At the Chair of Logistics and Supply Chain Management of TUM School of Management we are looking for interested and qualified students to conduct their

Project study

In the area of:

Safety stock planning for products with intermittent demand

This topic has been motivated by a real world case study at Keller &Kalmbach GmbH, a leading wholesale trader for the C-parts in areas automotive, industry, rail technology and etc.

A common way to cope with the demand uncertainty is to keep safety stocks in the inventory. The target safety stock levels are determined in such a way that either a certain service level, which has been promised to a customer, is held or the backlog (lost-sales) penalty costs are minimized. Most of the methods to determine the target safety stocks, ranging from the simple rule of thumbs to the elaborates ones, are suitable for the fast-moving Stock Keeping Units (SKUs) with quite predictable demand behavior. However, in practice, a considerable part of the SKUs is characterized by sporadic/intermittent demand. Using traditional approaches for these types of SKUs usually leads to unsatisfactory results.

The aim of this project study is to search for the safety stock placement methods that take the characteristics of the SKUs with intermittent demand into account. The performance of the identified methods is compared with each other by conducting an extensive numerical study. Finally, a framework is constructed to propose to the company to choose a proper approach coping with the demand uncertainties of the SKUs with intermittent demand behavior.

Selected research tasks (more possible and can be discussed upfront):
- Literature review on the safety stock planning for the intermittent demand
- Implementation of the most promising methods
- Conducting an extensive numerical study to compare the selected methods with each other

Requirements:
This thesis is particularly suitable for candidates who have a strong interest in operations research and ideally have a major in supply chain management and/or attended one of the courses of Transportation Logistics, Modeling, Optimization and Simulation or Inventory Management at LOG-SCM.

Begin: from now on
Advisor: Dariush Tavaghof Gigloo
Application: Email with curriculum vitae and transcripts of records to logtheses.wi@tum.de