

Themen Bachelorarbeit FSS 2015

Literaturrecherche

Thema 1: Das Potential von Informationstechnologie in Reverse Logistics

(The Potential of Information Technology in Reverse Logistics)

In Closed-Loop Supply Chains ist das Vorhersagen von Zeit und Umfang von Produktrückflüssen eine große Herausforderung. Um dieser zu begegnen, wird in der Literatur bspw. die Radio-Frequency Identification (RFID) Technologie, welche das Tracken von Produkten erlaubt, genannt. Diese Arbeit soll auf Basis von Literatur untersuchen, welche Auswirkungen Technologien wie RFID auf die rückwärtsgerichteten Prozesse in Closed-Loop Supply Chains haben können, beispielsweise ob bzw. inwiefern diese das Vorhersagen von Produktrückflüssen verbessern.

Thema 2: Unsicherheit in Supply Chain Spielen

(Uncertainty in Supply Chain Games)

Methoden der Spieltheorie werden immer häufiger angewandt, um das Miteinander verschiedener Akteure in der Supply Chain zu analysieren und beispielsweise Anreize zur Koordination herauszuarbeiten. Es ist oftmals realistisch, davon auszugehen, dass nicht jeder Akteur vollständige Information über die anderen Akteure besitzt. Ziel dieser Arbeit soll sein, die wissenschaftliche Literatur im Bereich Supply Chain Management, die sich der Methodik der Spieltheorie unter unvollständiger Information bedient, vollständig und strukturiert darzustellen.

Thema 3: Konzeptentwicklung für das Supply Chain Risk Management

(Conceptualising Supply Chain Risk Management)

As supply chains are becoming increasingly global and therefore more volatile with regards to potential disruptions, supply chain risk management is receiving increasing attention from both practitioners and academic literature. Nevertheless, the lack of consensus definitions and sound conceptual frameworks of the topic highlight the gaps in academic literature that remain (Sodhi et al 2011). The goal of the Bachelor Thesis is thus firstly to distil a definition of supply chain risk management from an initial literature review. Secondly, the student is asked to conceptualize a framework of potential supply chain risks, their adverse impact on supply chain performance and corresponding mitigation strategies.

Thema 4: Eine kritische Betrachtung des Status Quo der Forschung zur Supply Chain Strategie

(A Critical Assessment of the Status Quo in Supply Chain Strategy Research)

In his widely cited publication, Fisher (1997) introduced a framework that stresses the need to assign functional products to efficient supply chains and innovative products to responsive supply chains. Since then, a number of frameworks containing aligned supply chain strategies have been developed. The goal of the Bachelor Thesis is to critically assess the supply chain strategies developed so far. What kind of supply chain design choices do these strategies suggest? Do they complement each other, or is there disagreement regarding which strategy fits in a given context? Finally, supply chain strategy frameworks are frequently criticized for being too generic and prescriptive (Godsell et al. 2011). The student is asked to evaluate this criticism and to suggest directions for future to deal with these shortcomings.

Thema 5: Revenue Management mit Opaken Produkten

(Revenue Management with Opaque Products)

„Opaque products“ sind Produkte, bei denen der Kunde zum Zeitpunkt seiner Bestellung nicht das genaue Produkt kennt, das er bekommt, sondern nur dass er ein Produkt aus einer bestimmten Produktgruppe bekommt. Auf diese Weise kann der Anbieter seine Kapazitäten besser ausnutzen und dem Kunden einen günstigeren Preis anbieten.

In der Bachelorarbeit sollen die Revenue Management Ansätze mit opaken Produkten beschrieben werden. Ein Überblick über die vorhandene Literatur soll gegeben werden.

Thema 6: Das Bandit Model

(The Bandit Model)

The bandit model is a mathematical model that allows the comparison of alternative strategies that are associated with different risks and payoffs. In practice, it enables decision-makers to choose the strategy that best balances risk with profits. The goal of this thesis is to provide a detailed description of the standard bandit model and its most important extensions. Based on the identified model assumptions, this thesis should discuss in what business situations this model is currently applied, and where it could be applied. More generally, this thesis should clearly identify the key environmental characteristics that make a use of the bandit model feasible.

Thema 7: Risiko und das Newsvendor Modell

(Risk and the Newsvendor Model)

The newsvendor model is one of the most widely applied mathematical tools in inventory management. It ensures an optimal balance between the risk of having left-over inventories and the risk of losing sales due to insufficient inventories. Clearly, the optimal decision depends on the decision-maker's perception of risk. The academic literature has identified and tested many different concepts to describe a decision-maker's risk attitude. The goal of this thesis is to provide an overview of the different perceptions of risk, and to highlight how a decision-maker's risk attitude affects the optimal decision in the newsvendor model.

Thema 8: Managen Dynamischer Sicherheitsbestände

(Dynamic Safety Stock Management)

Many common inventory control models separate the calculation of different types of inventory, notably safety stock, cycle stock, and seasonal stock. Safety stock calculations then typically assume constant/stationary target inventory levels. However, in the case of non-stationary demand, it can be beneficial to adjust safety stock levels dynamically, too. The task of this thesis is to review the academic literature on optimization models for such a dynamic safety stock management.

Thema 9: Service Differenzierung im Bestandsmanagement

(Service differentiation in inventory management)

Traditional inventory control models assume a first-come-first-served fulfillment of customer orders. In the case of multiple customer segments, this policy may not be optimal. Instead, companies seek to differentiate their service, prioritizing their most important customer segments. The task of this thesis is to review the academic literature on inventory control models that incorporate such a service differentiation. Particular attention should be given to multi-level inventory and/or customer segment structures.

Thema 10: Integrierte Standort und Bestandsoptimierung – State-of-the-Art

(Integrated Location-Inventory Problem –State-of-the-Art)

Traditionally, supply chain optimization models have focused on either the strategic level of supply chain design (facility location) or the tactical level (inventory management), but not both simultaneously. The strategic models have tended to ignore demand uncertainty, while the tactical models tend to assume that the strategic decisions have already been made. However, to achieve important cost savings, it is important to make decisions at different levels jointly, as they are closely related.

The main task of this thesis is to analyse the current literatures which consider integrated location-inventory problem and make a state-of-the-art review.

Empirische Recherche

Thema 11: Supply Chain Management und Industrie 4.0

(Supply Chain Management and Industry 4.0)

Mit dem Term Industrie 4.0 wird die Fertigung in vernetzten und zum Teil selbststeuernden Produktionssystemen bezeichnet. Ziel dieser Arbeit ist es zum einen, konkrete Ausprägungen dieses Konzepts zu inventarisieren. Zum anderen sollen anhand einer Literaturübersicht Implikationen des Industrie 4.0 Ansatzes für das Supply Chain Management herausgearbeitet und diskutiert werden.

Thema 12: Distributionskanäle für Produktrücknahmen in Closed-Loop Supply Chains

(Reverse Distribution Channels in Closed-Loop Supply Chains)

Es gibt viele Gründe für Unternehmen, sich u.a. nach Gebrauch oder wegen Fehlfunktionen für die Rücknahme ihrer Produkte zu entscheiden. Beispielsweise gibt es gesetzliche Vorgaben, die dazu verpflichten, oder es kann profitabel sein, gebrauchte Produkte aufzuarbeiten und erneut zu verkaufen. Diese Arbeit soll sich einerseits basierend auf Internetrecherche damit befassen, welche Distributionskanäle für derartige Produktrücknahmen zum Einsatz kommen, d.h. wer die Produkte von den Kunden zurücknimmt bzw. aufkauft. Weiterhin soll auf Basis von Literatur herausgearbeitet werden, unter welchen Umständen ein bestimmter Rückflussskanal am günstigsten ist.

Thema 13: Dynamic Pricing im Online Einzelhandel

(Dynamic Pricing in Online Retailing)

Recent growth in Internet retailing has resulted in increased academic focus on dynamic pricing of delivery services. Compared to other industries, pricing decisions in e-fulfilment have a direct impact on (delivery) operations. Thus, pricing concepts have to balance revenue and cost effects.

In this context, the task of this thesis is to explore dynamic pricing concepts applied by Internet retailers and to complement them with a literature review that summarizes the strengths and weaknesses of different approaches. Particular attention should be given to cost-revenue interdependencies.

Thema 14: Start-Ups im Online Lebensmittelhandel

(Start-Ups in Online Grocery)

Recent years have seen a steady flow of start-ups in online grocery. The specific services offered by these companies and the underlying business models are quite diverse. The goal of this thesis is to systematically review this industry sector in Germany, France, and the UK. In this way, common business models should be identified. In addition, corresponding challenges should be identified from an operations management perspective. Results from a web-based explorative search should be complemented with a review of corresponding academic literature.

Quantitative Analyse

Thema 15: Optimierung eines Verpackungssortiments

(Packaging Assortment Planning)

The problem of planning a packaging assortment is concerned with selecting a subset of a given set of available packing items (e.g. boxes of different sizes) to be stocked, to optimally pack a set of items to be shipped (e.g. at minimum cost). The task of this thesis is first to review the scientific literature on this assortment planning problem. Second, a spreadsheet model should be developed for a prototype of this problem. The model should then be numerically evaluated for an illustrative example.

Thema 16: Lagerhaltungskosten im Newsvendor Modell

(Holding Costs and the Newsvendor Model)

The newsvendor model is a fundamental building block of many stochastic inventory models. The original newsvendor model considers holding costs in a rather limited manner only, namely by charging holding costs to leftover stock. In the case of a longer selling season, however, holding costs accruing during the season may also be relevant. The task of this thesis is to investigate the incorporation of in-season holding costs in the newsvendor model. To this end, it should first review the corresponding academic literature. Second, it should build a spreadsheet model to evaluate numerically under which circumstances, if any, holdings costs have a significant impact on the newsvendor's optimal decision.