

# Workforce Optimization in Warehouse Operations

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# OPERATIONAL CONTEXT



Warehouse processes in air cargo operations create different workforce requirements depending on variable tonnage and operational intensity. Workforce planning is carried out at the macro level based on annual tonnage expectations and operation types (import, export), and is updated according to summer and winter tariff periods.

In the current structure, the majority of the workforce works in a fixed shift arrangement (morning, evening, night), and a similar number of personnel are assigned to each shift. For example, although approximately 400 personnel are planned per shift, operational requirements can vary between 350 and 450 personnel on a daily basis. This situation causes operational disruptions due to insufficient workforce on some days, and idle capacity on other days.



## How Does The Warehouse Workforce Planning Process Work?

Workforce planning in warehouse operations is based on evaluations carried out at different time scales.

The process generally progresses through the following steps:

- Staff planning is done at a macro level based on annual tonnage and operational expectations.
- Plans are updated according to summer and winter tariff periods.
- Measures are taken based on weekly and weekend work expectations.
- Daily or short-term workloads are analyzed manually. When the workforce is insufficient, personnel reinforcement is made through manual interventions between existing shifts.

# How Might We Canvas

## Who?

who are the stakeholders that get effected?

Warehouse staff,  
Warehouse managers

## What?

what is the problem that needs to be solved?

Warehouse workforce planning is done on a macro scale, and short-term workload changes are managed through manual analysis and experience-based decisions.

## Why?

why is this problem worth solving?

The high proportion of labor costs within operational expenses, and the additional costs created by inefficient use require more effective workforce planning.

## How?

how can this problem be eliminated?

By making workforce planning more dynamic and data-driven based on historical data and operational parameters.

### Challenge:

How might we enable data-driven and predictive planning to use workforce most efficiently and optimize costs in warehouse operations with variable workloads?