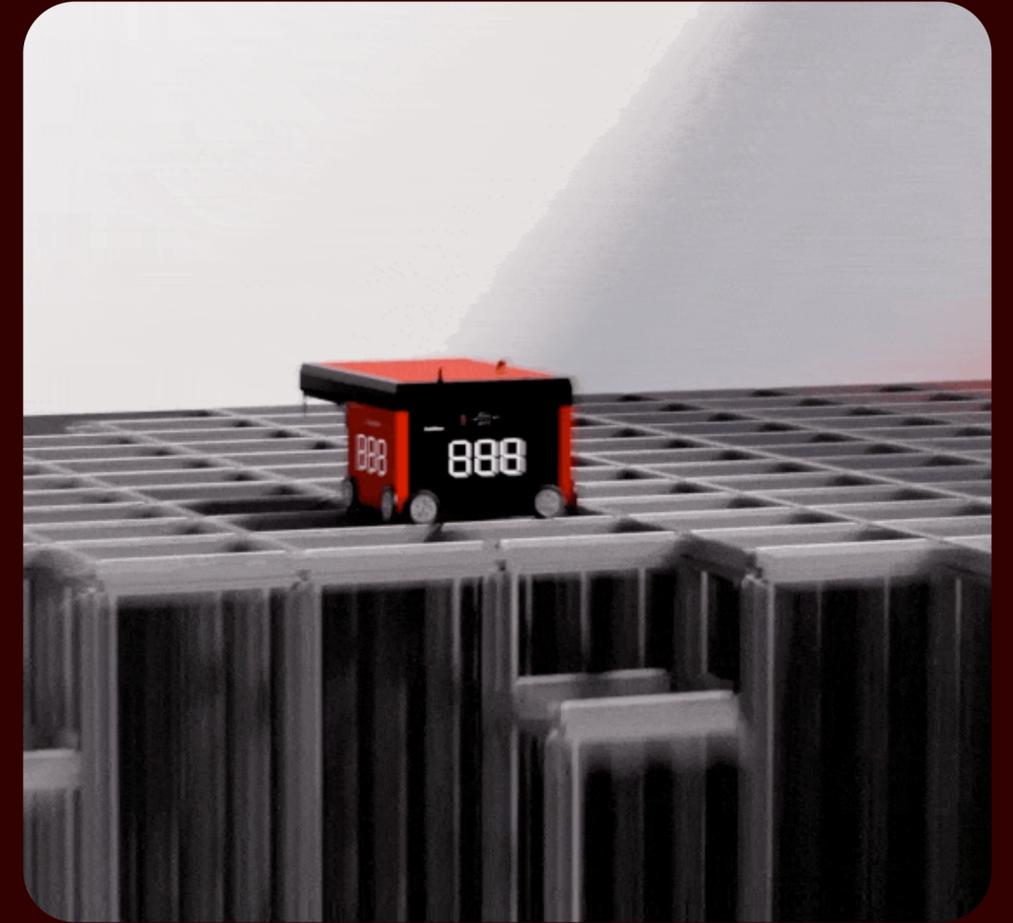


# The High-Throughput Playbook

How warehouses can meet customer demand at scale and pace



# Accelerating success in the warehouse

Warehouses are up against it. Driven by the continuous explosion in e-commerce, leaders are tasked with meeting growing expectations for more deliveries in less time. All while also keeping operations as reliable and profitable as possible.

At the same time, calls for cost cuts and efficiency gains ring true across every industry, rippling against a backdrop of geopolitical chaos, unpredictable consumer behavior, resource dependability challenges, and disrupted supply chains.

Transformation is needed — but many of the warehouses of today are not equipped to deliver high volumes at maximum speed, and there's reluctance for complex and time-consuming overhauls that don't deliver on their promise of adding value.

To deliver high-volume throughput that combines speed and accuracy, companies are increasingly looking to modular solutions that can be scaled up and down as required, meeting the ebbs and flow of demand. Deploying such a solution promotes customer loyalty and trust, while ensuring that warehouses are stripped of waste and inefficiency.

Forrester forecasts that global retail e-commerce sales

**(at \$4.4 trillion in 2023) will grow to \$6.8 trillion by 2028.**

Global Retail E-Commerce Forecast, 2024 to 2028, Forrester.

High-throughput (HTP) is the ability to process, pick, and fulfill a high volume of orders with precision, reliability and speed — even under peak pressure.

With the right solution architecture, your warehouse can outperform larger, costlier systems — at a fraction of the footprint and energy consumption.

## 88%

**of warehouse management operations professionals say it is extremely important or very important to have a solution that helps consolidate orders from a wide assortment of categories in the most effective way possible.**

Optimizing Warehouse Operations for Fashion & Sportswear E-commerce — Forrester and AutoStore.

High-throughput operations leverage advanced technology, including robotics and software, to optimize the flow of products and information throughout the facility, enabling it to process a broad selection of inventory rapidly.

**Speed is only one part of the HTP equation. Equally important elements include:**

Reliability

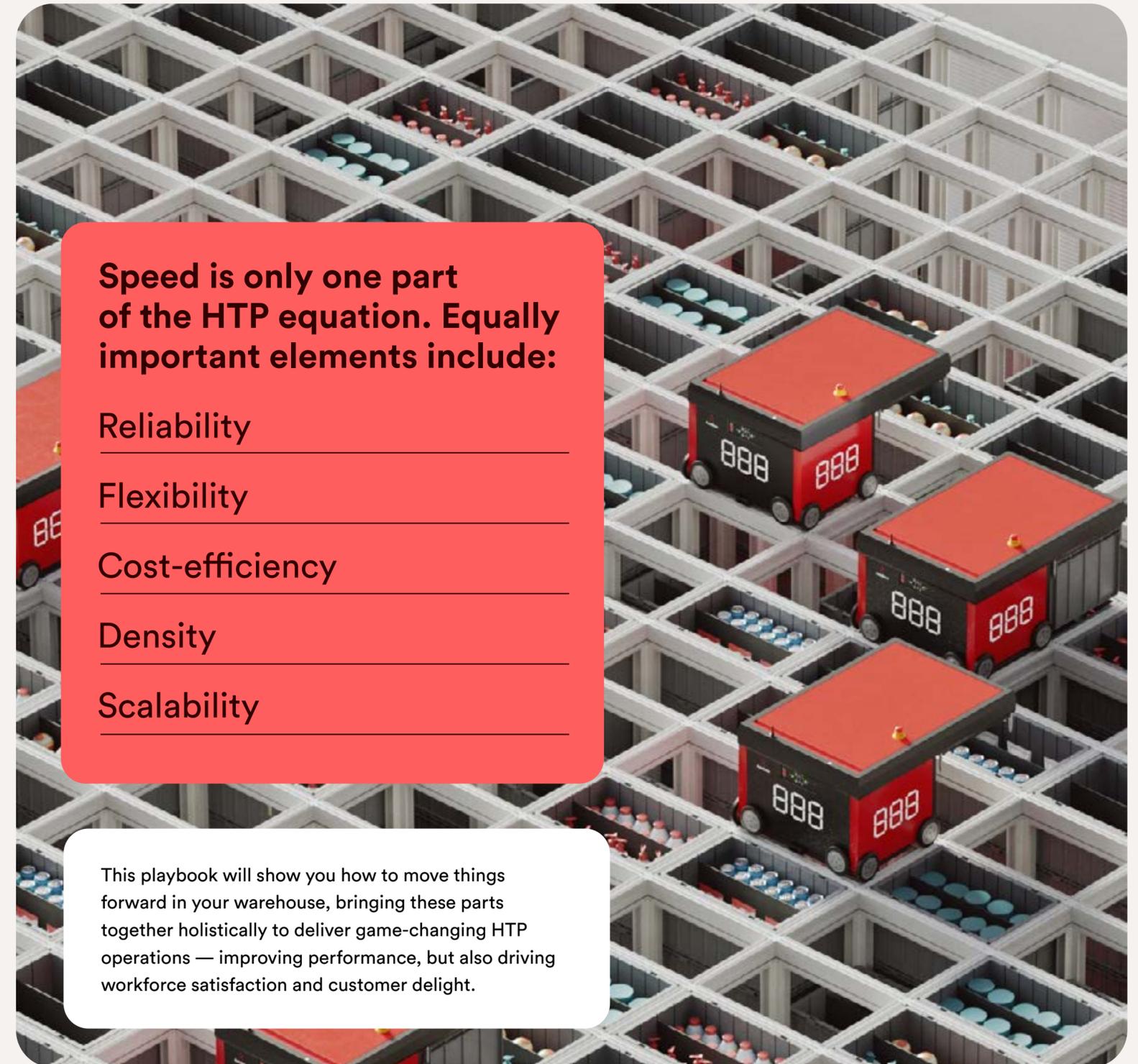
Flexibility

Cost-efficiency

Density

Scalability

This playbook will show you how to move things forward in your warehouse, bringing these parts together holistically to deliver game-changing HTP operations — improving performance, but also driving workforce satisfaction and customer delight.



Chapter 02

# Speed



# Speed

Speed is the lifeblood of successful warehouse operations. Keeping things moving quickly — inventory, staff, systems, processes — is the most critical consideration for winning and keeping your clients' trust. While speed is implicit in the phrase “high-throughput,” it's also one of the trickiest things to sustain. Scaling operations should never be at the expense of speed.

## What are the common challenges around speed?

- Inefficient warehouse layout and design slows down order fulfillment.
- Manual processes create bottlenecks, especially during peak periods.
- Lack of real-time inventory visibility delays picking and packing.
- High error rates lead to rework and missed service-level agreements (SLAs).

## How can you move things forward at speed?

- Focus on system-wide throughput, not individual process speeds.
- Look for technologies that maintain flow across every point of the order journey.
- Reduce travel time through automated storage and retrieval strategies that bring inventory to pickers.
- Maintain high order accuracy with smart picking and real-time inventory visibility.
- Design for parallel processing to support multiple order streams (e-com, retail, wholesale) simultaneously.

## Case study

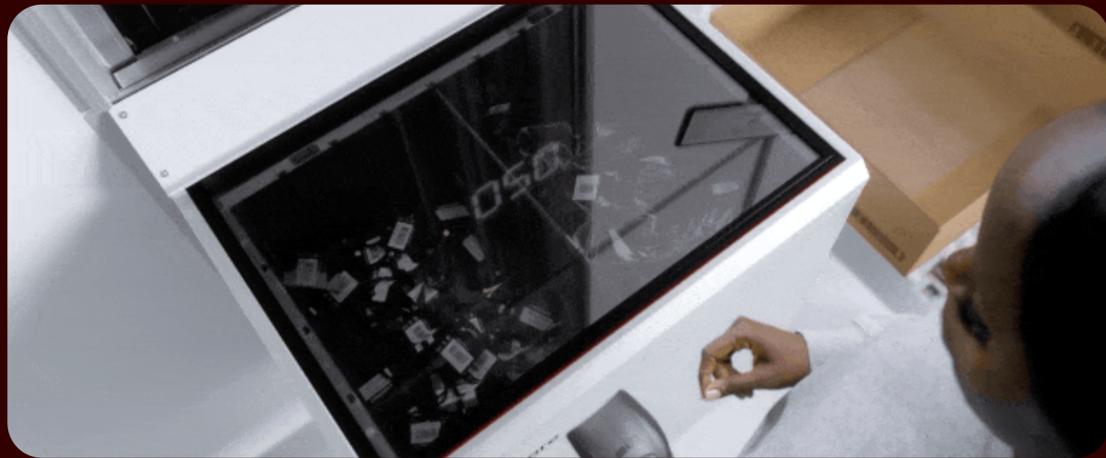
### PUMA puts HTP at the heart of exponential increases in efficiency and capacity

The third-largest sports retailer in the world, PUMA, needed to revolutionize their logistics to meet growing e-commerce demand. Their innovative system has helped them achieve a 99%+ order accuracy rate and increase warehouse capacity tenfold.



Chapter 03

# Reliability



# Reliability

For warehouses, delivering reliability isn't optional or contingent: It's a must-have. Downtime leads to small failures across your operations which, cumulatively, result in significant negative outcomes. Whatever SLAs and financials you agree with your clients, you'll only earn their respect and trust — and their repeat or scalable business — if your operations run consistently, delivering performance with minimal interruption.

## What are the common challenges around reliability in warehouse operations?

- Unplanned downtime due to outdated or over-worked systems.
- Inflexible automation setups unable to adjust in real time.
- Lack of redundancy or contingency planning for mission-critical systems.
- Poor data visibility, affecting system health and throughput.
- Over-reliance on manual intervention to keep things running.

## How can you move things forward reliably?

- Prioritize systems with proven uptime — use 99%+ availability as the benchmark.
- Build in real-time diagnostics and remote monitoring to catch issues early.
- Establish tiered service support and preventative maintenance protocols to keep downtime to a minimum.
- Invest in redundant architecture to keep operations running during maintenance or partial outages.

## Case study

### Boozt makes warehouse reliability a key engine of growth

Scandinavian fashion and lifestyle retailer Boozt delivers reliability at scale for their customers — sustaining 99%+ uptime with their HTP system. Boozt's warehouse automation helped them achieve 10x growth, ensuring their dependability for peak seasons.



Chapter 04

# Cost- efficiency



# Cost-efficiency

Inevitably, how your operations run will be reflected in your bottom line. There are many ways to drive cost-efficiency across the warehouse, from reducing labor costs and waste, to improving picking speed and efficiency. These improvements and innovations play a big part in maximizing ROI — because high-throughput isn't just about volume, it's about value.

## What are the common warehouse challenges around delivering cost-efficiency?

- Rising labor costs and unpredictability in hiring for warehouse roles.
- Picking and packing inefficiencies drive up the cost per order.
- Space inefficiencies increase overheads and restrict scalability and growth.
- Energy inefficiencies slow down sustainability initiatives and increase costs.
- Poor inventory management leads to waste, write-offs, and excess storage.

## How can you move things forward cost-efficiently?

- Use automation to reduce repetitive labor, reallocating human workers to higher-value tasks.
- Track performance against key time to value (TTV) indicators: Cost-per-pick, order lead time, and fulfillment accuracy.
- Optimize energy use with low-consumption robotics and regenerative systems.
- Evaluate total lifetime value (LTV) — taking into consideration long-term savings in labor, errors, space, and shipping — rather than just upfront costs.

## Case study

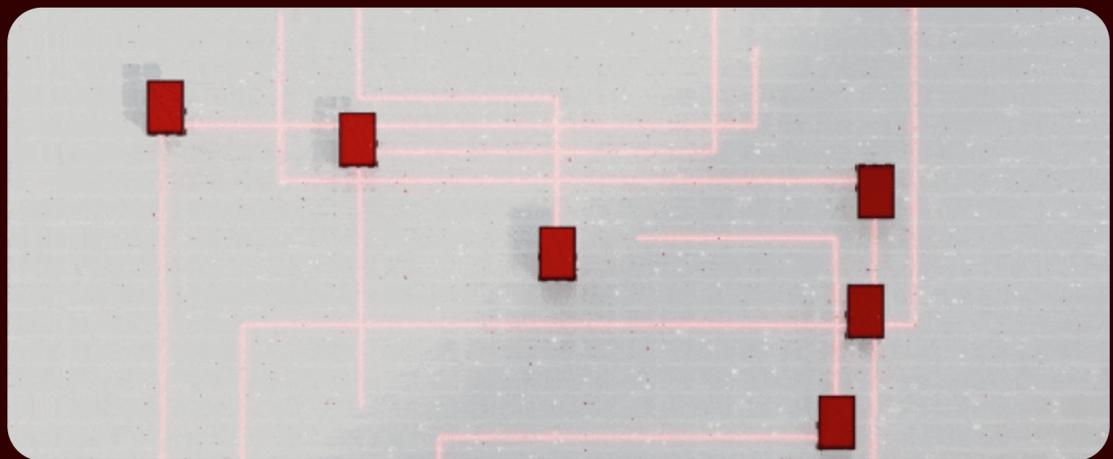
### The Hut Group (THG) puts cost-efficiency first to maintain their UK position

Implementing an HTP system at their Manchester distribution center helped The Hut Group achieve the fastest delivery times in the UK while maintaining low distribution costs. THG has also achieved a 40% cut in labor costs and sees next to no downtime.



## Chapter 05

# Density



# Density

No matter the size of the warehouse, space remains finite. Making the most of the space is one of the most critical considerations for all those associated with the warehouse and its profitability. The right technologies — for example, incorporating smart design, vertical stacks, automated material handling systems, and robotics — can help you stretch your space resources much further than you may have ever thought possible.

## What are the common challenges around space optimization?

- Outdated racking or floor-based storage systems underutilize vertical space.
- Outmoded inventory processes lead to inefficient space usage.
- Physical expansion of the warehouse is impossible due to economic or real estate constraints.
- High-SKU environments create congestion in picking zones.
- Promotional or seasonal inventory overloads capacity.

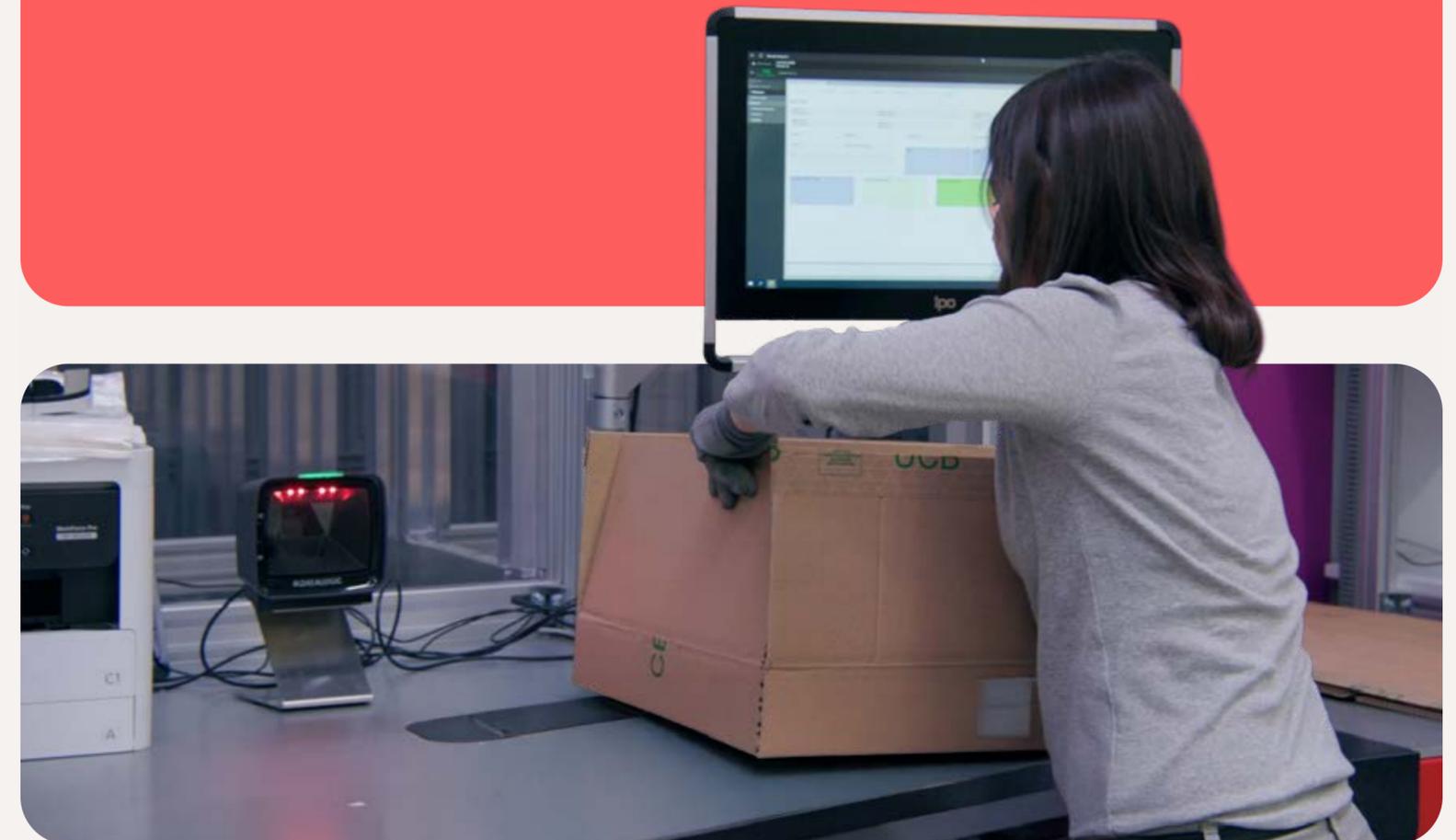
## How can you move things forward with space optimization?

- Design for vertical efficiency. Consider cube-based storage systems to multiply capacity without expanding footprint.
- Use dynamic slotting and inventory optimization to minimize movement and congestion.
- Keep pick-and-pack areas lean by locating high-frequency SKUs close to access points.
- Plan for space-saving infrastructure integration (e.g. multi-level picking zones).

## Case study

### Benetton's warehouse automation triples storage capacity

Shifting customer shopping behaviors led Benetton to adopt an automated, space-efficient system which tripled storage capacity within the existing facility, removing the need for costly relocation or expansion.



## Chapter 06

# Flexibility



# Flexibility

Retail is famously fast moving — and fickle. Warehouse operators need to be able to pivot and react to wherever the demand surges. Today's purchasing and fulfillment landscape — having to account for so many different product types, storage formats, fulfillment channels, and adjacent applications — means there's no one-size-fits-all solution. Nevertheless, flexibility remains key to future-proofing operations.

## What are the common challenges around flexibility in the warehouse?

- Legacy systems fail to optimize physical space.
- Inflexible automation setups are unable to adjust in real time.
- Promotional or seasonal spikes in inventory overloads capacity.
- Lack of inventory slotting logic results in inefficient use of space.
- High-usage environments result in picking obstructions and delays.

## How can you move things forward flexibly?

- Choose systems that support modular integration — these might include robotic arms, conveyors, or autonomous mobile robots (AMR).
- Enable multi-format picking (units, cases, pallets) from the same automated environment.
- Ensure system interoperability with warehouse management systems (WMS), enterprise resource planning (ERP), and other software platforms.
- Build for future product and channel diversity. Your warehouse should evolve with your business, not constrain it.

## Case study

### GEODIS identifies high-throughput as critical to client success

GEODIS is one of the world's largest 3PL providers. When fashion retailer Maurices needed unparalleled flexibility to manage a huge volume of SKUs with accuracy and speed, GEODIS turned to a new HTP solution to deliver flexibility with reliability.



Chapter 07

# Scalability



# Scalability

To align your operations with the current needs and the future ambitions of your clients, you need to have a sharp focus on scalability. Whether it's the ability to scale for seasonal spikes, or to ensure your capacity and infrastructure can keep pace with changing consumer and client trends, you must be able to scale without needing a rethink of operations or a redesign of the warehouse.

## What are the common warehouse challenges around scalability?

- Current systems designed for today's volumes rather than future growth.
- Lack of modularity makes incremental scaling costly and complex.
- Difficulty forecasting and planning for long-term growth.
- Expansion strategies that rely on increasing labor rather than optimizing throughput.
- Disruption and delay caused by warehouse upgrades or expansions.

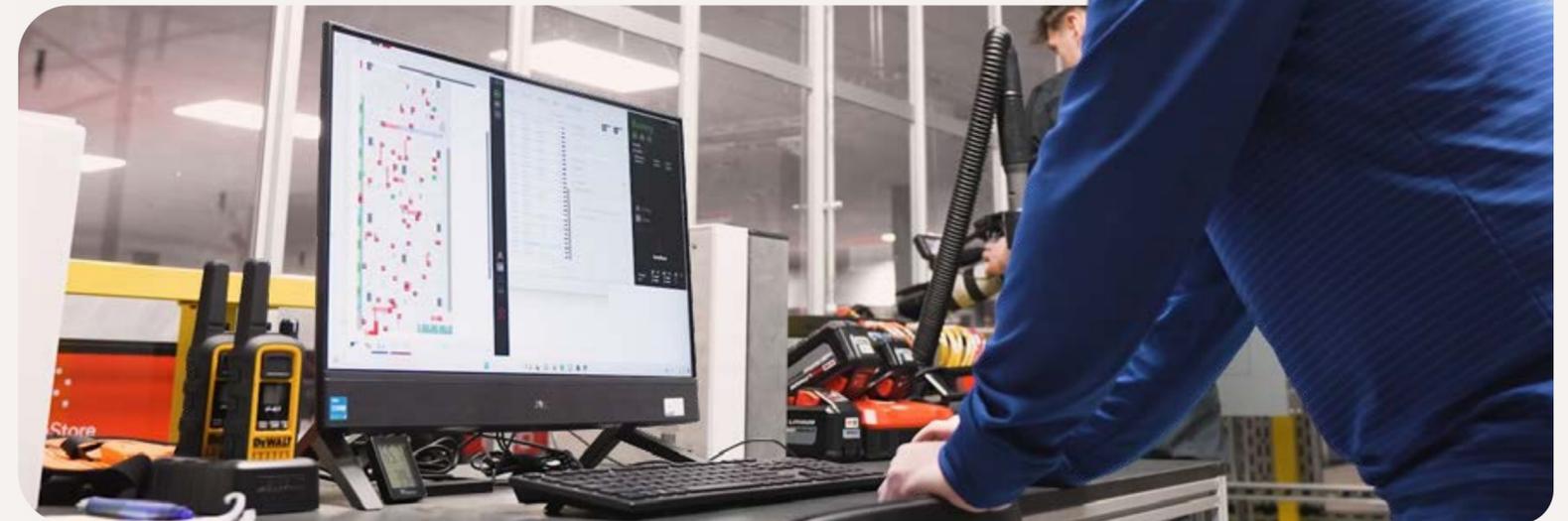
## How can you move things forward at scale?

- Start with a modular approach. Expand by adding robots, workstations, or vertical storage space as demand increases.
- Use demand forecasts to map planned growth trajectories in volume, SKU count, and storage capacity.
- Ensure system components can be added with minimal downtime or disruption.
- Consider scalability across multiple sites. Build replicable frameworks that support global or multi-region expansion.
- Choose a system that's intuitive and can enable rapid staff onboarding and offboarding during peak periods, giving your operation the agility to scale efficiently as demand fluctuates.

## Case study

### Cutter & Buck use HTP to overcome labor constraints and offer clients dependable scalability

Accelerating e-commerce sales, combined with labor availability constraints, presented a challenge for Cutter & Buck, who tackled it successfully with an automated warehouse system that allows reliable scalability and speed for their clients.



# Creating Tomorrow's Warehouse

In a fast-moving retail world, the challenges faced by the modern warehouse are many and various: Lack of space, rising labor costs, safety, compliance stipulations, and the ever-changing tides of consumer demand and client satisfaction.

In the middle of this, warehouses are under constant pressure to keep operations fast yet flexible, cost-effective, reliable, safe, and scalable.

Embracing high-throughput across your warehouse operations will simplify your operations, bring predictability and transparency to costs, and make you fit for the future.

Your employees and partners deserve the experience of an innovative working environment that provides 99.7% uptime, reduces human error, and enhances employee safety and wellbeing. To find out more, [contact AutoStore today](#).



# Move Things Forward with AutoStore

It's AutoStore's goal to revolutionize warehouse management through the world's fastest goods-to-person solution — a fully automated storage and retrieval system (AS/RS) that manages high-throughput and supercharges order fulfillment.

AutoStore is a system that's engineered to scale with your peaks, flex with your lows, and keep you outpacing change. With our modular design, we help warehouses eliminate complexity, avoid downtime, and deliver relentless throughput in response to demand.

A technology and ecosystem provider, we're passionate about pushing the boundaries of what's possible. Whatever your most pressing concerns today, we're here to ensure you can move things forward with confidence.

