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Logistics Master Degree to set specialists for Supply Chain Management and Logistics

LOGMASTER

Education in Logistics and SCM

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WP3 – Digital Education in Supply Chain Management and Logistics

On Track and Water: Eastern Europe's Sustainable Freight Path - Case Study

Teaching Note

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Index

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DIDACTIC UNIT

UNIT TITLE: *On Track and Water: Eastern Europe's Sustainable Freight Path - Case Study*

Presentation

This teaching note accompanies the Emissions Story: Logmaster Case Study, designed to facilitate an understanding of sustainable logistics and intermodal transport in the context of European freight transport. It focuses on analyzing the cost-effectiveness and environmental benefits of shifting container shipments from road transport to rail and inland waterways.

Objective

To equip students with the skills to analyze and implement sustainable transport solutions by:

1. Evaluating cost and emissions trade-offs between transport modes.

2. Applying real-world frameworks (e.g., the GLEC Framework) for emissions calculations.

3. Developing a persuasive business case for sustainable logistics strategies.

Target Group

Master's students specializing in Logistics, Supply Chain Management, Business, or Industrial Engineering. Suitable for EQF Level 7 as per the European Logistics Association Qualifications Framework.

Syllabus/Indicative content

1. Overview of transport modes and their environmental impact.
2. Intermodal and multimodal transport concepts.
3. Calculation of transport costs and emissions for road, rail, and inland waterways.
4. Strategic decision-making for sustainable transport.
5. Real-world application of frameworks like the GLEC for emissions analysis.

Learning Outcomes

Upon completion, students will be able to:

1. Identify and evaluate appropriate freight transport modes.
2. Implement intermodal transport strategies to optimize costs and sustainability.
3. Use emissions calculation frameworks to quantify environmental benefits.
4. Develop strategic recommendations to align with sustainability goals.

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Tasks

Students will:

1. Conduct cost comparisons between road, rail, and inland waterway transport.
2. Perform emissions calculations using the GLEC Framework.
3. Draft a data-driven business case, including a SWOT analysis.
4. Present findings and recommendations in a professional format.

Structure

- Synchronous Activities: Interactive lectures and group discussions on transport sustainability.
- Asynchronous Activities: Independent research and application of provided datasets and frameworks.
- Deliverables: Presentation of findings and submission of a written business case.

Student Workload (Hours)

• Contact Time Total • Independent Learning Time	4 Hours 7 Hours per person
Total Learning Hours	**11 Hours**

Organization

The students will be divided into groups of up to 5 people, with the optimal grouping being in groups of 3.

Each group of students will be provided with the case study narrative and a distinct Excel data sheet, ensuring that each group receives unique data while following the same set of instructions. There will be 5 groups, so 5 different data Excel sheets.

Evaluation

Students will be assessed on:

1. Accuracy and depth of cost and emissions analyses.
2. Quality and feasibility of the business case.
3. Presentation clarity and professionalism.

Additional Information

• Encourage the use of visualization tools such as Tableau or PowerBI for presenting data.

• Provide links to supplementary materials, such as the GLEC Framework and EU transport policies.

Essential Reading

1. “Transportation: A Global Supply Chain Perspective” by John J. Coyle et al. (2015)

2. “Intermodal Freight Transport” by David Lowe. (2005)
3. “Green Logistics” by Alan McKinnon et al. (2010)
4. “The GLEC Framework for Logistics Emissions Accounting and Reporting” by Smart Freight Center. (2023)

Appendix: Case Study Teaching Plan

Session 1: Introduction to Case Study (2 hours)

- Overview of intermodal transport and sustainability challenges.
- Case briefing: Key objectives and deliverables.

Session 2: Cost Analysis Workshop (4 hours)

- Breakdown of cost calculation methods for road, rail, and waterways.
- Group activity: Identify cost-effective modal shifts.

Session 3: Emissions Analysis Workshop (4 hours)

- Introduction to the GLEC Framework.
- Group activity: Calculate emissions for different transport modes.

Session 4: Business Case Development (2 hours)

- Guidance on structuring a compelling business case.
- Drafting a SWOT analysis and visualizations.

Session 5: Presentations (2 hours)

- Student presentations with peer and instructor feedback.
- Discussion on strategic implications for EcoTrans Logistics.