**fml** – Lehrstuhl für Fördertechnik Materialfluss Logistik
TUM School of Engineering and Design
Technische Universität München

TUM

# Development of a Bottleneck Management System in the Inbound Supply Chain using Simulation and Reinforcement Learning in the context of the Commercial Vehicle Industry

## Initial Situation

**Manual Range Determination:**
Currently, the determination of ranges, i.e., the identification of supply bottlenecks in commercial vehicle production, is carried out partly manually.

**Frequent Bottlenecks:**
This manual approach often leads to bottlenecks in the supply chain.

**Experience-Based Decisions:**
In the event of a bottleneck, decisions are primarily based on the experience of dispatchers, who gather relevant information from various systems.

## Objective

**Data Connection and Processing:**
To enable efficient bottleneck management, a connection and systematic processing of relevant data should be carried out.

**Development of a Simulation:**
A simulation is to be developed that automatically determines the range of materials in the inbound supply chain.

**AI Module for Automatic Recommendations:**
The goal is to develop an AI module that provides automatic action recommendations to the dispatcher in the event of a bottleneck, based on real-time data. The recommendations should take into account the next four working days and other plants.
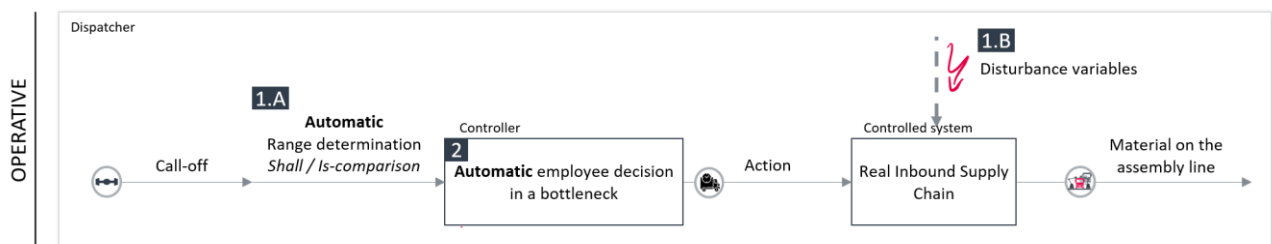


*Figure 1: Bottleneck Management System*

## Requirements

- Programming Experience in Python
- Interest in Artificial Intelligence Methods
- Reliable, independent and structured way of working

## Contact

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