Information for seminar participants from Prof. Dr. Guido Voigt (Seminar M.Sc.)

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

https://www.bwl.uni-hamburg.de/lscm/lehre/abschlussarbeiten/dokumente/hinweise-seminar-und-abschlussarbeiten.pdf
(currently only available in German. English version will follow soon)

The kick-off meeting will take place in person for all participants on Tuesday, July 9th, 2024 from 6 p.m. to 7 p.m. in room 2029 (Moorweidenstr. 18). Topics are assigned following the joint preliminary discussion. If there are several interested parties per topic, it will be decided by lot.

Deadline for all seminar papers: Monday, November 18th, 2024

The papers must be submitted once in a single stapled form and electronically. Submission is possible from 9 a.m. to 12 p.m. or 1 p.m. to 3 p.m. in the institute's secretariat (room 2011). The digital copy must be sent by email to Ira Widderich, 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 2029 on the following days:

Friday, December 6th 2024, 4-8 p.m
Saturday, December 7th, 2024, 9 a.m. – 6 p.m
Sunday, December 8, 2024, 9 a.m. to 6 p.m

Each topic is scheduled for one hour, of which 40 minutes are reserved for the presentation and 20 minutes for discussion.

Attendence 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. Please arrange appointments well in advance

Topics:

1. **Unauthorized Subcontracting in Supply Chains**
   Although subcontracting is a common business practice, it's unauthorized used can cause issues to the supply chain transparency and subsequently sustainability. The econometric model proposed in this study to counteract this practice should be understood and illustrated by an example with a synthetic dataset which will be provided.

   Literature: Caro, F., Lane, L., & Sáez de Tejada Cuenca, A. (2021). Can Brands Claim Ignorance? Unauthorized Subcontracting in Apparel Supply Chains. *Management Science*, *67*(4), 2010–2028. https://doi.org/10.1287/mnsc.2020.3679

2. **Multi-objective Optimization in the Context of Sustainability**
   Multi-objective Optimization allows for the consideration of multiple sustainability dimensions (e.g. in the sense of a "triple bottom line") in mathematical models. The epsilon-constraint method which is commonly used in this setting should be reviewed and applied it to a self-developed imaginary case study in the context of sustainability.

   Literature: Diwekar, U. M. (2020). Multiobjective Optimization. In U. M. Diwekar (Ed.), *Springer Optimization and Its Applications. Introduction to Applied Optimization* (Vol. 22, pp. 217–257). Springer International Publishing. https://doi.org/10.1007/978-3-030-55404-0_6
   Supporting Literature: Mavrotas, G. (2009). Effective implementation of the ε-constraint method in Multi-Objective Mathematical Programming problems. *Applied Mathematics and Computation*, *213*(2), 455–465. https://doi.org/10.1016/j.amc.2009.03.037

3. **Optimisation of Multi-Tier Supply Chain Distribution Networks with Corporate Social Responsibility Concerns**
   This study focusses on distribution channels to achieve sustainability improvements. The design of the model used and the assumptions made therein should be critically analysed and discussed by implementing the model with an own example.

   Literature: Fares, N., Lloret, J., Kumar, V., Leeuw, S. de, & Barnes, L. (2024). Optimisation of multi-tier supply chain distribution networks with corporate social responsibility concerns in fast-fashion retail. *Corporate Social Responsibility and Environmental Management*, *31*(1), 311–330. https://doi.org/10.1002/csr.2571

4. **Sustainable Supply Chain Design and Planning**
The case study presented in this paper found only menial differences between an economic- and an environmental-focussed design of its supply chain. The manner in which environmental concerns have been implemented in the model should be examined and compared with other approaches from the literature. Ultimately, an alternative method for including environmental aspects in the model should be proposed and discussed.

Literature: Mota, B., Gomes, M. I., Carvalho, A., & Barbosa-Povoa, A. P. (2015). Towards supply chain sustainability: economic, environmental and social design and planning. *Journal of Cleaner Production*, *105*, 14–27. https://doi.org/10.1016/j.jclepro.2014.07.052*

5. **Profit maximizing hub location problem in the airline industry under coopetition**
Coopetition is a term referring to competitors who cooperate for specific purposes, like in this case a hub network. The results from the coopetition scenario in a European setting included in this study should be replicated using the available dataset from the authors.

Literature: Sharma, A., Kohar, A., Jakhar, S. K., & Sonia (2021). Profit maximizing hub location problem in the airline industry under coopetition. *Computers & Industrial Engineering*, *160*, 107563. https://doi.org/10.1016/j.cie.2021.107563

6. **Inventory management**
Analysis of base-stock policy in a two-stage supply chain with centralized replenishment. Evaluation of the considered disposition parameters by simulation.

Literature: Tempelmeier, H. (2015), *Inventory Management in Supply Chains, Books on Demand, (5th expanded and improved edition), Norderstedt, Chapter D.4.1*

7. **A behavioral science perspective on equivalent inventory metrics**
This article looks at how equivalent information, just prepared differently, affects newsvendor decisions. Two stock indicators that are inverses of each other are considered. The problem and the behavioral science models will be explained and illustrated using numerical examples. Finally, management recommendations will be given.

Literature: Tobias Stangl, Ulrich W. Thonemann (2017) *Equivalent Inventory Metrics: A Behavioral Perspective. Manufacturing & Service Operations Management 19(3), 472-488.*

8. **Inventory management with fluctuating delivery times**
Lead time changes happen often, especially under the Just-In-Time philosophy. The seminar paper will present the transition to the new optimal steady-state solution and demonstrate it with an example.

Literature: Axsäter (2011) Inventory Control when the Lead-time Changes *Production and Operations Management 20(1)*, 72-80.

9. **Quantity discounts**
The challenge vendors face is to adjust their pricing so the customer increases their order quantity. In the seminar paper, a way to increase vendor profits with quantity discounts will be presented and illustrated with an example.

Literature: Monahan (1984) A quantity discount pricing model to increase vendor profits, *Management Science* 30 (6), S. 720–726.

10. **Strategic capacity planning in supply chain management**
In the seminar paper, the approach of strategic capacity planning will be presented and illustrated with an own example.

Literature: Ozer, O., W. Wei. 2006. strategic commitment for optimal capacity decision under asymmetric forecast information. Management Science 52 (8), pp. 1238-1257