# Optimal inventory allocation: balancing inventory cost and service level fulfillment

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Your supply chain solution

If your business manages physical goods in complex distribution networks, you're probably facing a balancing act.

Efficient inventory management

Businesses can reduce inventory costs by
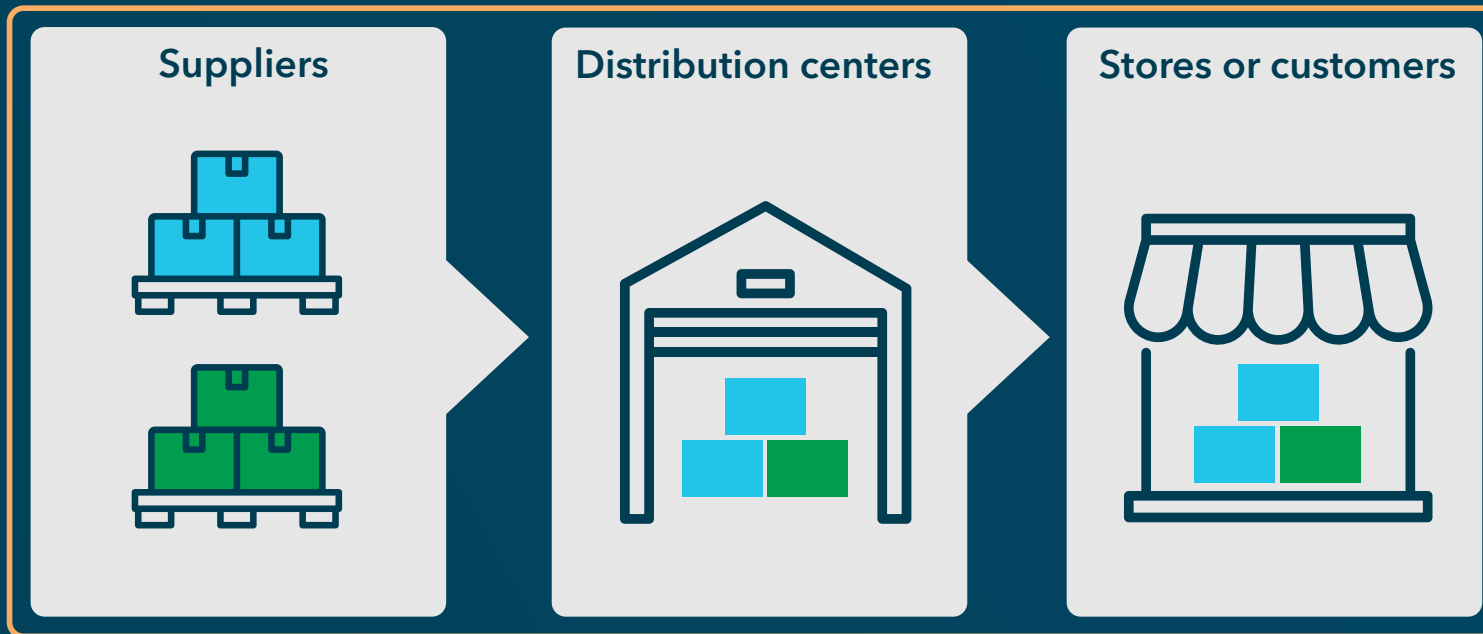
## 10-25%

by reducing overstocks and stockouts

Customer satisfaction

## 74%

of businesses aren't meeting service level goals due to missing inventory

VS.

# **Focused inventory optimization** brings balance to individual locations...



| Suppliers | Distribution centers | Stores or customers |

> Lower carrying and inventory cost
> Better inventory visibility
> Fewer stockouts and overstocks

> Greater demand forecast accuracy
> Optimization for single locations

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# But **network-wide inventory allocation optimization** brings your entire network into balance.

| Suppliers | Distribution centers | Stores or customers |
|---|---|---|
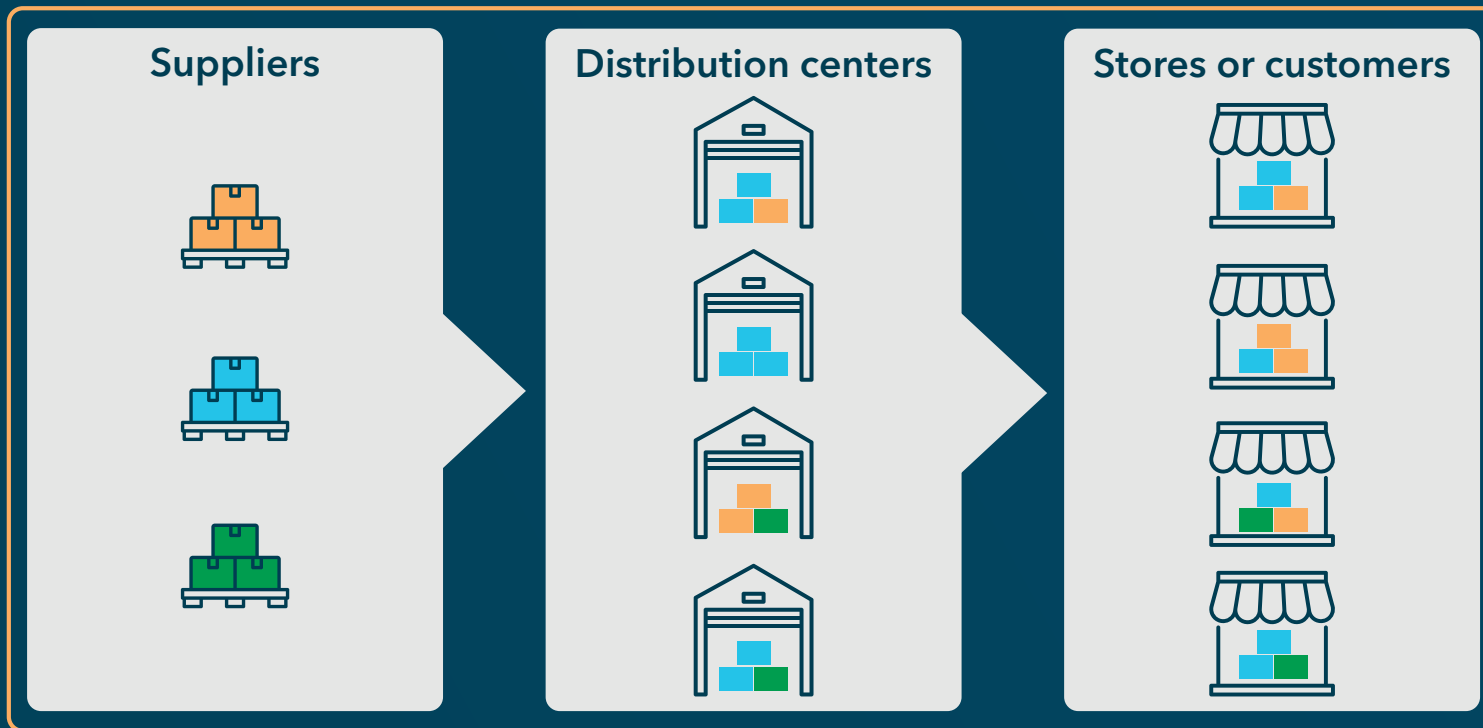
- ✓ **Minimize cost** with efficient use of resources
- ✓ Discover cost savings with **scenario simulations**
- ✓ **Enable more sales** with inventory available when and where it's needed
- ✓ **Increase supply chain agility** by reallocating inventory as needed
- ✓ Improve **performance across the network**, with lower operational cost and higher customer service levels

**Inventory allocation optimization** determines how much stock to assign to different locations or customers to meet demand while minimizing costs and optimizing service levels.

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# What factors impact inventory allocation?

From distribution center to end customer, inventory allocation depends on many factors. These five aspects play a key role.
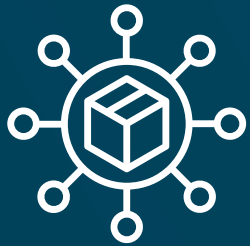
**Sales channel and distribution network**

**Lead times**

**Transportation tariffs**

**Demand forecasting**

**Customer service levels**

## These aspects lead to challenges like

| | | | | |
|---|---|---|---|---|
| **Constant change** in distribution channels, network capacity and supplier relationships | **Lead time variety** and unexpected delays | Balancing **cost pressure** and service level requirements | **Demand uncertainty** and seasonal demand fluctuations | Various customer requirements demand a **flexible service level strategy** |

Limited resources (technology and expertise) for inventory visibility, demand forecasting and optimization may increase the cost of inventory and decrease service level.

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# Key steps for optimal inventory allocation

**1** **Data collection and analysis**
> Gather data: demand patterns, lead times, SKU characteristics, customer service levels and cost factors
> Analyze data to understand demand patterns and forecast future demand

**2** **Inventory segmentation**
> Segment inventory based on demand characteristics
> Classify SKUs based on demand variability, lead times, service level requirements and cost implications

**3** **Service level**
> Determine target service levels for different customer segments or product categories

**4** **Demand forecasting**
> Forecast demand for each SKU using advanced forecasting techniques
> Consider seasonality, promotions, market trends and external factors

**5** **Inventory allocation optimization**
> Identify potential inventory allocation scenarios based on customer expectations and business objectives
> Consider number and location of warehouses, distribution centers and stocking points
> Choose the optimal scenario across the network to balance costs and service levels

**7** **Continuous monitoring and improvement**
> Monitor KPIs to evaluate effectiveness of inventory allocation
> Continuously review and refine strategies

**6** **Optimal inventory level identification**
> Determine optimal inventory levels with optimization models
> Consider order frequency, order quantity, reorder points and replenishment strategies
> Calculate safety stock levels

**Interconnecting steps**

**Steps done in parallel**

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# Measuring success

KPIs to track the impact of your inventory allocation strategy

## Inventory turnover ratio

How quickly is inventory being utilized and replenished?

## Fill rate

What percentage of customer orders are fulfilled using available inventory?

## Stockout rate

How often are inventory levels insufficient to meet customer demand?

## Inventory carrying cost

What overhead costs are incurred by stocking goods in the warehouse?
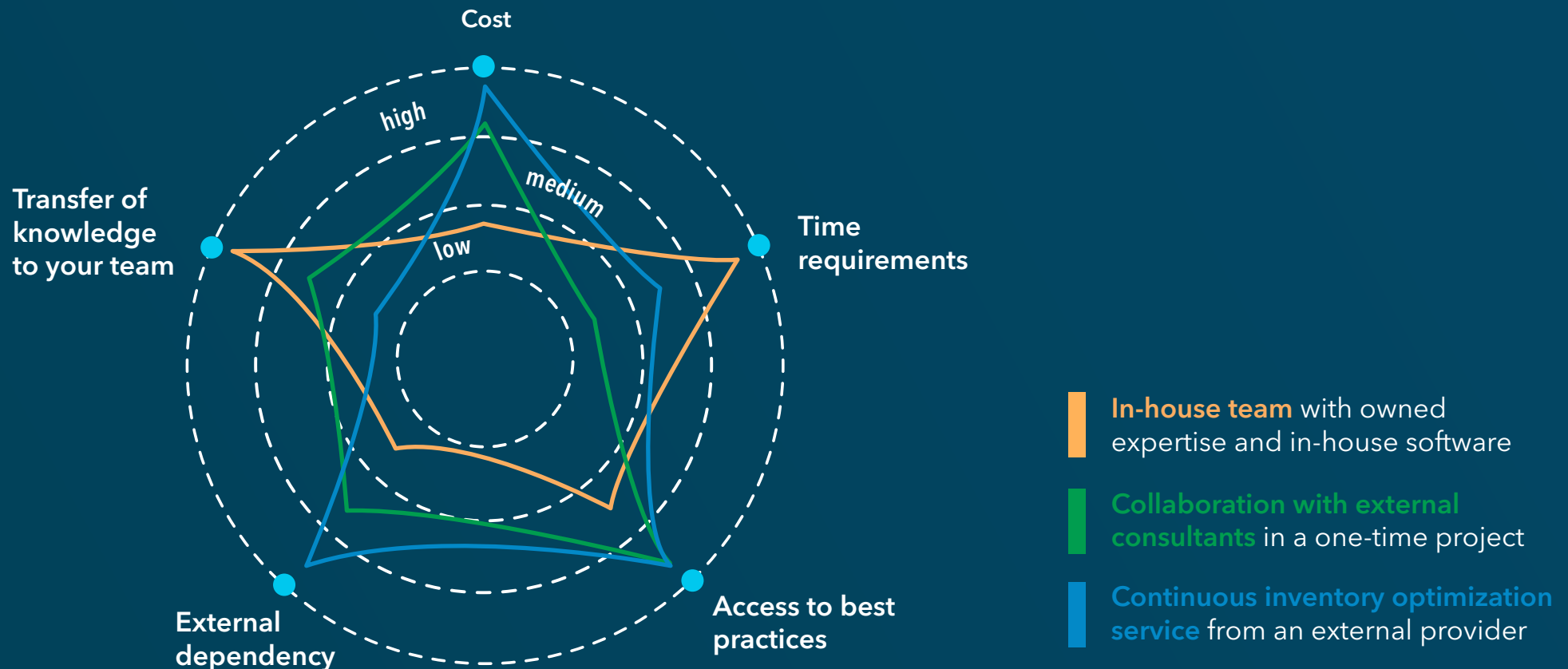
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# How close are you to implementing optimal inventory allocation?

**Prepare for your project with a strategy to manage key factors**

| You need | Common challenges | Your action plan |
|---|---|---|
| **Stakeholder alignment** on policy, segmentation and business objectives | > Conflicting goals and little agreement | > Align goals before starting<br><br>> Increase collaboration and transparency across functions |
| **Accurate and available inventory data** | > Poor master data quality | > Use inventory management software or supply chain planning tools<br><br>> Regularly update and validate data |
| **Analytical capabilities** to forecast demand and identify trends, patterns and opportunities | > Parameter planning based on experience, not analytics | > Leverage advanced forecasting techniques |
| A **dedicated tool** for inventory allocation optimization | > Spreadsheet limitations: low volume and low capabilities for analysis or collaboration | > Adopt software to model and optimize inventory scenarios – or develop one in-house |
| **Expertise** in strategic alignment, performance metrics, demand analysis, inventory optimization, cross-functional collaboration and change management | > Low familiarity with inventory allocation optimization | > Implement software for inventory allocation optimization or bring in external expertise |

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# Possible inventory allocation strategies

Approaches vary in terms of financial and time investment, as well as other benefits such as access to best practices. Consider which approach fits best for your organization.



**In-house team** with owned expertise and in-house software

**Collaboration with external consultants** in a one-time project

**Continuous inventory optimization service** from an external provider

# How 4flow can help

4flow supports customers from a wide variety of industries with challenges in inventory processes, drawing on over 20 years of expertise in supply chain, technology and data science.

**4flow customers benefit from**

> **Advanced data science methods** for inventory analysis and material parameter optimization

> **Implementation of tools** for daily operation, including **AI-driven** daily parameter optimization and an **SAP add-on** for daily parameter optimization

> **Dedicated software** for inventory allocation optimization in the 4flow VIA® suite

## Inventory allocation optimization software in the 4flow VIA® suite

**Optimize product allocation across warehouse networks**

**Explore the impact of different service scenarios on total cost**

**Identify the need for additional warehousing space**

**Learn more about software solutions for inventory allocation optimization from 4flow**

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