Master-Seminar OSCM (MA-OSCM 5)

Topic: Supply Chain Planning (in cooperation with EY)

Prof. Dr. Guido Voigt, Logistics and Supply Chain Management

The seminar can be credited for the module MA-OSCM5 as part of the master's degree program in Business Administration (M. Sc.). In order to obtain the credits, the successful preparation and presentation of a seminar paper is necessary in the seminar.

The seminar covers topics surrounding **supply chain planning**. The seminar is done **in cooperation with the Supply Chain consulting area of EY** (https://www.ey.com/de_de). Specifically, consultants of EY will be present at the presentation of the seminar papers and contribute to the discussion with real-world insights. Academic supervision is carried out by colleagues at the Institute of Logistics and Supply Chain Management.

Please note the following information on how to prepare seminar papers on our website:

https://www.bwl.uni-hamburg.de/en/lscm/lehre/abschlussarbeiten/dokumente/hinweise-eng.pdf

The kick-off meeting will take place in person for all participants on Wednesday, July 8th, 2026 from 5 p.m. to 7 p.m. in room **E0005.1** (Moorweidenstr. 18). Topics are assigned after a joint preliminary discussion. If multiple students express interest in the same topic, allocation will be determined by random selection.

Deadline for all seminar papers: Friday, October 23rd, 2026

The papers must be submitted electronically via e-Mail: lscm.bwl@uni-hamburg.de. All seminar participants must submit an independent seminar paper. The language of the seminar papers is English.

The presentations will take place in room tba on the following days:

Friday, November 6th 2026, 3-9 pm
Saturday, November 7th, 2026, 9 am – 7 pm
Sunday, November 8th, 2026, 9am – 1pm

Each topic is scheduled for 90 minutes, of which 45-60 minutes (depending on the number of participants per topic) are reserved for the presentation and the remaining time for discussion.

Attendance and active participation in all seminar dates is mandatory.
Please discuss further details about the presentations with your supervisors. Please note that the supervision of your work during the lecture-free period must be well coordinated in advance due to any periods of absence.

Topics

1. Behavioral Forecasting

Goodwin, P., Moritz, B. and Siemsen, E. (2018). Forecast Decisions. In K. Donohue, E. Katok and S. Leider (Eds.) The Handbook of Behavioral Operations, Wiley & Sons, 433–458. https://doi.org/10.1002/9781119138341.ch12

- Summarize the main behavioral phenomena in demand forecasting discussed in the chapter.
- Review selected empirical/experimental papers from the chapter's references and illustrate their key results with intuitive, practice-oriented examples.
- Present one focal paper in detail (research question, method, main findings, and managerial implications for forecasting processes).
- Discuss how these behavioral effects can distort S&OP.

2. Sales and Operations Planning (S&OP) processes

Thomé, A. M. T., Scavarda, L. F., Fernandez, N. S., & Scavarda, A. J. (2012). Sales and operations planning: A research synthesis. International Journal of Production Economics, 138(1), 1–13. https://doi.org/10.1016/j.ijpe.2011.11.027.

- Structure the S&OP process (cycle, roles, typical planning objects) based on the review and position it within the planning hierarchy (strategic – tactical – operational).
- Implement a simplified S&OP planning problem (e.g., multiple periods, production capacities, inventory, backlogs) as a linear program.
- Perform sensitivity analyses and discuss trade-offs between service level, costs, and inventories.

3. Trust and trustworthiness in forecast sharing

Özer, Ö. and Zheng, Y. (2018). Trust and Trustworthiness. In K. Donohue, E. Katok and S. Leider (Eds.) The Handbook of Behavioral Operations, Wiley & Sons, 489–523. https://doi.org/10.1002/9781119138341.ch14

- Review the literature on forecast sharing in supply chains
- Take one of the identified studies and present it in detail.
- Discuss the role forecast sharing in S&OP (see also Scheele et al. 2018)

4. LLMs and Decision Biases in Operations Mangement (and beyond)

Chen, Y., Kirshner, S. N., Ovchinnikov, A., Andiappan, M., & Jenkin, T. (2025). A manager and an AI walk into a bar: Does ChatGPT make biased decisions like we do? Manufacturing & Service Operations Management, 27(2), 354–368.

- Summarize the main research question, method, and key findings of the paper.
- Discuss relevant use cases of LLMs in supply chain planning and their limitations.
- Recreate one or more tasks from the paper and compare the results with newer LLM versions.
- Derive managerial implications for using LLMs in supply chain planning.

5. Multi-Echelon Inventory Management

Eruguz, A.S., Sahin, E., Jemai, Z. and Dallery, Y., (2016). A comprehensive survey of guaranteed-service models for multi-echelon inventory optimization. International Journal of Production Economics, 172, ~~pp.~~110–125.

- Motivation and purpose: Analyze why companies use Guaranteed-Service Models in multi-echelon settings and discuss alternative modeling approaches.
- Model and solve a self-chosen multi-echelon scenario to demonstrate the logic of the GSM and the allocation of inventory.
- Derive at which nodes in the network safety stocks should be placed depending on lead times and demand variability.

6. Schedule Nervousness in Supply Chain Planning

Pujawan, I. N. (2004). Schedule nervousness in a manufacturing system: A case study. Production Planning & Control, 15(5), 515–524. https://doi.org/10.1080/0953728041000172632

- Define and measure schedule nervousness based on Pujawan's (2004) case study, and place it in the context of MPS/MRP.
- Analyze different sources of planning nervousness (e.g., rolling planning horizons, lot-sizing decisions, forecast errors, capacity uncertainty, and lead-time uncertainty).
- Compare and critically assess different strategies to dampen nervousness (e.g., freezing, change-cost approaches, forecasting beyond the planning horizon) together with the practices discussed in the case study.
- Discuss the managerial implications for production planning and control

7. Supply Chain Resilience

Tukamuhabwa, B. R., Stevenson, M., Busby, J., & Zorzini, M. (2015). Supply chain resilience: definition, review and theoretical foundations for further study. International Journal of Production Research, 53(18), 5592–5623. https://doi.org/10.1080/00207543.2015.1037934

- Summarize key concepts and definitions of supply chain resilience in Tukamuhabwa et al. (2015).
- Follow-up on further research in this domain.
- Classify and discuss the main resilience strategies identified in the article (e.g., flexibility, redundancy, collaboration, agility), and analyze their synergies and trade-offs (risk migration, efficiency vs. resilience).
- Pick one of the strategies, discuss it in greater detail.
- Based on this strategy: Develop a simple planning or simulation model (e.g., a small supply network with disruption scenarios) that illustrates one or two key trade-offs of the strategy you discussed in greater detail.

8. Sustainable supply chain planning

Brandenburg, M., Govindan, K., Sarkis, J., & Seuring, S. (2014). Quantitative models for sustainable supply chain management: Developments and directions. European Journal of Operational Research, 233(2), 299–312.

- Summarize key concepts and definitions of sustainable supply chain management (SSCM) in Brandenburg et al. (2014), with a focus on the triple bottom line (economic, environmental, social) and how these objectives are integrated into quantitative planning models.
- Follow-up on further research in this domain.
- Classify and discuss the main types of quantitative models identified in the article (e.g., network design, production and inventory planning, transport models, multi-objective optimization) and explain how they capture sustainability-related trade-offs (cost vs. emissions, cost vs. social impact, etc.).
- Pick one modeling stream or mechanism (e.g., multi-objective network design with emission constraints, carbon-aware lot-sizing, or closed-loop/ reverse logistics design) and discuss it in greater detail, including typical decision variables, constraints, and sustainability indicators used.
- Based on this modeling stream: Develop a simple planning or simulation model (e.g., a small sustainable supply chain network) that illustrates one or two key trade-offs of the approach you discussed in greater detail, and analyze the managerial implications.

9. Digital Twins and supply chain planning

VanDerHorn, E., & Mahadevan, S. (2021). Digital Twin: Generalization, characterization and implementation. Decision Support Systems, 145, 113524. https://doi.org/10.1016/j.dss.2021.113524

- Summarize the Digital Twin definition and key characteristics in VanDerHorn & Mahadevan (2021) and contrast them with classic digital models or simulations.
- Review Digital Twin use cases in supply chain and logistics.
- Select one logistics or supply chain use case and describe it in more detail. Check whether the Digital Twin definition and qualifiers are fulfilled.
- Identify one use case marketed as a “digital twin” which, according to the article, is not. Justify why.
- Provide a brief overview of major commercial Digital Twin providers.

10. The Bullwhip-Effekt: Empirical Findings

Singhal, V., & Wu, J. (2024). The bullwhip effect and stock returns. Production and Operations Management, 33(1), 303–322. https://doi.org/10.1177/10591478231224936

Baron, O., Callen, J. L., & Segal, D. (2023). Does the bullwhip matter economically? A cross-sectional firm-level analysis. International Journal of Production Economics, 259, 108814. https://doi.org/10.1016/j.ijpe.2023.108814

- Summarize the research question, data, bullwhip measure (amplification ratio), and key findings of Singhal & Wu on the link between bullwhip and stock returns.
- Root the discussion in the extant Bullwhip-Effect literature.
- Explain the main difficulties of empirically analyzing the bullwhip effect.
- Explain the conceptual model: how bullwhip is expected to affect operational performance (inventory, stockouts, capacity, margins) and, via cash flows and risk, stock prices.
- Discuss possible reasons why the papers finds little or no negative effect of bullwhip and derive managerial takeaways.
- Note: the main focus is not expected to lie on the econometric models, but rather on the conceptual aspects and management implications.

11. Integration of E-Commerce and Omnichannel into Supply Chain Planning

Hübner, A., Wollenburg, J., & Holzapfel, A. (2016). Retail logistics in the transition from multi-channel to omni-channel. International Journal of Physical Distribution & Logistics Management, 46(6/7), 562–583. https://doi.org/10.1108/IJPDLM-08-2015-0179

Hübner, A., Holzapfel, A., & Kuhn, H. (2016). Distribution systems in omni-channel retailing. Business Research, 9(2), 255–296. https://doi.org/10.1007/s40685-016-0034-7

- Summarize the key concepts of omni-channel retailing.
- Describe the proposed typologies and archetypes for omni-channel distribution (forward and backward flows) and warehouse/network structures.
- Discuss sector-specific characteristics (e.g., fashion, DIY, electronics) highlighted in the paper.
- Review the quantitative (operations research) literature on integrated vs. separated Distribution Centers in omni-channel networks.
- Exemplify the role of inventory pooling with an own example.

12. Platforms-based logistics

Atasoy, B., Schulte, F., & Steenkamp, A. (2020). Platform-Based Collaborative Routing Using Dynamic Prices as Incentives. Transportation Research Record, 2674(10), 670–679. https://doi.org/10.1177/0361198120935116

- Review the current literature on platforms in logistics and give an updated market overview.
- Summarize the problem setting, model, and key results of Atasoy et al. (2020). In particular, explain how the objectives of the platform (minimizing payments) and the carriers (maximizing profit) are modeled and balanced through dynamic prices and individual rationality.
- Implement a small illustrative pickup-and-delivery example comparing three scenarios: no collaboration, collaboration with static prices, and collaboration with dynamic prices plus individual rationality.
- Discuss managerial implications for freight platforms (e.g., Uber Freight, Quicargo)