

Reducing Rush Orders in a Global Spare Parts Network

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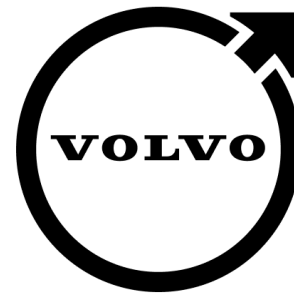
When a critical spare part is missing, speed becomes everything. But what if some orders could be avoided? This study shows how improved information and clearer policies can help Volvo reduce costly rush orders without affecting customer service.

Managing inventory is always a challenge. Companies need to keep enough products in stock to meet customer demand, but not so much that capital is tied up in unused inventory. This challenge becomes particularly difficult in spare parts supply chains. Demand for spare parts is often irregular and hard to predict. At the same time, the consequences of not having a part available can be severe, leading to costly downtime and dissatisfied customers.

This thesis has been conducted in cooperation with Volvo Service Operations & Technology. They are responsible for managing inventory of spare parts within the Volvo Group organization. To ensure high customer service, they divide their orders into three different order classes. The first type of order is used to replenish inventory in a planned and cost-efficient way. The two other order types are used when parts are needed more urgently, and can be classified as rush orders. These orders are designed to serve the customer fast, but they are also significantly more expensive than regular shipments, often transported by air.

Currently, there is no overall policy determining when rush orders should be placed by Volvo's customers, typically workshops serving and repairing Volvo vehicles and machines. This means that the decision to place a rush order is largely left to individual workshops. A key part of this thesis was therefore to map the current process and create a structured understanding of how decisions are made in practice. This was done through multiple interviews with personnel at workshops and other employees in the Volvo Group organization.

The interview study found that rush orders are not only driven by unpredictable demand, such as urgent breakdowns, but also by limitations in how information is utilized within the system.



In several cases, rush orders were placed even though the requested part was already on its way through the regular replenishment flow. These types of orders were identified as unnecessary. One solution to this problem is better access to information at the workshops.

To evaluate how effective the solution of having better information access is, a new policy based on information about incoming replenishment orders, was developed and tested in a simulation study. The results show that this policy can significantly reduce the number of rush orders, without compromising on service levels or changing inventory levels.

Important to highlight is that the goal should not be for Volvo to eliminate all rush orders. Some level of rush ordering will be required to maintain high service levels, especially given the unpredictable demand for spare parts. Instead, the focus should be on reducing unnecessary rush orders.

This study contributes both by providing a clearer understanding of how rush orders are currently processed within the organization, and by demonstrating how an information policy can reduce unnecessary rush orders by supporting better decision-making at the dealer level.