

At the Chair of Logistics and Supply Chain Management of TUM School of Management, we are looking for an interested and qualified student to conduct his/her

Project Study

on the topic

From Production Lines to AI-Powered Decisions: Exploring Gen-AI Applications in Automotive Supply Chains

The automotive industry is undergoing rapid transformation, driven by electrification, digitalization, and the integration of advanced technologies into production and management processes. Generative AI (Gen-AI) tools, such as large language models, offer new ways to enhance decision-making, automate routine tasks, and enable human-machine collaboration. Yet, their potential in practical supply chain and manufacturing contexts—ranging from production scheduling to supplier coordination and quality management—remains largely underexplored.

This project study aims to investigate the opportunities and challenges of applying Gen-AI in the automotive supply chain, in close collaboration with leading industry partners (vehicle OEMs and/or suppliers). Students will explore potential use cases, assess the feasibility of Gen-AI tools in real operational settings, and derive insights into how these technologies may shape the future of production and supply chain management.

Key project tasks:

- Conduct a literature review on recent advances in Gen-AI applications within operations, manufacturing, and supply chain management.
- Engage with company partners (vehicle OEMs or suppliers) to identify relevant use cases and pain points.
- Evaluate how Gen-AI tools (e.g., LLM-based agents) could be applied in selected domains such as production scheduling, quality management, supplier communication, or knowledge management.
- Develop prototypes or demonstrators showcasing Gen-AI applications in selected use cases.
- Analyze the benefits, limitations, and managerial implications of introducing Gen-AI tools in industrial practice.

Requirements:

This project study is open to students at TUM School of Management with a focus on Operations and Supply Chain Management, Management & Technology, or related fields. Strong analytical skills and the ability to work collaboratively with industry partners are required. Knowledge of programming (e.g., Python) and interest in AI/ML tools are advantageous but not mandatory.

Earliest begin: As soon as possible

Supervisor: Yuxuan Zhu

Application: Email with curriculum vitae and transcript of records to logtheses.log@mgt.tum.de