

# Choosing the Right Pallet ASRS for Your Operation

Presented by:

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Technology Center



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swisslog



**MODEX** 2020

GEORGIA WORLD CONGRESS CENTER  
ATLANTA | MARCH 9-12  
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# Agenda

- 1 Challenges and trends driving automation
- 2 Where does automation bring value?
- 3 Pallet Stacker Cranes
- 4 Pallet Shuttle Systems
- 5 How to assess the right solution?
- 6 Justifying the investment
- 7 Questions & Answers



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1.  
OPERATIONAL  
EXPENSES

CHALLENGES  
& TRENDS

2.  
WORKING  
ENVIRONMENT

3.  
MARKET  
REQUIREMENTS

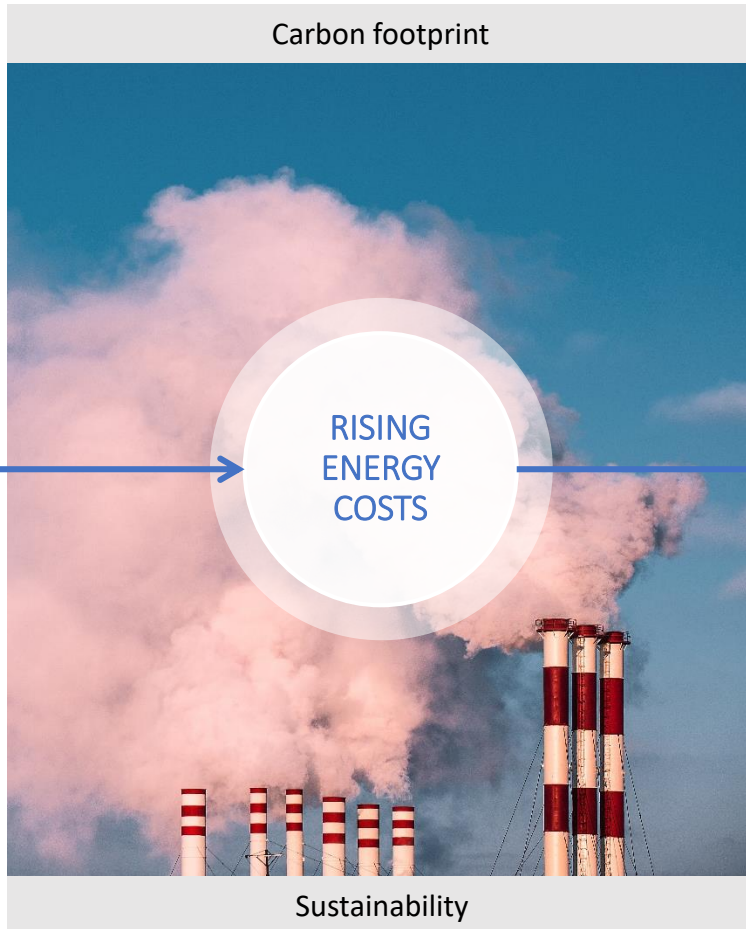


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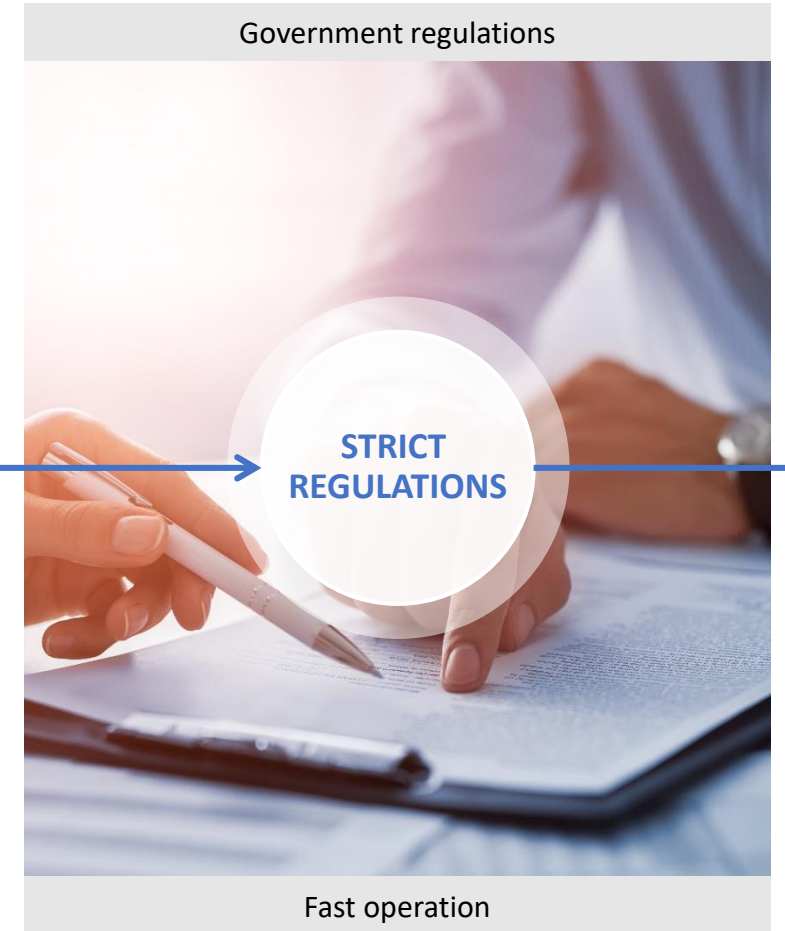
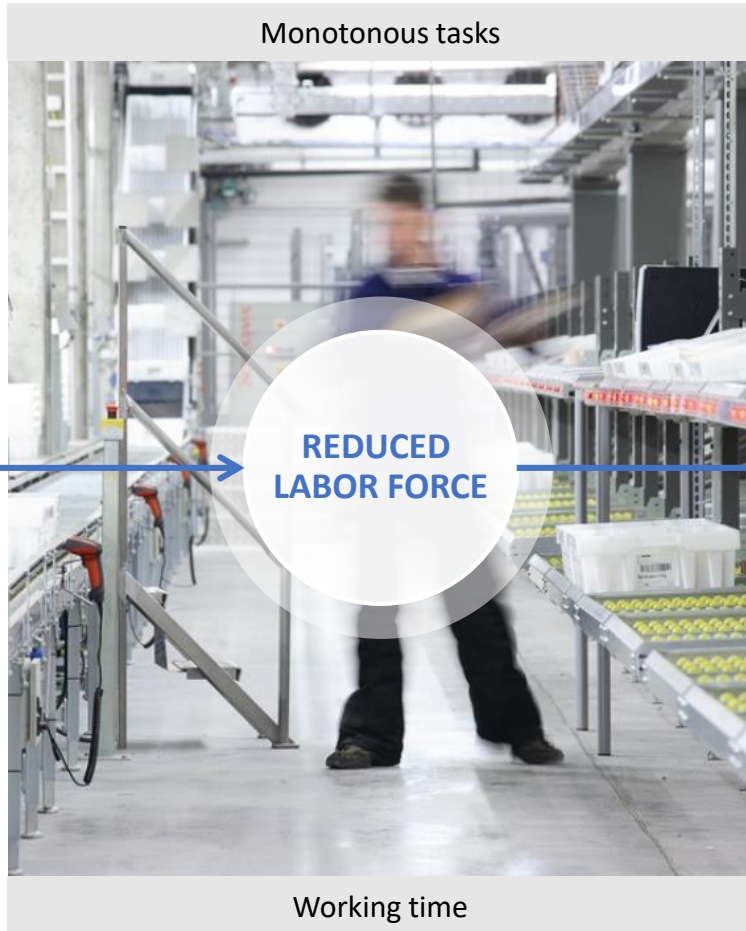
# 1. Operational Expenses

## Challenges & trends





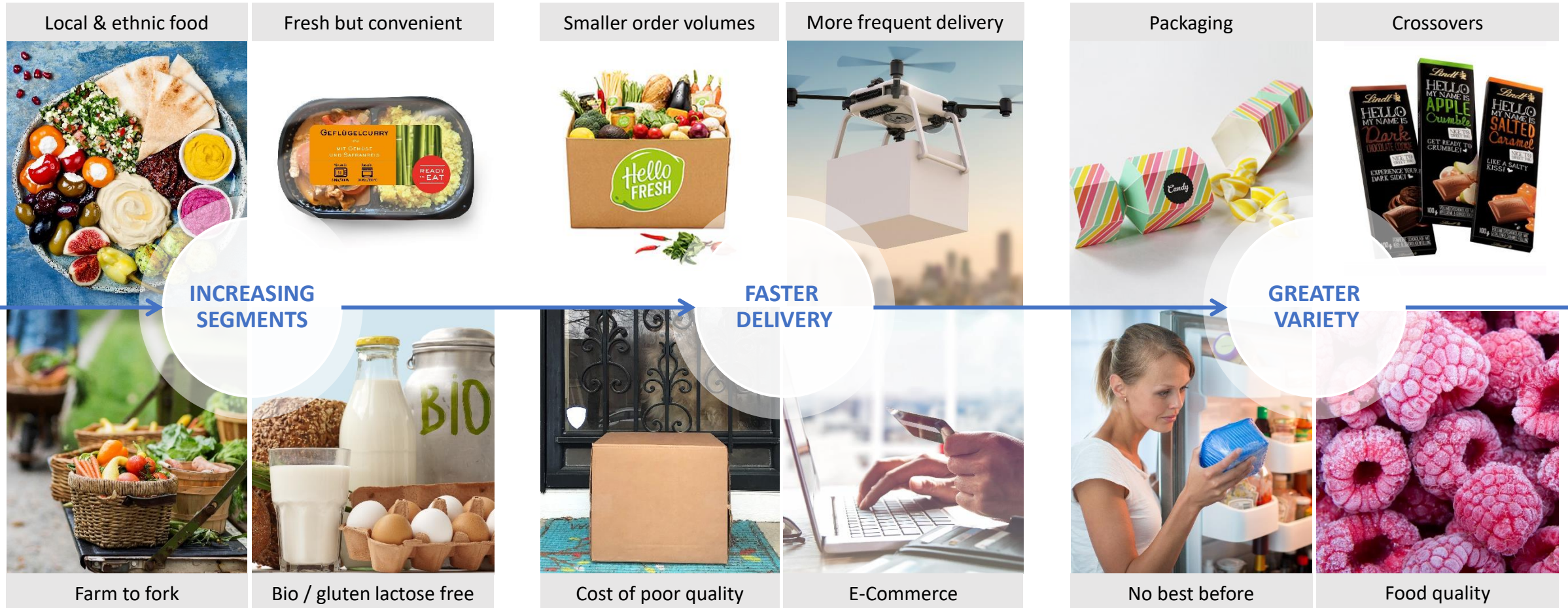
## 2. Working Environment Challenges & trends





# 3. Market Requirements

## Challenges & trends



## Huge Growth in Cold Storage

“Demand for public cold space from online grocery sales alone will grow by up to 100 million square feet, or about 50% of the current inventory, over the next five years, according to CBRE. That’s equivalent to about 200 regional malls’ worth of space.”

-Bloomberg Businessweek





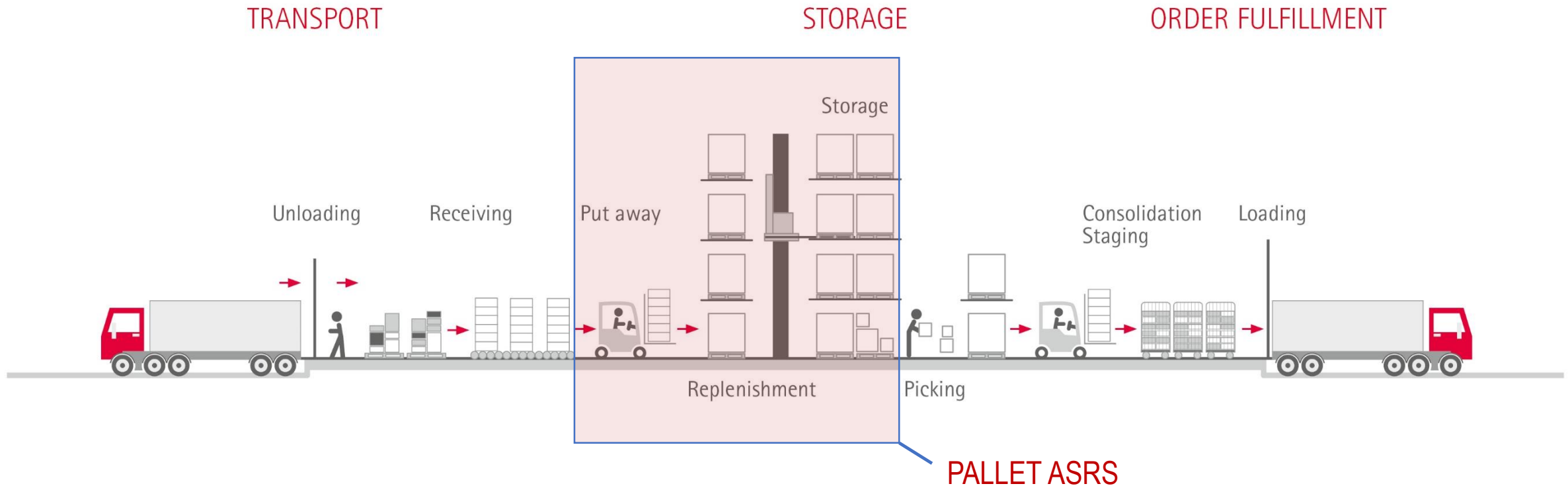
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# Basic Intralogistics Process

Processes within the four walls of a warehouse



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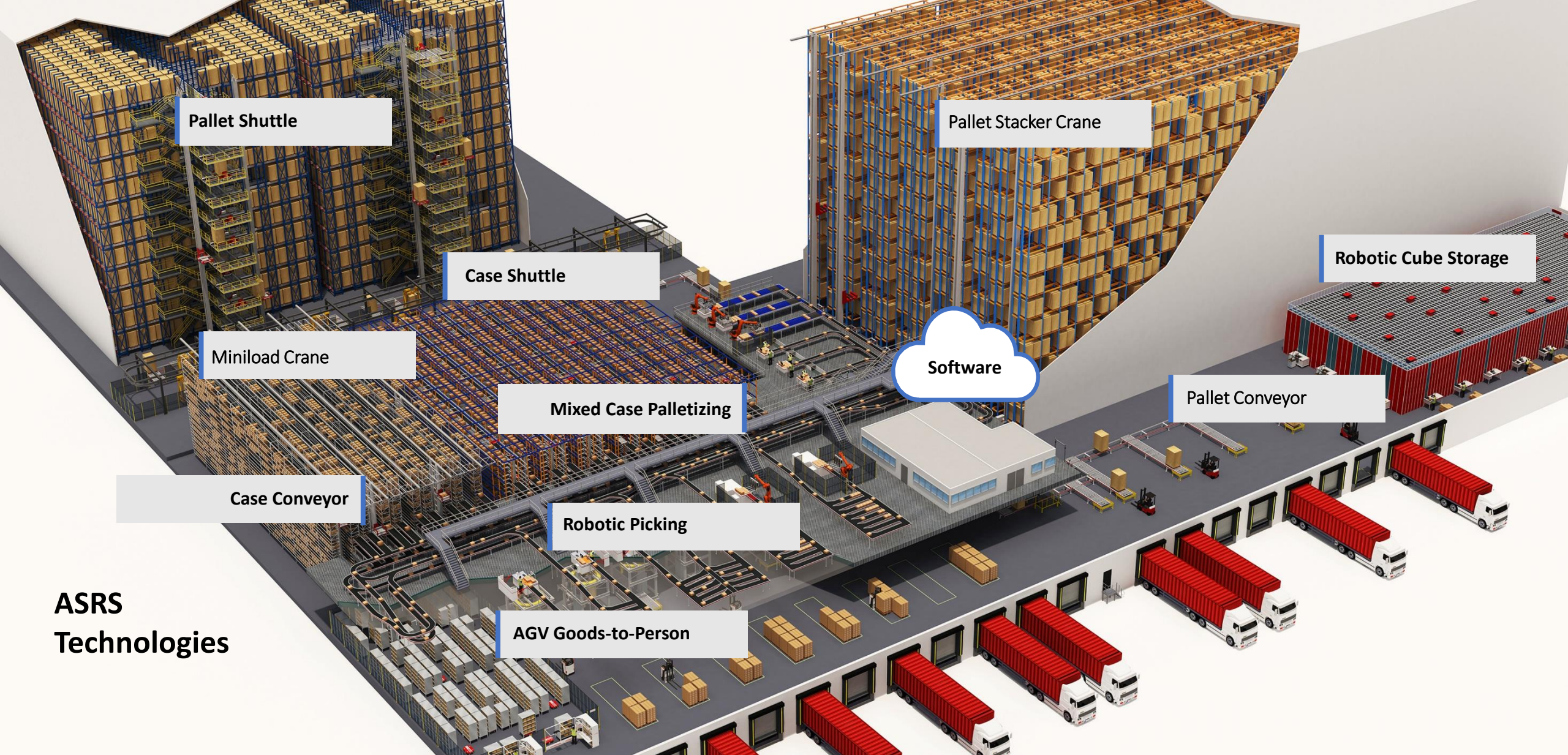


# Automating Warehouse Processes

Where will automation deliver most value in labor reduction?

Warehouse Process	Variable Labor Costs	Automated Solutions
1. Unloading/ Receiving	8%	Roll on - Roll off (RORO) Automated Guided Vehicles (AGVs) RF ID express receipt
2. Transportation/ Putaway	12%	<div>Pallet conveyors Monorail Shuttle cars</div> <div>Pallet Stacker Cranes Pallet Shuttles AGVs Miniloads Case Shuttles</div>
3. Replenishment	14%	
4. Picking	35 - 40%	Auto Case Pick Sortation systems Goods-to-person pick
5. Staging/ Loading	12%	Pallet conveyors Auto Pallet wrap AGV loading
6. Auxiliary tasks	5 -10%	Layer picking Full Pallet Outfeed Empty Pallet stackers





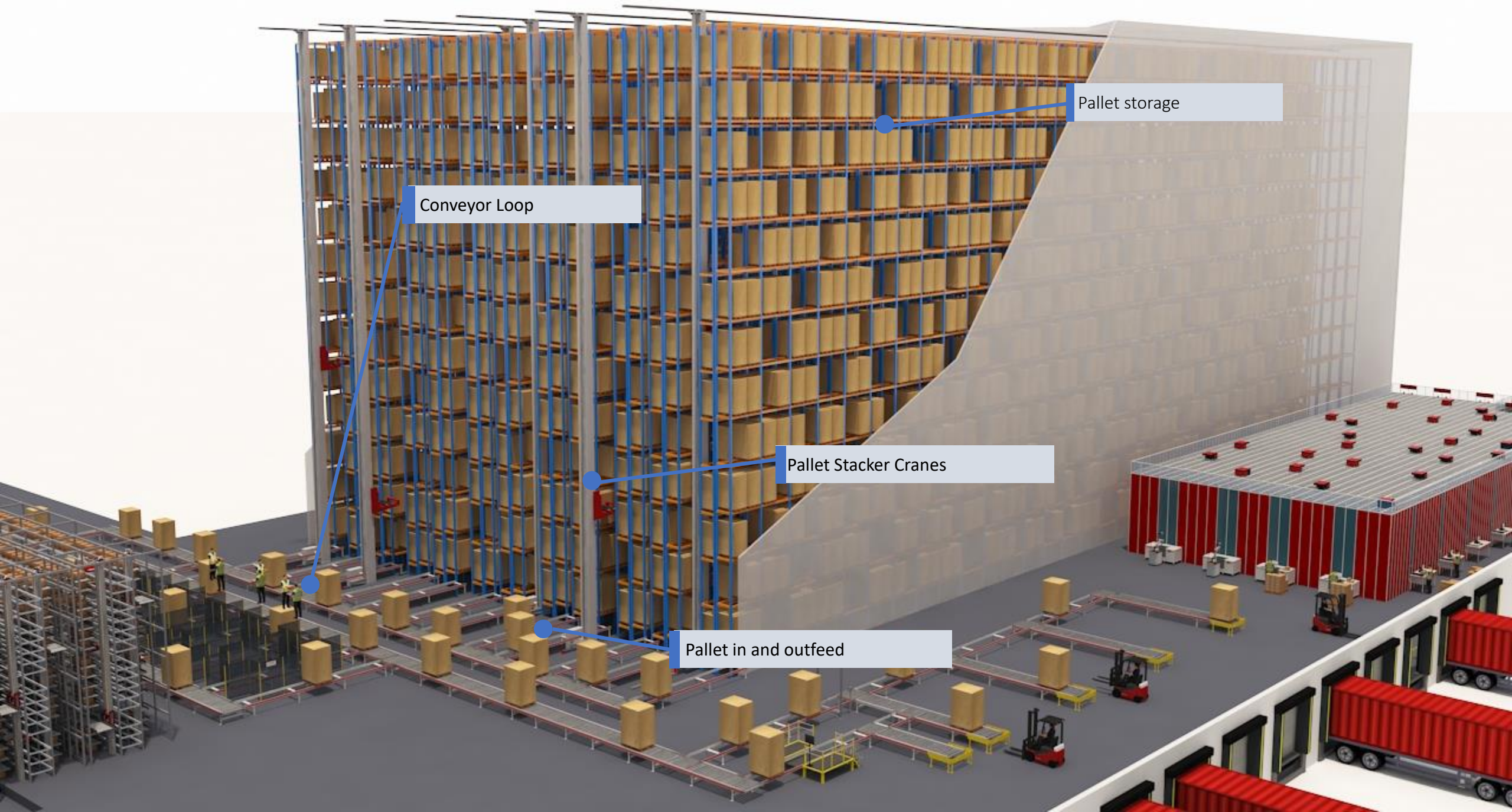
**ASRS  
Technologies**



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Pallet storage

Conveyor Loop

Pallet Stacker Cranes

Pallet in and outfeed



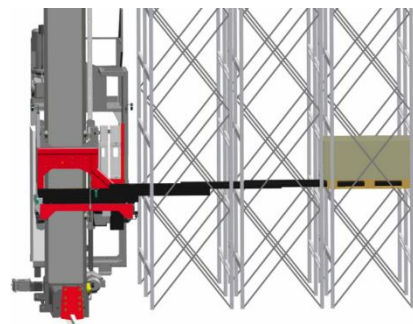
# Pallet Stacker Cranes

## Five key components



**Mast**

Tapered single or double mast in modular design for less weight and easier shipping.



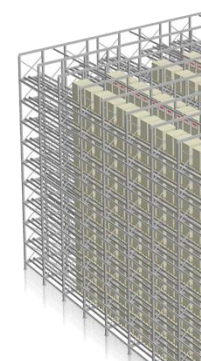
**Lift carriage with fork unit**

The strong fork unit allows single, double and triple deep reach.



**RowCarrier**

For multi-deep storage solutions, we use a reliable 8 wheel driven satellite which is powered by supercaps.



**Rack**

Robust rack designed for storage of heavy pallets.



**Software**

The brains of the system. A standard warehouse management software designed by Swisslog for Vectura.

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# Efficient Storage

Meeting the most challenging requirements



## Pallet Stacker Cranes

Do you want to store pallets more efficiently and be more cost effective?

### 1. Flexibility

Multiple storage solutions

### 2. Efficiency

High no. of SKU & storage capacity

### 3. Reliability

Reduced error rate

### 4. Cost effective

Favorable return of investment

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# Pallet Stacker Cranes

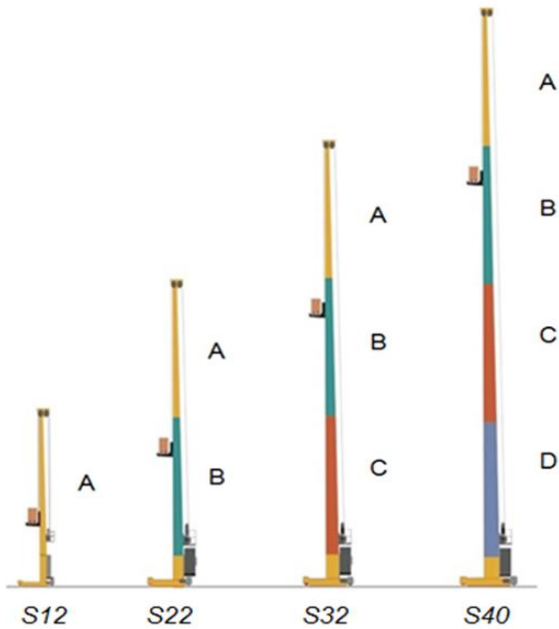
## Proven technology since 1969

Tapered mast in modular design for less weight and easier shipping.

20% lower energy consumption thanks to reduced weight of the crane.

Pre-testing before shipping reduces installation time.

Integrated into other sub-systems for efficient warehouse processes



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# Pallet Stacker Cranes

## Special features for deep freeze with 250+ cranes in operation

Integrated cameras to  
reduce maintenance time in  
freezer

Specific grease/oils for  
freezer environment

Heated control cabinets  
with generated power

Quick disconnects for  
components to reduce  
wiring/troubleshooting in the  
freezer

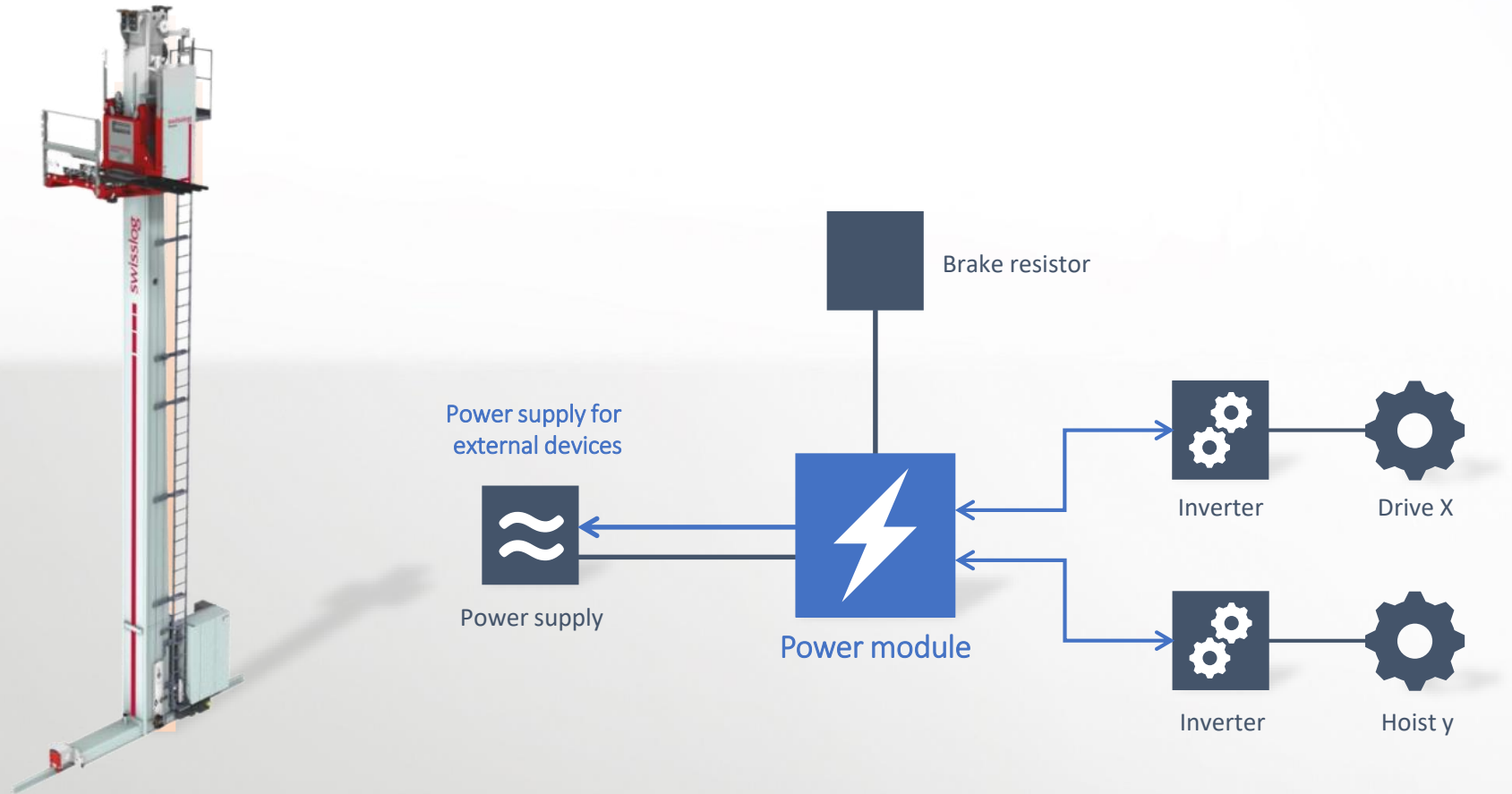




# Pallet Stacker Cranes

Internal and external use of regenerative energy for optimal use of cycles

Internal use of regenerative energy

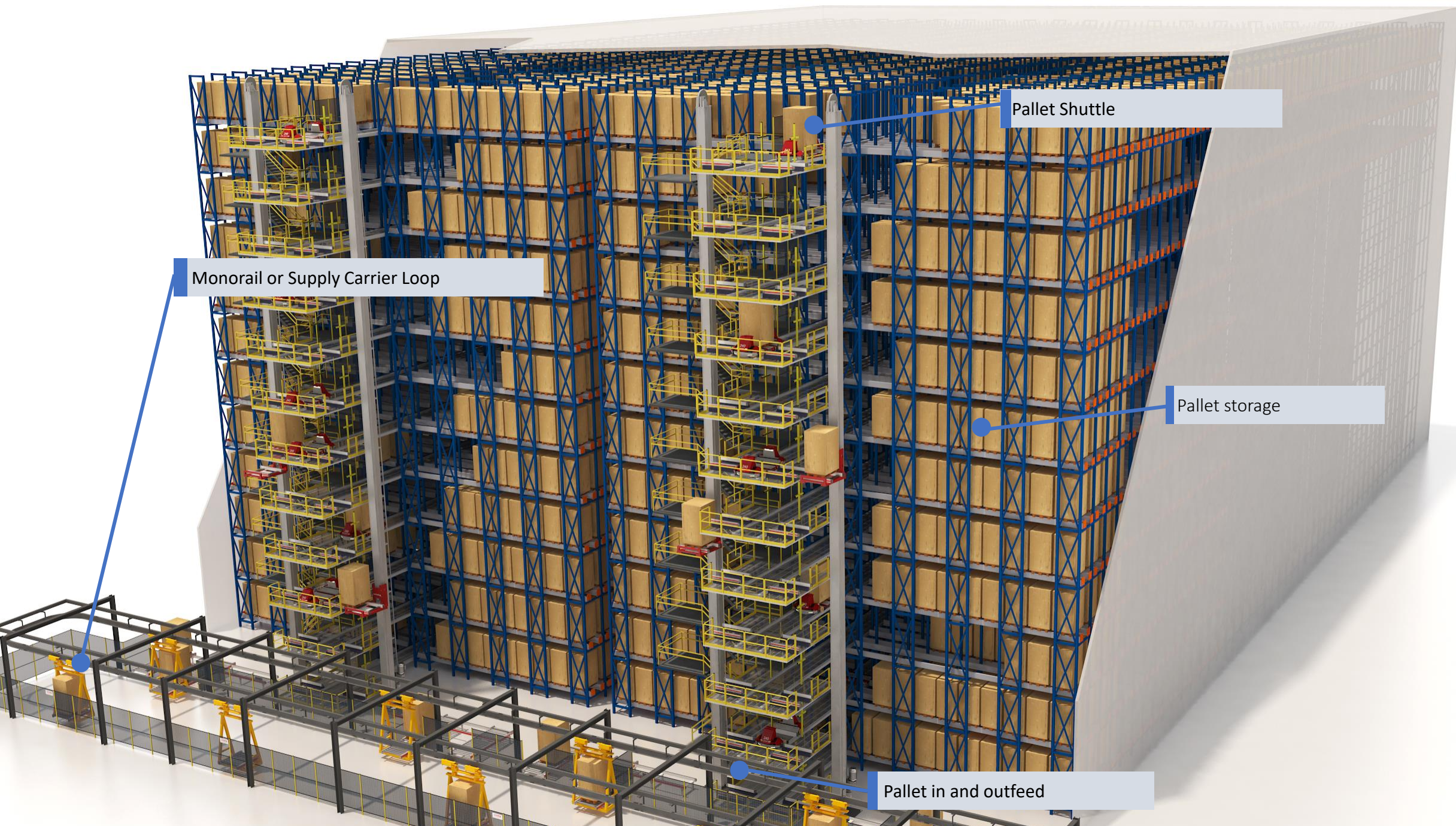


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Pallet Shuttle

Monorail or Supply Carrier Loop

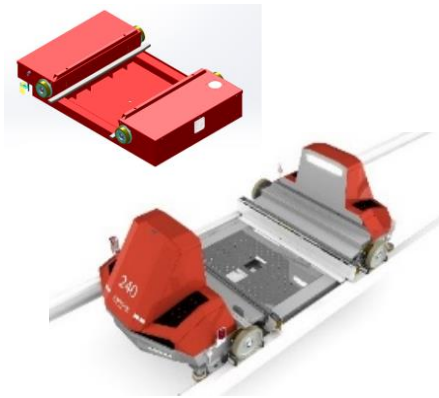
Pallet storage

Pallet in and outfeed



# Pallet Shuttle Systems

## Five key components



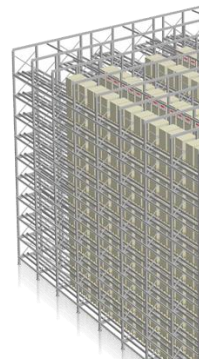
**AisleCarrier**

Built low to maximize storage capabilities.



**RowCarrier**

All wheel drive and Supercaps/battery powered to ensure reliability.



**Rack**

System is independent of rack supplier. Racking can be designed without bracing in aisles to ease access.



**Vertical Conveyor**

Robust VC design for one, two or three loads using forks, conveyors or chains.



**Software**

The brains of the system. A standard warehouse management software designed by Swisslog for PowerStore.

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# High Density Storage

Meeting the most challenging requirements



## Pallet Shuttle System

Do you want to maximize available space, remain flexible and increase throughput?

### 1. Flexibility

Multiple storage solutions

### 2. Efficiency

High throughput & storage capacity

### 3. Reliability

Reduced error rate

### 4. Cost effective

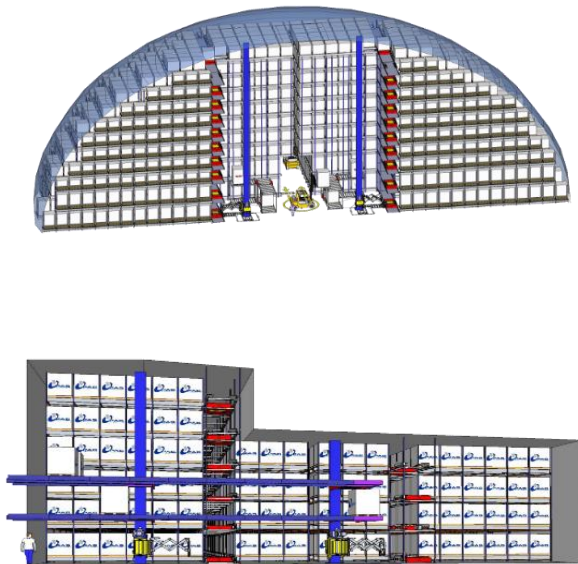
Favorable return of investment

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# Why are Pallet Shuttle Systems Gaining in the Market Place?

## Advantages

Can be implemented into a building of any shape and size.



The modular technology allows for easy addition of extra modules.



Suitable for all common pallet types.



Integrated into other sub-systems for efficient warehouse processes.



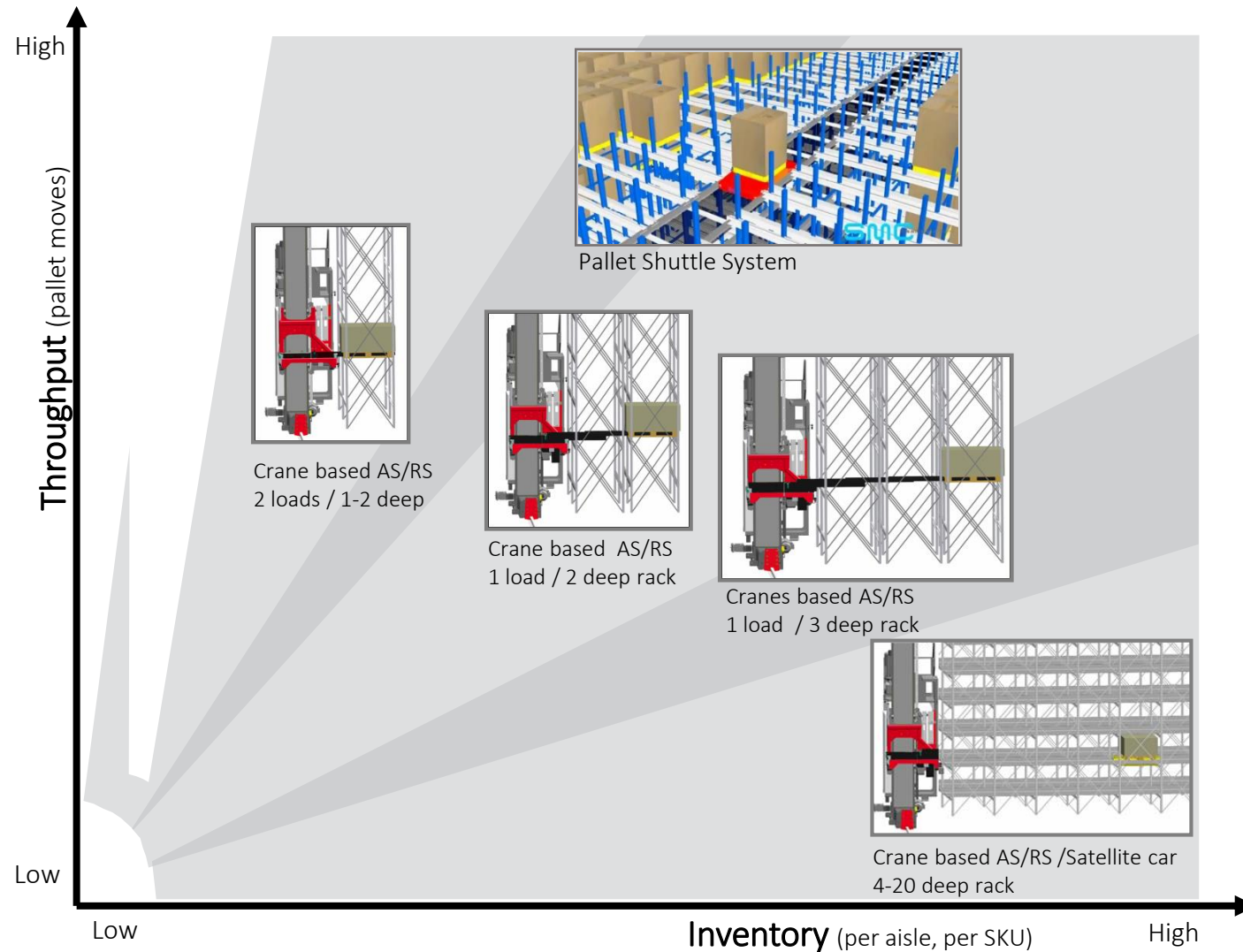


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# How to Assess the Right Solution?

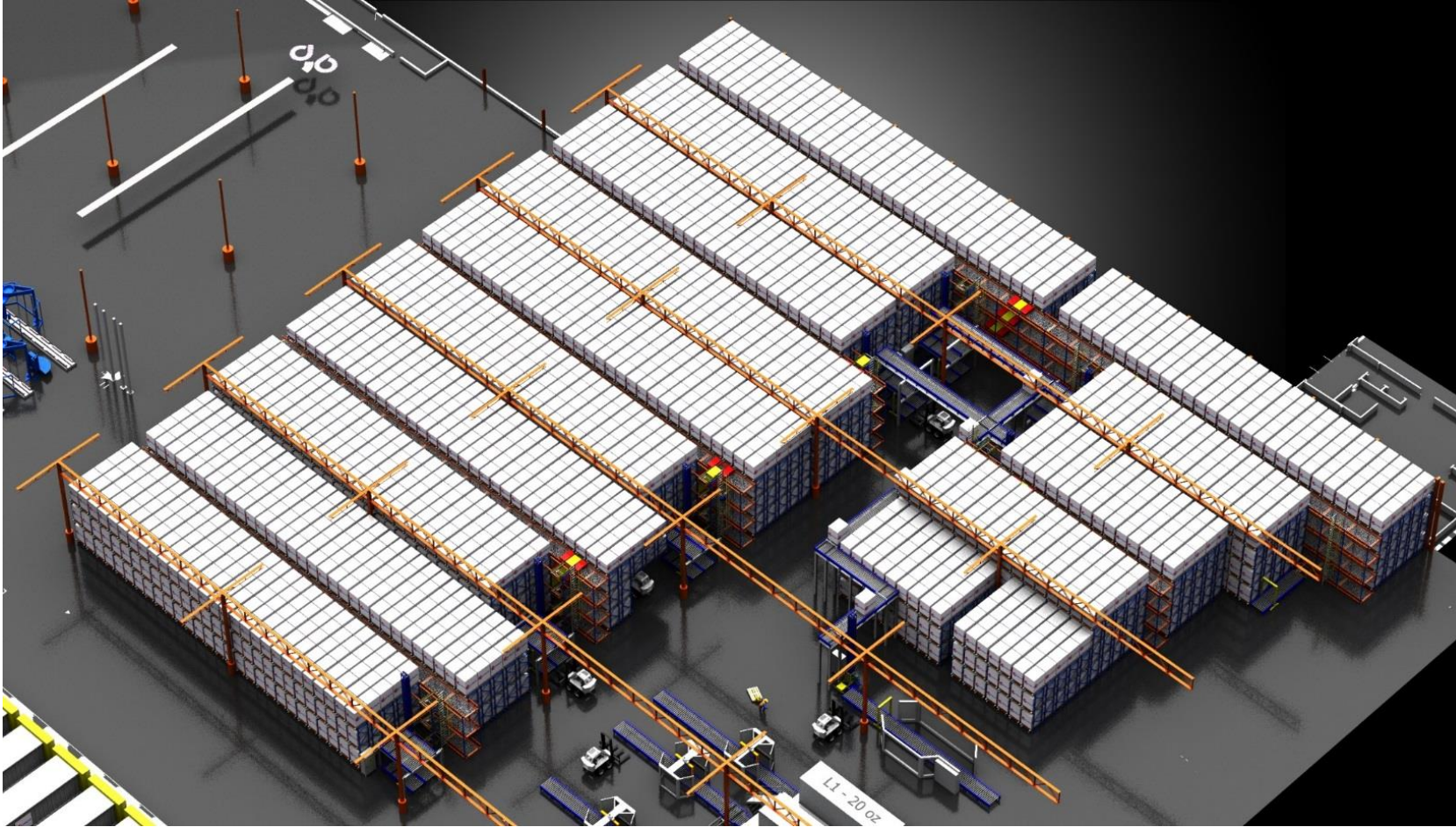


## Factors to consider:

- Throughput requirements
- Inventory requirements
- SKU count
- Storage density
- Availability



# Brownfield Site Considerations



- Existing building
- Low or varying building ceiling
- Odd shaped building areas
- Building columns and other fixed equipment
- Flooring conditions
  - Joints
  - Concrete quality
  - Level



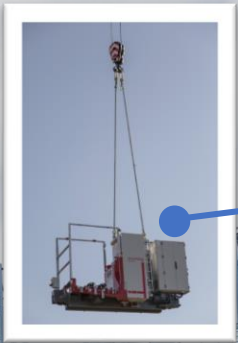
# GREENFIELD SITE CONSIDERATIONS

Module A

Module B

Module C

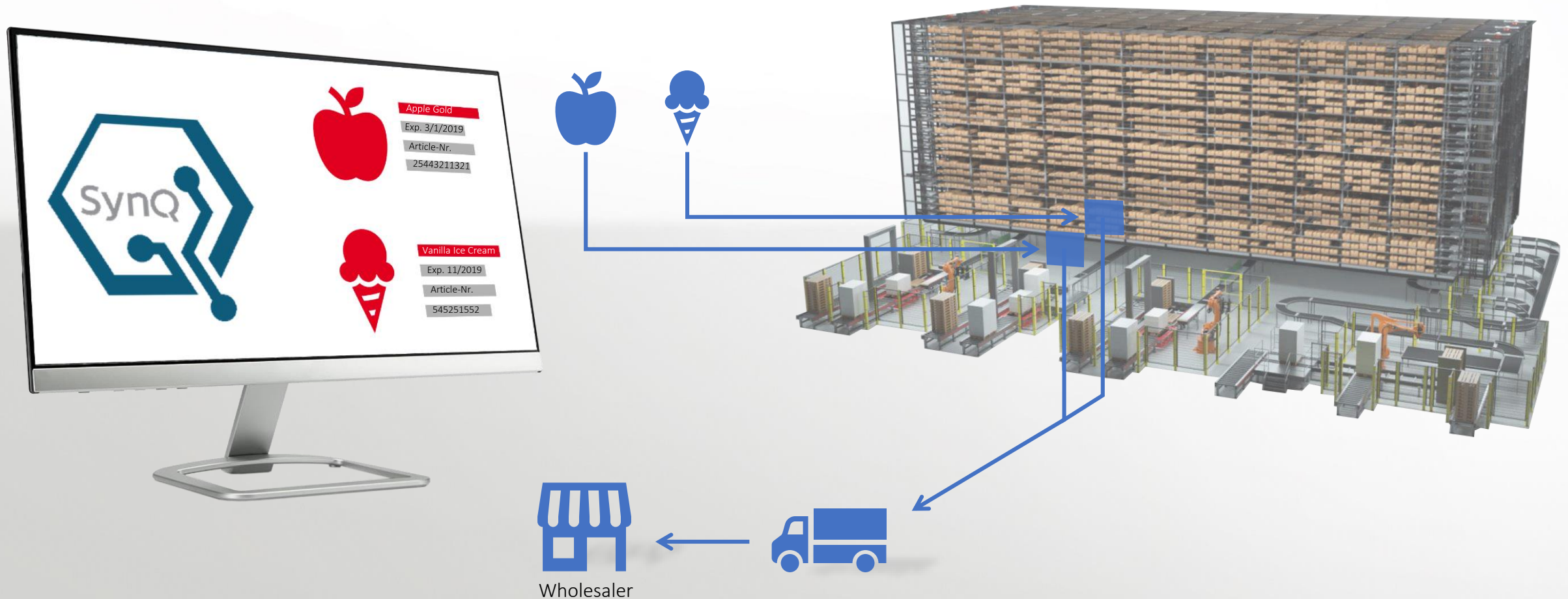
Chassis with Wheels,  
Mast, Cab, El cabinet  
& Motors





# Warehouse Management Software

Product tracking and tracing throughout your warehouse



# Agenda

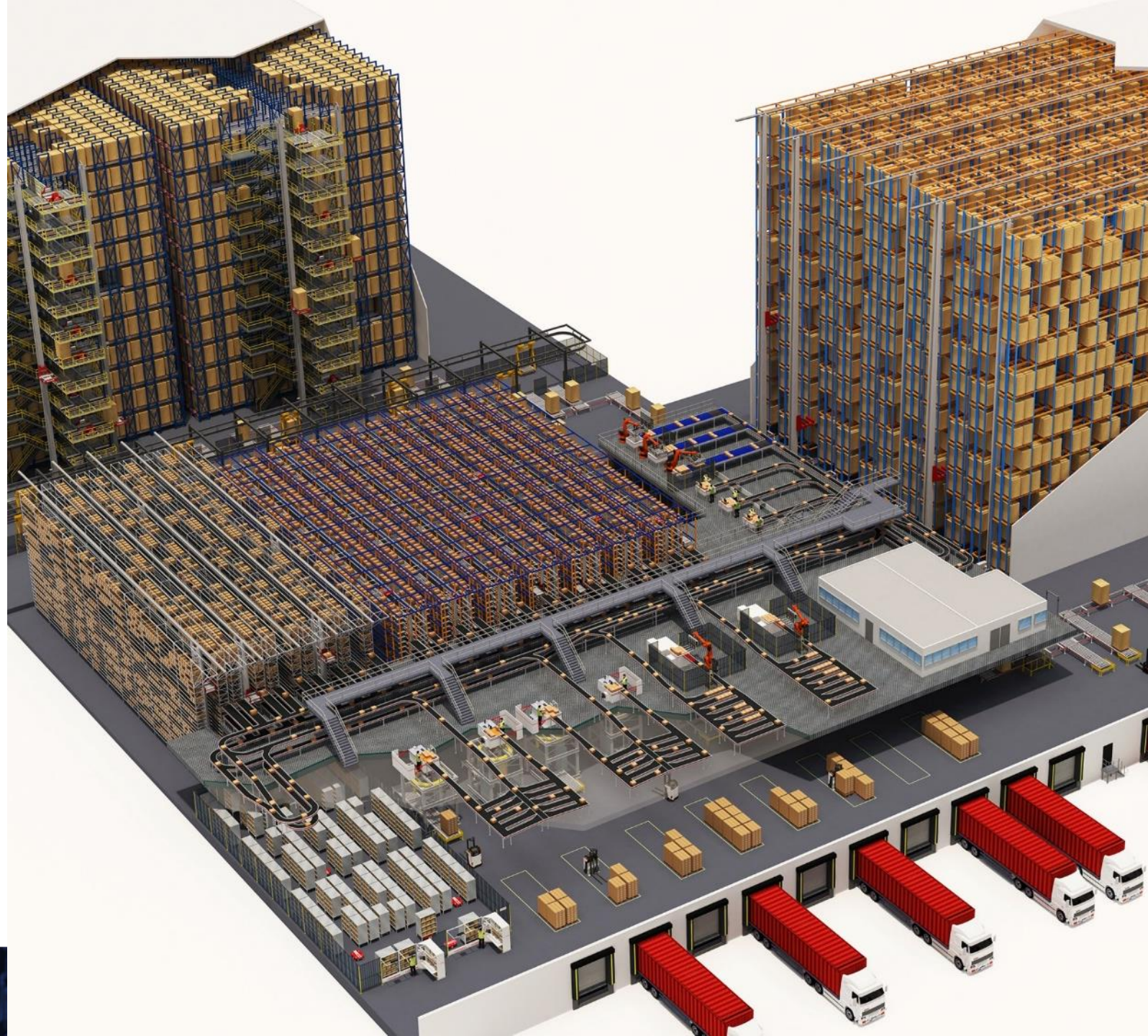
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# Justifying the Investment

- Smaller building footprint
- Direct & Indirect Labor Savings
- Reduced cubic space/Energy savings
- Tax advantages
- Optimized Worker Ergonomics
- Reduced damage
- Control of Downtime
- Increased Safety
- Improved Inventory Accuracy
- Eliminate Physical Inventory Counting



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# Justifying the investment

- Improved Order Accuracy
- Maximize Order Fulfillment Rate
- FIFO Inventory Rotation
- Control of “quarantined” product
- Improved Product Integrity
- Maximize Service Reputation
- Forces Operations Discipline
- Enhanced Organizational Performance Culture
- Cost of Capital << Higher Annual Operational Expenses



Dense storage via ASRS technology



Q & A

swisslog

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Website: [www.swisslog.com](http://www.swisslog.com)

Or visit MODEX Booth #7657

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