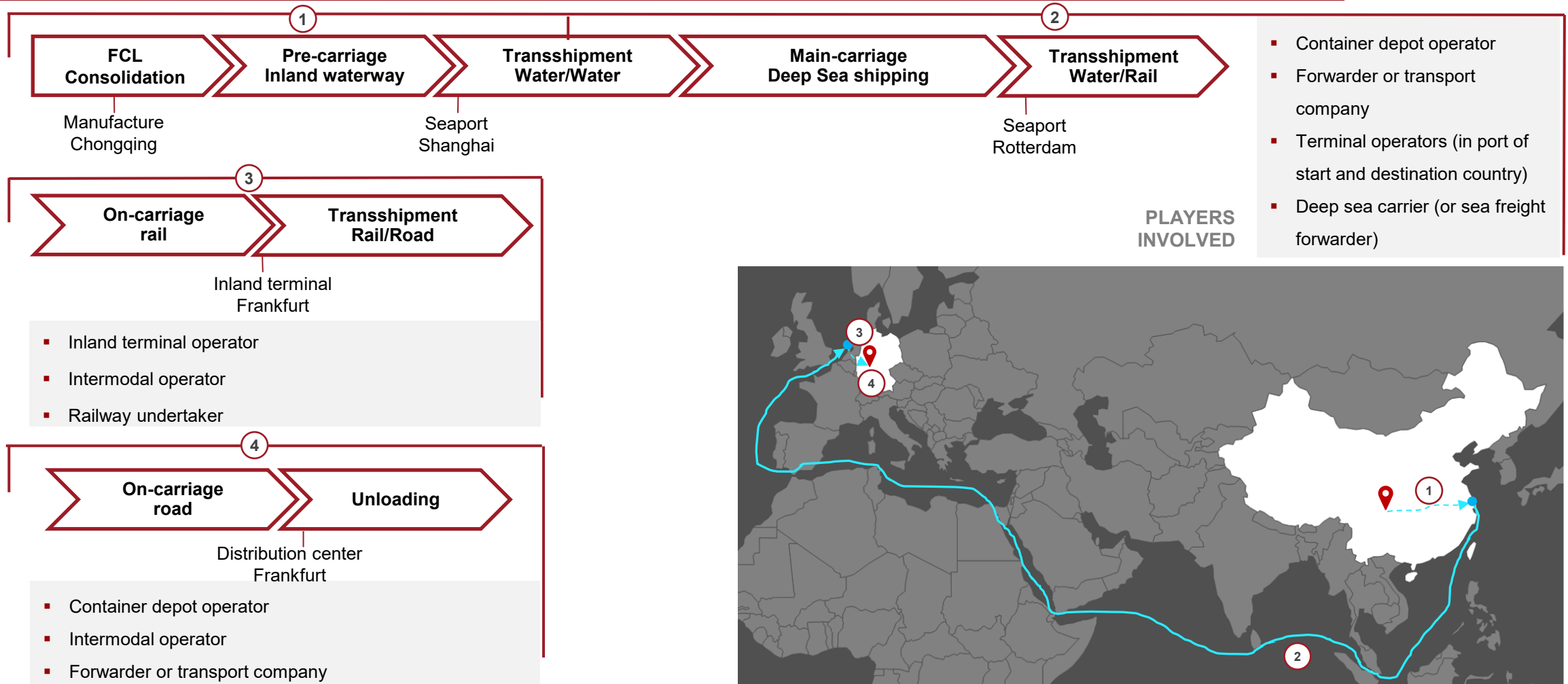
4. Seminar organization and topic assignment

TYPES OF FREIGHT TRANSPORT



► **Transport chain according to DIN 30781:** The transport chain is the result of technically and organizationally linked processes in which persons or goods are moved from a source to a destination.

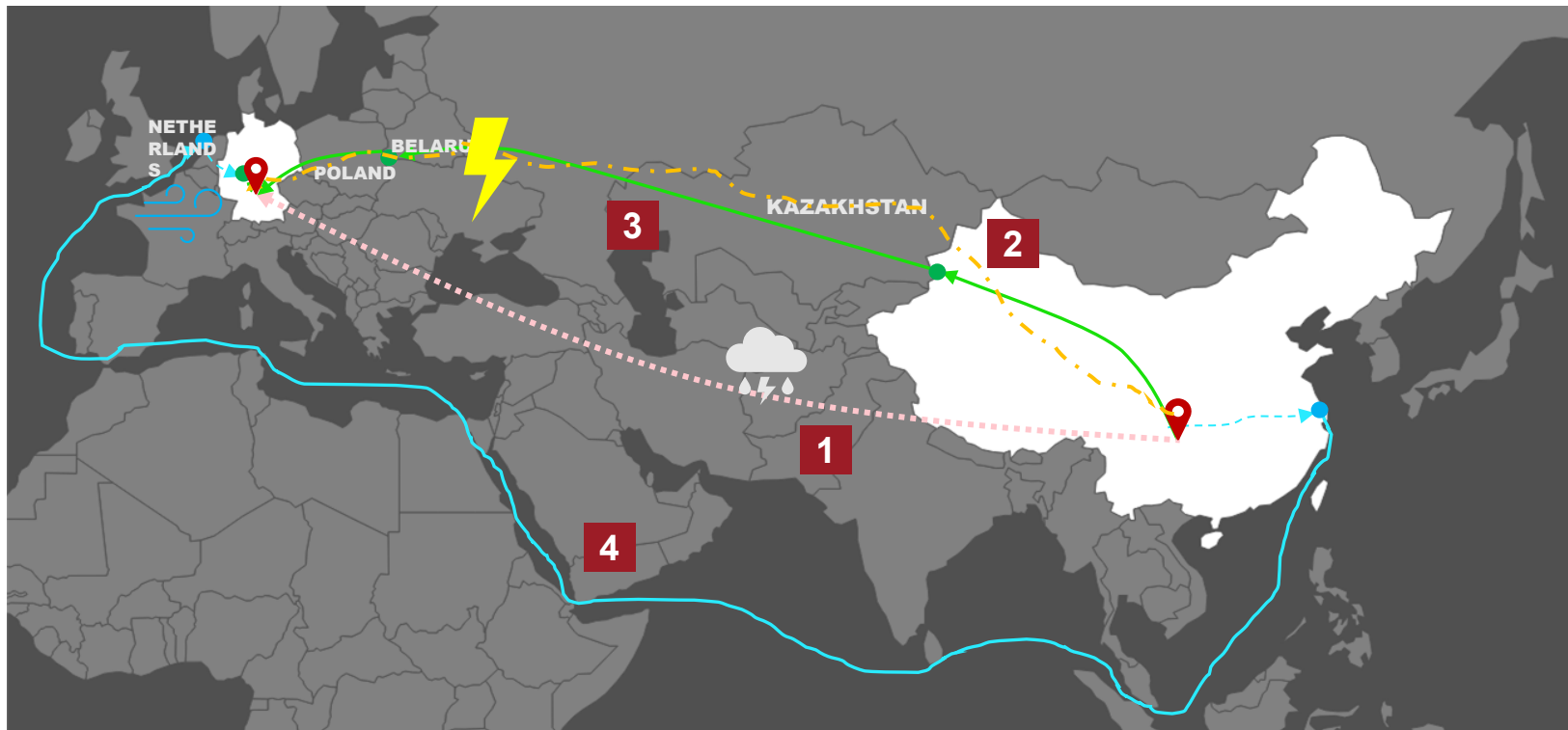
TRANSPORT CHAIN FOR COMPONENTS FROM CHINA VIA ROTTERDAM TO GERMANY



SEVERAL ALTERNATIVES FOR AN INTERCONTINENTAL TRANSPORT FROM CHINA TO GERMANY, BUT POLITICAL SITUATION IN UKRAINE MAKES THE PLANNING DIFFICULT

- Planning is further complicated by potential bottlenecks and blockages. These can include disruptions like congestion at ports, construction work on rail freight corridors, and delays in hinterland transport, but also caused by weather and impacts of climate change.

Possible alternatives for an intercontinental transport chain



CAPACITY PLANNING OF RAIL FREIGHT SHOULD CONSIDER POSSIBLE UNFORESEEN EVENTS



Increasing freight volume causes capacity issues in logistics

- The logistics and transport industry faces multiple challenges today. The capacity limit of the infrastructure has already been reached.
- At the same time, it is expected that the freight volume will increase even more in the next years.
- Shifting freight transport to more climate-friendly transport modes such as rail is considered to be particularly socially relevant.



Image by GreenOak's Images

Resilience must be considered in capacity planning due to unforeseen events

- Unexpected events, such as accidents or natural disasters, can disrupt continental transport chains and potentially cause significant economic damage.
- Current events such as the construction accident and the two-month closure of the Oberrhein track show that intermodal transport chains are reacting very sensitively, and high follow-up costs are occurring.
- Also, not many companies, such as haulers, are prepared for such events, mainly due to limited resources.



Image by BalazsKovacs, Getty Images Pro

RESILIENCE IN INTERMODAL TRANSPORT – HOW TO SUCCEED IN TIME OF UNCERTAINTIES?

Seminar focus

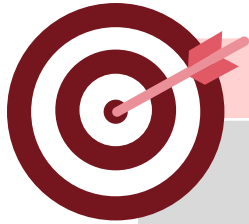
Necessary data for flexible planning in intermodal transport

- Which data are necessary to react flexibly to unforeseen events along the intermodal transport chain?
- How can data be shared in the intermodal transport chain with the stakeholders for better coordination?
- How can historical data be used to predict future demand and optimize capacity utilization as stakeholders considering possible unforeseen events?

Impact of unforeseen events on stakeholders for their planning

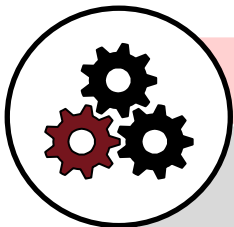
- How can resilient and dynamic tour planning in the pre- and post-haulage be designed in case the main haulage is disrupted?
- How do logistics companies integrate resilience into their business models?
- How differently do logistics companies in freight transport and package delivery prepare for unforeseen events?
- How can terminals adjust their capacities in case of unforeseen events, and what risks are they carrying?

THIS SEMINAR DEALS WITH DIFFERENT PERSPECTIVES OF RESILIENCE IN INTERMODAL TRANSPORT



Objective

- Overview and analysis of the state of research on improving the resilience of intermodal transport
- Compilation of an overview regarding current fields of application and research projects
- Identification of application potentials



Methodical approach

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

FOCUS 1: DATA & PLANNING

Data & Planning

- Topic 1: Resilience in Transport Logistics – Research Agenda and current Topics (Bachelor)
- Topic 2: Data in intermodal Transport Chains for efficient and resilient Transport Planning (Bachelor)
- Topic 3: Data Sharing in Intermodal Transport for improving efficiency (Bachelor)
- Topic 4: Leveraging Historical Data for Demand Forecasting and Capacity Optimization Amid Unforeseen Events (Master)

FOCUS 2: IMPACT & MITIGATION

Impact & Mitigation

- Topic 5:** Simulation-Based Analysis of Terminal Processes for Dynamic Delay Mitigation (Master)
- Topic 6:** Resilience in Tour Planning - Disruption of Transport Chains in E-commerce Supply Chains (Master)
- Topic 7:** Business Models in Logistics Companies – How to consider the Aspect of Resilience (Master)
- Topic 8:** Capacity Adjustments in Terminals During Unforeseen Events: Risks and Mitigation Strategies (Master)

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ELEMENTS OF THE FINAL GRADE

Individual performance

- Term paper (10 pages per person)
- Interim/final presentation (15/20 minutes per group)
- Moderation of the following discussion (10 minutes per group)
- Participation in the discussions

60 % of the grade

30 % of the grade

Group performance

- Presentation materials

10 % of the grade

Mandatory events

- In case of non-participation, an excuse is necessary

GRADING OF THE WRITTEN WORK (TERM PAPER)

- **Requirements for the work (degree of difficulty)**
Existing preparatory work
- **Structure of the work**
Central theme of the elaboration, comprehensibility of the argumentation
- **Style of the work**
Readability, clarity, expression and orthography, citation
- **Procedure/Substance**
Use of scientific methods, significance
- **Transfer performance**
Development of approaches, results processing, and conclusions/discussion

Please indicate at the **start of each chapter** of the **term paper** with a **footnote** the **contribution** of the **individual group members**. → Contribution List

EVALUATION OF THE PRESENTATION PERFORMANCE

- **Content of the oral performance**
Comprehensible and logically structured free speech
- **Time allocation**
- **Reference to the presentation document and media usage**
Inclusion of the slides, use of the pointer
- **Rhetoric**
Free speech, language style, addressing the audience, comprehensibility
- **Body language**
Presence of the speaker (posture, eye contact, gestures, facial expressions, tone and angle to the audience)

Each seminar participant should present content at both appointments (interim/final presentation).



EVALUATION OF THE SUBSEQUENT MODERATION OF THE DISCUSSION

- **Preparation of suitable connection points**
Follow-up questions, possibility for group involvement
- **Preparation of back-up slides**
- **Content input for discussion**
Answering further questions

GRADING OF THE PRESENTATION DOCUMENT

- **Contents of the presentation**

- Introduction
- Result presentation and discussion using scientific methods
- Conclusion

- **Requirements for the presentation document**

- Structured and concise presentation of the subject area
- Presentation-appropriate processing and prioritization of the subject matter
- Form of visualization of the content (appropriate use of pictures, graphics etc.)
- Formal requirements (references as well as spelling and punctuation)

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SCIENTIFIC WRITING

Slide set is available in the Moodle course:

1. What is Scientific Writing?

2. Structure and Composition

3. Literature and Source Search

4. Writing of a Literature Review

5. Format Template

6. Citation Methods

TIPS FOR A SUCCESSFUL SEMINAR PAPER – EXEMPLARY OUTLINE (I/II)

1) Introduction

- Explanation of the motivation to deal with the subject
- Writing a problem statement, e.g. with the representation of past and current developments in relation to the subject
- Goal of the writing and formulation of the research question
- Procedure for answering the research question (composition of the writing)

2) Theoretical Framework

- Review of the relevant literature of the subject area
- Describe the general context and the exact object of study

3) Methodology

- Describe the methods used to answer the research question
- Explanation for the selection of the methods

TIPS FOR A SUCCESSFUL SEMINAR PAPER – EXEMPLARY OUTLINE (II/II)

4) Application of the method to the object of study

- Apply the selected method to your object of study
- Discussion of the results in terms of applicability of the method and answering the research question

5) Conclusion and outlook

- Summarize the seminar writing and, especially, the answer to your research question
- Formulate a critical reflection of your results
- Give an outlook on subsequent research

TIPS FOR A SUCCESSFUL SEMINAR PAPER – GENERAL INFORMATION

1) Pay attention to the "Red Thread" of your writing

- Provide a definitional framework for the subject and explain the method and terminology used in your writing
- Make your approach meaningful and argumentatively comprehensible
- Partial findings of the writing are to be taken up and further developed in the following chapters

2) Formalities in writing the paper

- Always base your arguments on reliable literature sources, considering the rules of citation
- You are allowed to make your own assumptions! However, justify how you arrive at the assumptions
- Do not write subjectively, i.e. phrases like "I think" are taboo
- Present your results - if possible - in tabular or graphical form
- Use of the TU fonts

SOURCES

▪ Libraries:

- ULB Darmstadt (www.ulb.tu-darmstadt.de)
- Deutsche Nationalbibliothek Frankfurt (www.dnb.de)
- Hebis portal for interlibrary lending via ULB Darmstadt (<https://www.hebis.de/>)

▪ Databases:

- Web of Science (webofknowledge.com)
- EbscoHost (search.ebscohost.com)
- Science Direct (www.sciencedirect.com)
- Emerald (<https://www.emeraldinsight.com/>)
- Scopus (www.scopus.com) → no more access since 2019
- Springerlink (<https://www.emeraldinsight.com/>)
- CiteSeer (<http://citeseer.ist.psu.edu>) → Literature database for the field of computer science
- Wiso (www.wiso-net.de) – rather practice-oriented
- DBIS as well as further online offers of the ULB

▪ Access:

- Through Electronic Journals Library (<http://rzblx1.uni-regensburg.de/ezeit/fl.phtml?bibid=TUD>)

SEARCH METHODS

Systematic search

- Systematic search involves searching databases, library catalogues, and journals using meaningful keywords, and obtaining works associated with those keywords.
- It is also useful to search for synonyms (thesaurus) of the keywords to increase the probability of matches.

Snowball system

- In the snowball system, you need an existing source as a starting point (e.g., an essay, a lecture note or a book). By looking at the references of the respective starting point, you can identify other promising texts, which in turn have further sources.

CITATION METHODS

Footnotes

- Widespread in Business Management in Germany
- Author-year citation:
Mustermann, Max (1984) A Samplettitle as sample. Samplecity: Samplepublisher
- The reading flow is not disturbed by additional information
- There is also sufficient space for comments on the short reference

In-Text

- Widespread in English-language journal articles
- Author-year or numbered short reference
- The information to the source is directly linked to the content

Use only one of them!

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IMPORTANT DATES

15.10.2024

10:30 – 12:00

Kickoff - Meeting

Presentation and assignment of topics

01.11.2024

7:30 – 15:00

Excursion

Amazon Logistics Weiterstadt, DUSS Terminal Frankfurt

12.11.2024

14:00 – 17:00

Interim presentation/question session

Discussion of the work status

19.12.2024

Until 23:59

Submission of the term papers

via E-Mail

22.01.2025

13:30 – 16:00

Final presentation I

Group presentation, Q&A session and discussion

23.01.2025

09:00 – 15:00

Final presentation II

Group presentation, Q&A session and discussion

EXCURSION ON NOVEMBER 1ST 2024

Schedule

- 7:20am Meeting point: Bus stop at Darmstadtium
- 7:30am Departure in Darmstadt
- 8:00am – 11:00am Amazon Logistics Weiterstadt
- 11:00am – 2:20pm DUSS Terminal Frankfurt East



Dresscode: Business Casual (nevertheless, please keep yourself warm at the terminal!)

Sturdy Shoes (no ballerinas, sandals, pumps/high heels etc.)

Please keep in mind that no meals will be provided during the excursion. For that, please take your own food and beverages!

PROCEDURE FOR TOPIC ASSIGNMENT

- The seminar writings are worked on in groups of 3 – 4
- The **topics** have already been **introduced** to you by the supervisors. On the next slide, we will show you an overview that you can use to help you choose a topic.

In the Moodle course, group selection will be start on 15.10. at 6 pm. First come, first served will be used here. Selection closes on 17.10. 23:59. Missing in the selection process leads to deregistration and your place will be given to another student on the waiting list.

- **Distinction in Bachelor and Master topic**
- **You cannot change the selection. If you want to swap the group, find a swap partner from another topic and write an email to the supervisor.**

GROUPING

No.	Topic		Supervisor
1	Resilience in Transport Logistics – Research Agenda and current Topics	Bachelor	Kajiyama
2	Data in intermodal Transport Chains for efficient and resilient Transport Planning	Bachelor	Kajiyama
3	Data Sharing in Intermodal Transport for improving efficiency	Bachelor	Tang
4	Leveraging Historical Data for Demand Forecasting and Capacity Optimization Amid Unforeseen Events	Master	Tang
5	Simulation-Based Analysis of Terminal Processes for Dynamic Delay Mitigation	Master	Tang
6	Resilience in Tour Planning - Disruption of Transport Chains in E-commerce Supply Chains	Master	Kajiyama
7	Business Models in Logistics Companies – How to consider the Aspect of Resilience	Master	Kajiyama
8	Capacity Adjustments in Terminals During Unforeseen Events: Risks and Mitigation Strategies	Master	Tang



INTERIM PRESENTATION

Date: Tuesday, **12.11.2024** from 14:00 to 17:00

Place: S306/052

Content of the interim presentation :

- 1) Title
- 2) Initial situation
- 3) Problem statement
- 4) Objective of the work (research questions)
- 5) Structure of the work

Time frame: 15-20 Minutes per group
(Presentation and discussion)





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