

Research on Haps DC Opening Time

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Introduction

1.1. Company and Challenge

Danone is one of the world's leading food and beverage companies, operating across essential nutrition categories such as dairy, plant-based products, early life nutrition, and medical nutrition. In 2021, Danone opened a new distribution center in Haps to improve its distribution network in Europe for nutrition products. From here, products will be shipped to more than 80 countries worldwide and serve pharmacies, hospitals and retailers. The Haps DC operates in close collaboration with its third-party logistics (3PL) partner DSV, who oversees day-to-day warehouse execution while Danone retains responsibility for performance management, cost control, and continuous improvement.

Over the past years, the facility has faced increasing operational pressure driven by rising order volumes, complex customer requirements, and internal expectations for higher service levels. One particular pain point is the extended warehouse opening time. Now the warehouse opening hour is from 6 am to 12 pm. Longer opening times not only reflect inefficiencies in inbound and outbound processing but also contribute to higher labor hours, increased handling costs, and potential delays in customer deliveries. Despite various local improvement initiatives, the underlying causes of prolonged opening windows remain insufficiently understood due to fragmented data, multiple stakeholders, and variability in daily warehouse operations. Now Danone wants to understand DC productivity pattern and explore the opportunity to reduce Haps DC opening time to improve warehouse operation efficiency and save 3PL cost. Therefore, this project aims to systematically analyze the factors driving Haps DC opening time and support Danone's ambition of building a more efficient distribution centre.

1.2. Project Scope

This project is in the general scope of supply chain and logistics management, which specifically focuses on understanding and improving the opening time of the Haps DC. The study is limited to processes, data sources, and stakeholders directly related to the management of opening windows in collaboration with Danone and its 3PL partner DSV.

The scope of the project includes:

- **Operational process analysis** related to inbound receiving, unloading, put-to-rack, outbound picking, and loading activities that influence the duration of opening windows.
- **Quantitative data analysis** using available warehouse datasets such as dock utilization, truck arrival patterns, resource allocation, throughput fluctuations, etc.

- **Qualitative insights** gathered through interviews and discussions with Danone warehouse teams, DSV operators, planners, and process owners.
- **Identification of bottlenecks** contributing to the long opening hours.
- **Evaluation of improvement levers & validation of reduced opening time**

Below parts are out of the scope of this project:

- Structural or physical redesign of the Haps DC facility (e.g., layout optimization, equipment replacement)
- Financial analysis
- IT or digital technology implementation
- Assessment of upstream (production & inbound) or downstream (transport & outbound) activities that are not directly related to warehouse opening time.

1.3. Practice & Science

This project holds relevance not only for Danone's daily warehouse operations but also for the broader scientific understanding of supply chain process optimization. From a practical perspective, many distribution centers can face same operational pressure as Haps DC driven by growing throughput, higher service level expectations, and variability in inbound and outbound flows. Reducing opening time has become essential for controlling labor hours, improving dock utilization, stabilizing daily throughput, and strengthening the collaboration between the company and its 3PL partner. Addressing these challenges makes the project directly valuable for improving the efficiency and reliability of companies' distribution operations. And in our case, Danone Haps DC is used as a case study.

From a scientific standpoint, the project provides an opportunity to contribute to ongoing research on warehouse performance management and data-driven process optimization. Opening time, as a composite indicator reflecting both planning quality and execution stability, is an underexplored metric in academic literature compared to more established KPIs such as cycle time, picking productivity, or order fill rate. By analyzing the interaction between scheduling patterns, operational variability, resource allocation, and process flow constraints, this study can offer insights into how mixed qualitative-quantitative methods can be applied to diagnose bottlenecks in complex logistics environments. The findings can support the development of more generalizable frameworks for warehouse performance analytics and continuous improvement across supply chain networks.

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Current State

2.1. Research Question

Main question

Sub question

2.2. Context Analysis

2.3. Stakeholder Analysis

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Future State

3.1. Design Goals

The future goal for Danone is to improve the overall operational efficiency of the warehouse and reduce the corresponding labor and 3PL-related costs. To achieve these goals, several sub-targets are defined. First, since the root causes behind the long opening hour are not yet fully understood, a transparent, data-driven analytical framework is needed for having a deeper insight into warehouse productivity pattern.

Second, with the help of the framework, we need to identify the operational bottlenecks that drive the long opening window. This includes diagnosing constraints in inbound and outbound activities, resource allocation, dock planning, and daily scheduling that contribute to extended opening hours.

Third, trade off between the service level and opening time and evaluate the important levers that reduce the opening time with the least influence on service levels. Potential levers may include workload balancing, better planning of truck arrivals, optimized staffing or improving coordination with the 3PL partner.

Fourth, after accomplishing the previous sub-targets, we need to validate a realistic and stable reduced opening time (with relative operation plan). Fifth, based on the findings from the project, we should offer insight and recommendation that can help standardize performance to Danone

3.2. Technical

3.3. Methodology

3.4. Deliverables

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Requirements

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Reference

5.1. Warehouse Operation

5.2. Reference Projects

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Planning

6.1. Scheduling

6.2. Team Organization

6.3. Contacts

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Belbin Test

Before starting the assignment, all team members completed a Belbin test to understand our individual strengths and working styles. This helped us clarify how each person contributes to the team and how we can collaborate more effectively.

Minghao Li

Minghao is primarily a team worker, supported by the qualities of a coordinator, shaper, resource investigator, and monitor evaluator. He contributes to a positive and collaborative team atmosphere and is always willing to help others and bridge different viewpoints. Minghao is skilled at building relationships and maintaining good team cohesion. While he prefers collaboration over confrontation and may hesitate when decisions involve pressure or conflict, his combination of empathy, initiative and organizational awareness makes him a reliable and socially attuned contributor to the team.

Yumeng Pan

Yumeng's dominant role is Implementer. He is practical, disciplined, and highly reliable. He excels at turning plans into concrete actions and ensuring the team's work is organized and efficient. His strength lies in structure, consistency, and getting things done. A possible weakness is lower flexibility—he may resist sudden changes or unconventional ideas. His secondary role is Team Worker. He supports others well and helps maintain a positive team atmosphere, though he may avoid conflict at times.

Yilin Shi

Yilin's primary role is Implementer, showing strong discipline, structure, and reliability. She works systematically, turns ideas into concrete plans, and keeps the team grounded through steady execution. Her strength lies in maintaining order and ensuring tasks are completed to standard, though she may sometimes appear rigid or less receptive to sudden changes. Her secondary role is Completer-Finisher, reflected in her attention to detail and commitment to high-quality outcomes. This makes her dependable in polishing deliverables, but may lead to occasional over-perfectionism.

Xinyu Yang

Xinyu's dominant role is Co-ordinator, showing a strong ability to structure teamwork, clarify responsibilities and maintain focus on shared goals. She guides the group calmly and confidently, ensuring that every member's strengths are used effectively. Xinyu may rely heavily on others for detailed execution and can become overly accommodating at moments when firm decisions or confrontation are required. Despite this, her combination of coordination and teamwork makes her a stabilising and inclusive force within the group.