

AUTOMATISERING I TRANSPORT OG LOGISTIK

DTI – 07-02-2017

INTRODUCTION



John Carstens

Senior Consultant, Partner

Erfaring: Aktiv i logistik siden 1985

Langebæk: Siden 2005

Uddannelse: Ingeniør

Tidligere: Ferrosan, Carlsberg, Inco Danmark
DFDS Transport

Some of my projects:

- Matas, DK Warehouse, Supply Chain
- Coop, NO, DK Automation
- DLG, DK Supply Chain
- Haldor Topsøe, DK Warehouse, Logistics
- Felleskjørpel Agri, NO Supply Chain, Warehouse
- HP Schou, DK Logistics, Supply Chain
- Fleggaard, DE Warehouse, Logistics
-

AGENDA

- Short on Langebæk
- Supply chain cases
- High automation cases
- Full automation cases

LANGEBÆK

SUPPLY CHAIN & LOGISTICS

LANGEBÆK A/S

We are a leading Scandinavian **consulting** firm in the fields of **Supply Chain - Logistics - Material Handling - Warehousing.**

- We deliver consultancy services at **strategic** and **operational** levels
- Our advice is based on **facts**, analyses and thoroughly tested processes
- Worked together with market leading companies for more than **35 years**
- Advice on best solution for **bottom line improvement**
- Only **consulting of logistic design** – not a system supplier
- **No supplier preferences** – completely neutral
- **23 colleagues**, average age of **45 years**
- Skilled, committed colleagues (**mostly engineers**) an informal atmosphere and a high level of ambition.



OUR CONSULTANCY AND COMPETENCE

Supply Chain (SCM)

- Network re-design
- Purchasing optimisation
- Forecasting
- Distribution optimisation
- Outsourcing/Insourcing



Material Handling (Logistics)

- Infrastructure planning
- Development of warehouses
- Design of manufacturing facilities
- Material handling solutions



System Requirements (IT)

- WMS and VCS systems
- Business Intelligence (BI)
- PLC and control systems
- ERP (Sales and Operation, Inventory, Purchasing)



Project management



- Strategic planning
- Operational efficiency improvements
- Process development and re-engineering
- Technological development
- Specifications of requirements
- Calls for tender / Request for proposal (DK: udbud)
- Change management
- Detailed project management and control
- Implementation and completion.

CURRENT PROJECT SAMPLES



JYSK

Expansion, development of European network and warehouses (DK, SE, Balkan)



Netto

Expansion and development of central warehouse operation



Also

Analysis, optimization of DK warehouse. Implementation of new Finish Warehouse



DLG

Supply chain analysis and optimization. 3PL outsourcing and implementation.



REMA 1000

Supply chain and warehouse analysis and optimization (DK, NO)



COOP Norge

Implementation of new fully automated warehouse



Elgiganten

New omni channel DC development and implementation



Odense Hospital

Development of new super-hospital infrastructure



Matas

Optimization of supply chain and warehouse



Nelly.com

Analysis and optimization of .com warehouse



Nemlig.com

Development and implementation of new .com DC



danskretursystem

Dansk Retursystem Process optimization and network analysis



Diplom Is Norge

Supply chain structure and warehouse redesign



FoodService Danmark

Foodservice DK

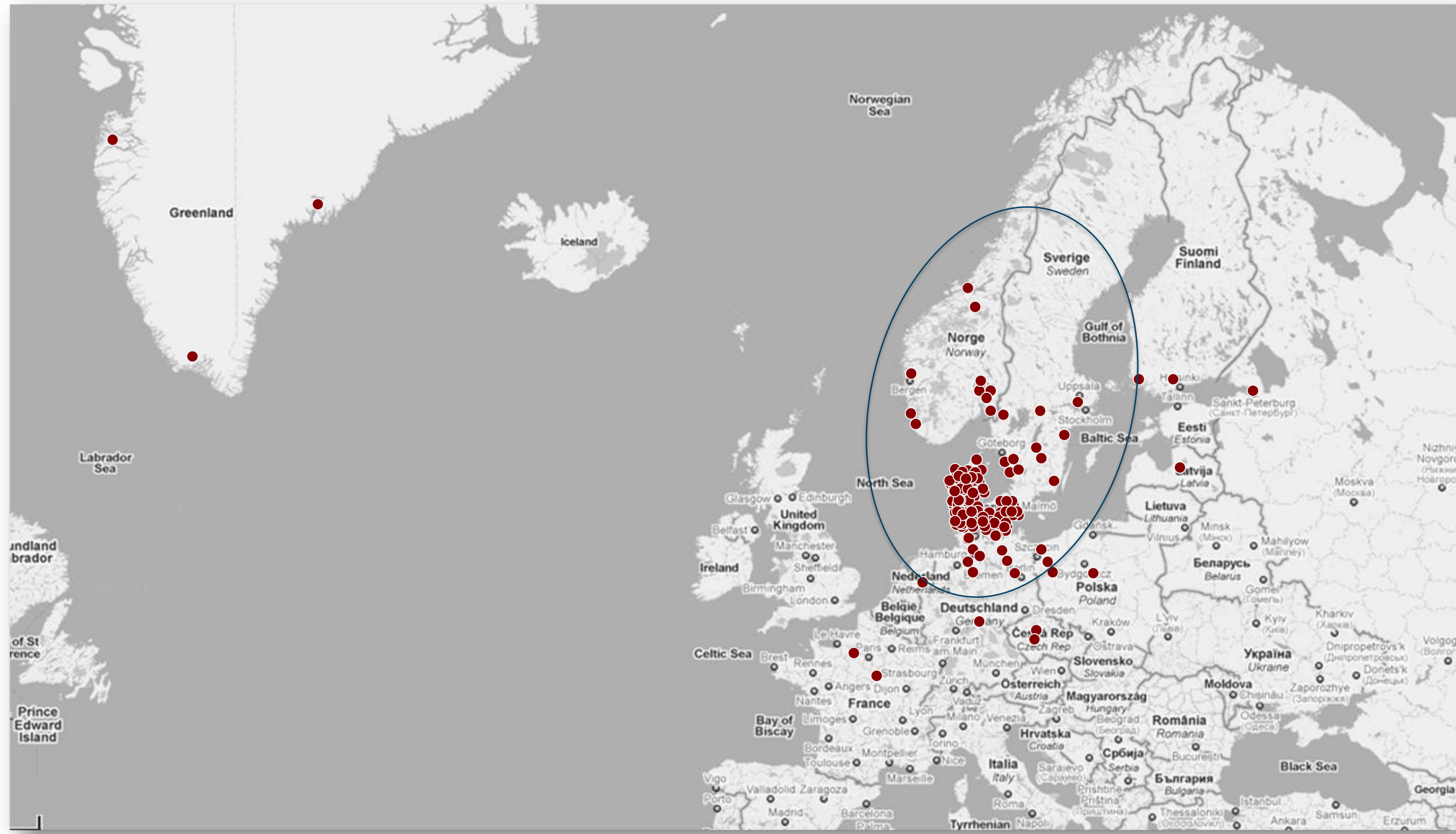
DC design and concepting



Elektroskandia

Optimisation redesign and implementation of new SE network and warehouse.

OUR MARKET



CASES

CUSTOMER OBJECTIVES

Supply Chain (SCM)

- Strategic plan for SCM
- Transport cost reduction
- Capacity increase in the SC
- Best location for a new DC
- Strategy for outsourcing/insourcing



Material Handling (Logistics)

- Manning cost reduction
- Capacity increase
- Optimized ergonomics
- Optimized utilization of current site
- Design of new site or extension



System Requirements (IT)

- Optimized use of WMS
- New system design
- Best setup for automation



Project management



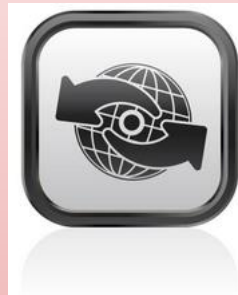
- Strategic planning for future growth
- Scenario analyses
- Project management in design of new warehouse, extension or optimization
- Specifications of requirements
- Calls for tender / Request for proposal (DK: udbud)
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REGIONAL SUPPLY CHAIN STRUCTURE

The challenge

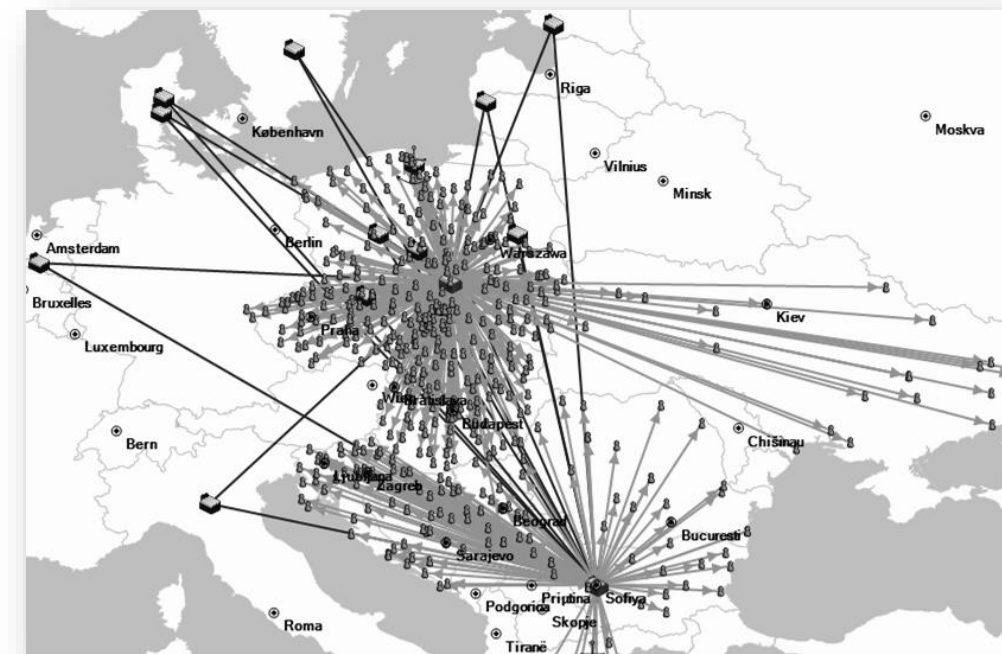
- Large **growth** in South-East Europe
- **Not enough capacity** at the current warehouse in Poland
- Needed an **overview** of the capacity limits of the existing warehouse setup
- Needed a **decision basis** for establishing a new DC at Balkan

Polen/Bulgaria
165.000 pp



Langebæk's contribution / Solution

- Developed a SCM model in ILOG (Network optimization software)
- Analyzed different scenarios on where to place the new DC
 - Expansion of current site
 - Center of gravity in regards to ingoing and outgoing flow
 - Specific strategic decided locations
- Documented the cost reduction and return on investment
- Made a sensitivity analysis on change in growth compared to expectations
- Developed a long term supply chain strategy for the region





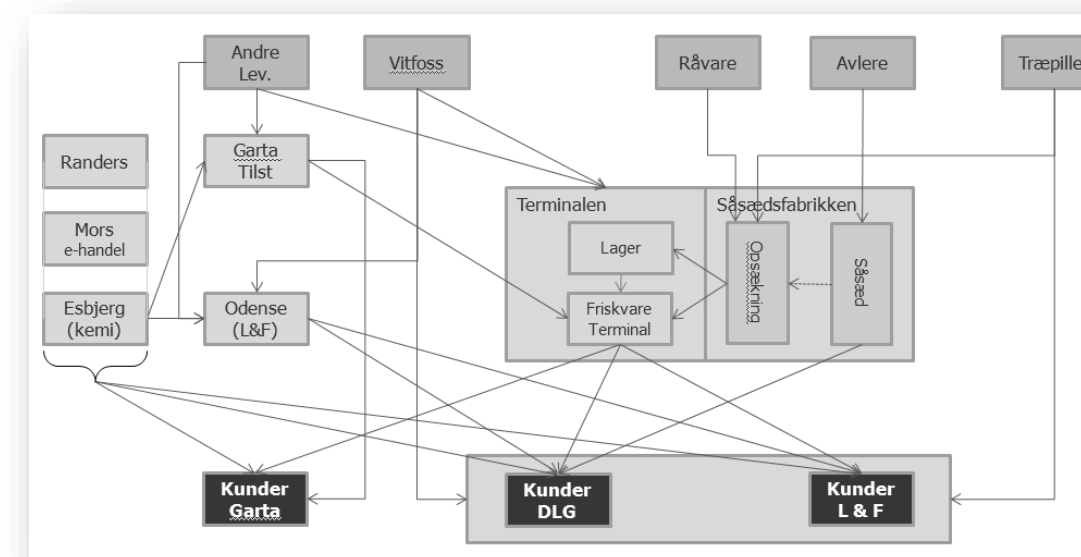
WAREHOUSE & SUPPLY CHAIN OPTIMIZATION

The challenge

- DLG: “Dansk Landbrugs Grovvarereselskab”
- Supplying the farming and agriculture industry
- Needed a **revised warehouse and SC strategy** in DK
- **Capacity shortage** – existing setup was based on sub-optimization
- **Needed a complete overview**
- Does outsourcing make sense?

Langebæk’s contribution / Solution

- Location analysis/center of gravity
- Flow and storage analysis
- Assortment analysis for all warehouses and intermediate storages
- Total cost analysis
- Recommendation for new storage and SC setup



HIGH AUTOMATION

CUSTOMER OBJECTIVES



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Project management

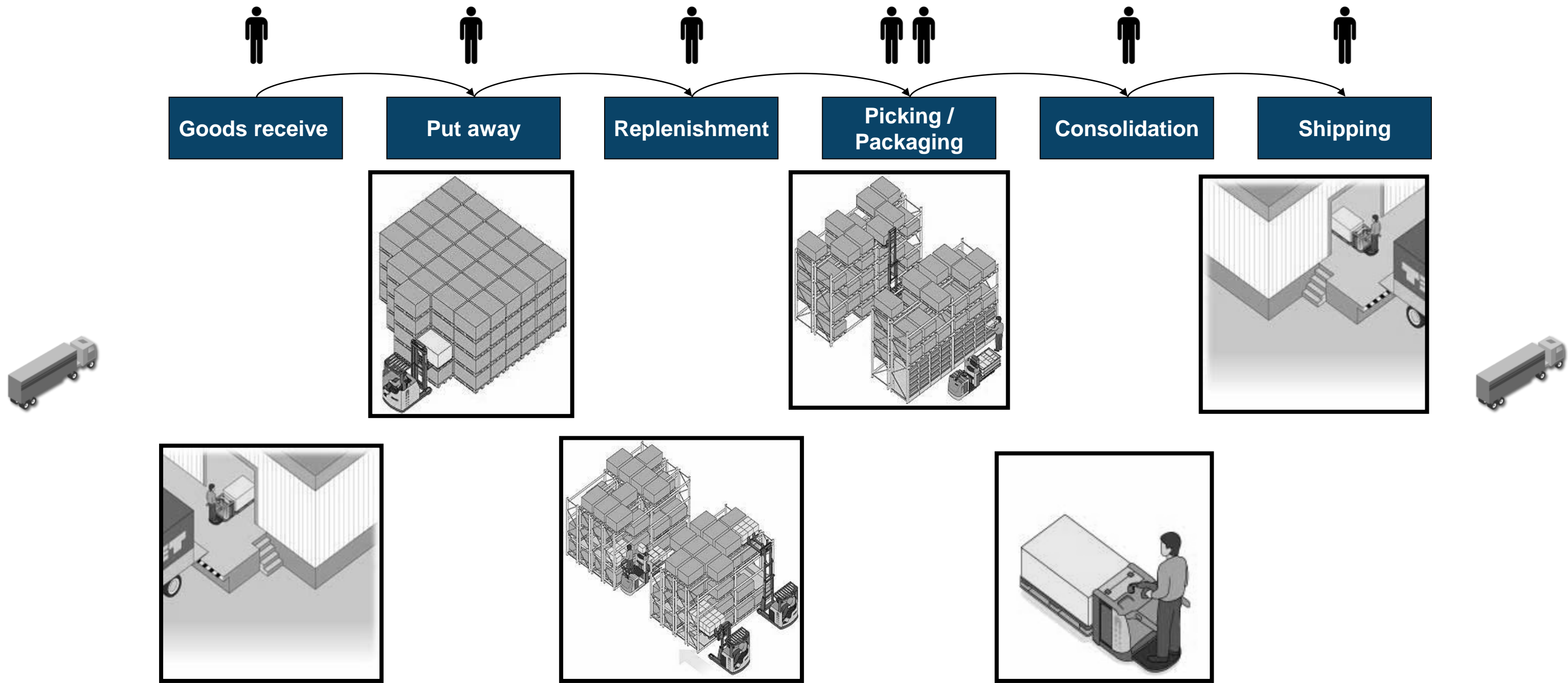


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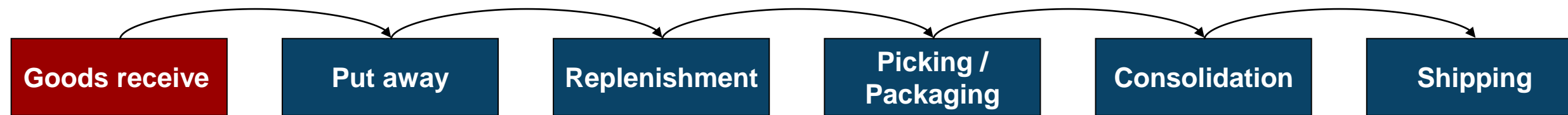
NETTO KØGE



TRADITIONAL WAREHOUSE PROCESSES



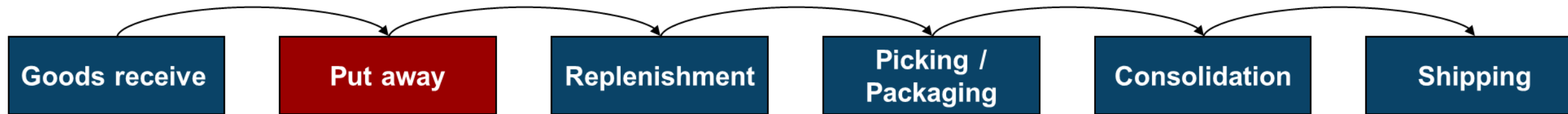
WAREHOUSE PROCESSES NETTO KØGE



The driver unloads the trailer and places the pallets on a conveyor belt.

The driver is responsible for the quality and conditions of the pallets.

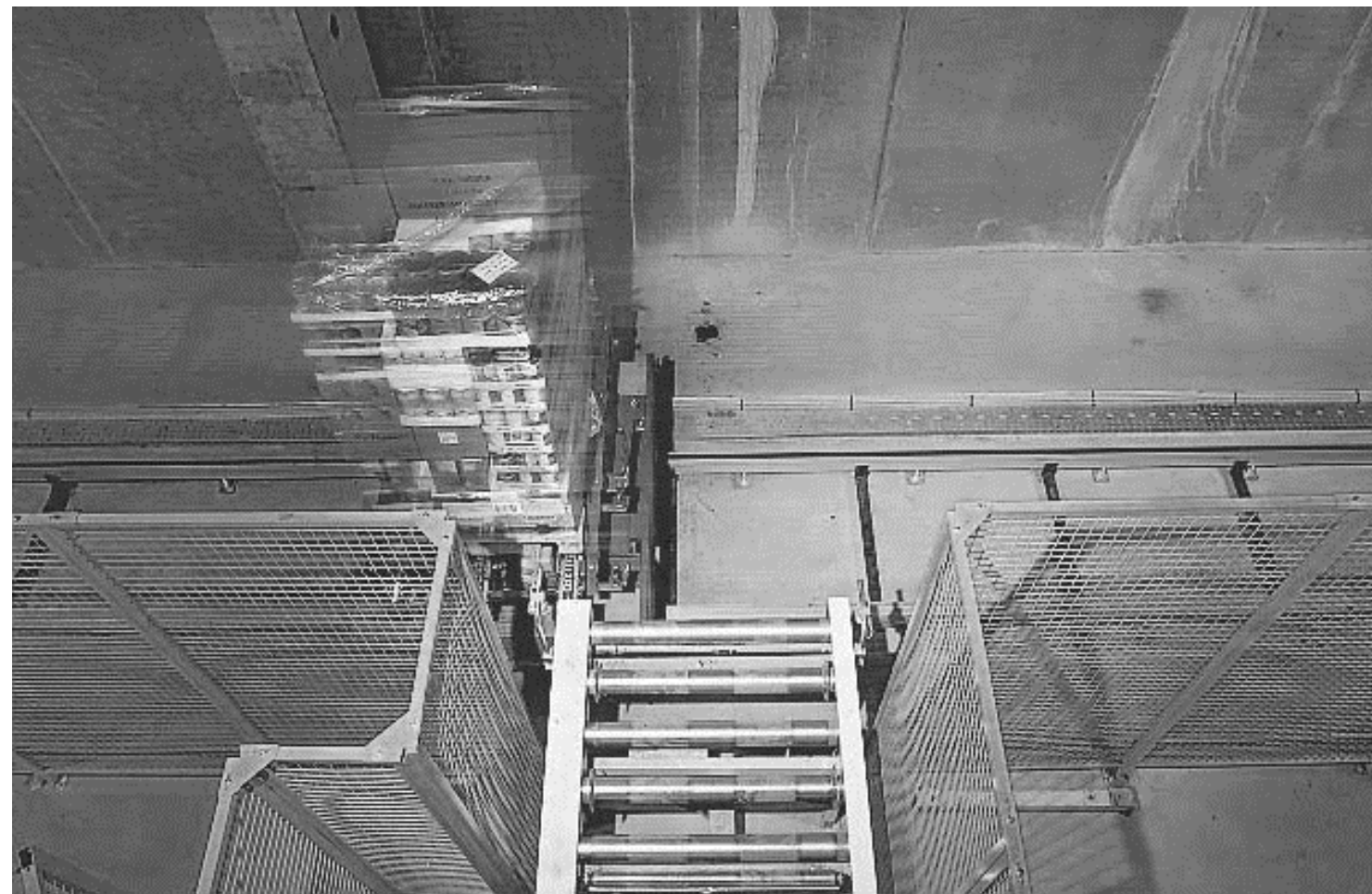
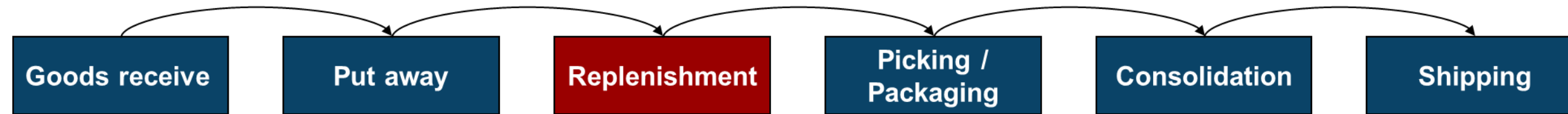
WAREHOUSE PROCESSES NETTO KØGE



A crane places the received pallet in the high bay warehouse storage (HBWH) – only containing pallets.

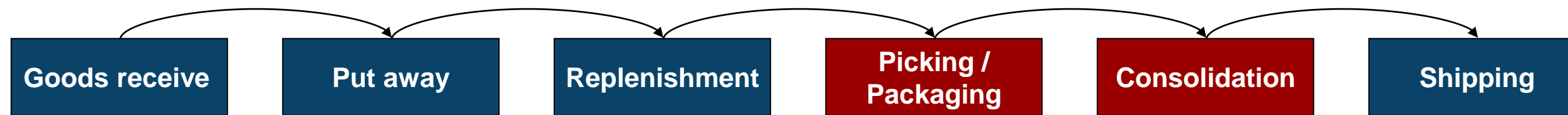
This is the main storage.

WAREHOUSE PROCESSES NETTO KØGE



The automated sorting transport vehicles (STV's) brings the pallets from the HBWH to the picking area.

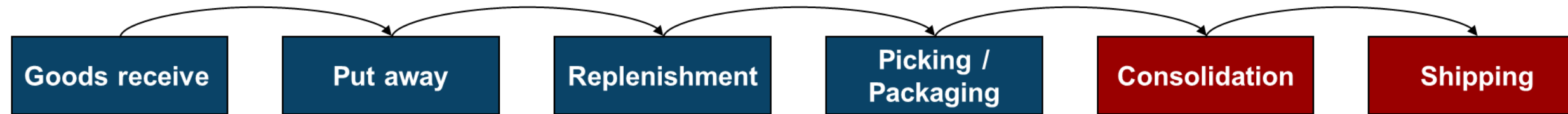
WAREHOUSE PROCESSES NETTO KØGE



The pallets will either be depalletized manually or by a layer picker.

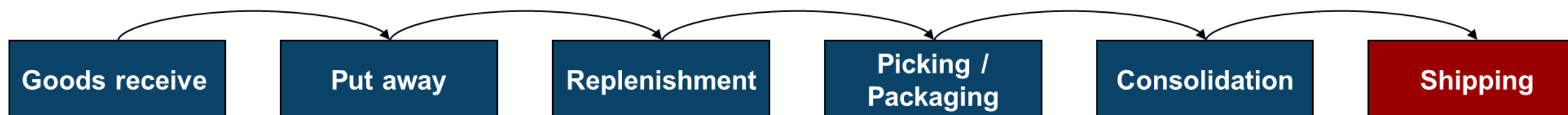
The cases runs by a conveyor to the sorter and from there down a chute for manual palletizing to each store.

WAREHOUSE PROCESSES NETTO KØGE



When the pallets are ready, they will be sent to the staging lanes ready for departure.

WAREHOUSE PROCESSES NETTO KØGE

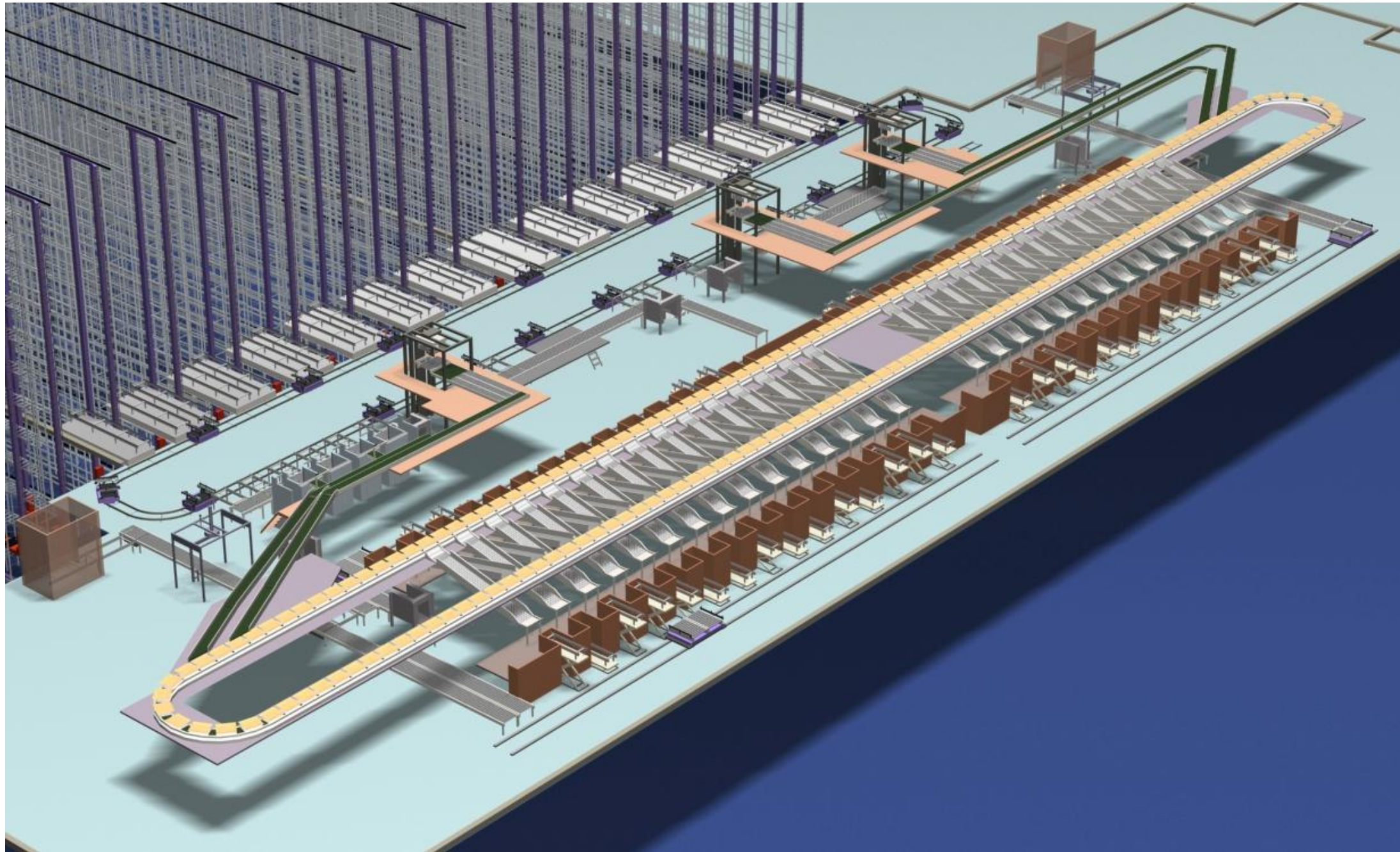


At the shipping area the drivers again take over the responsibility of loading the trailers.

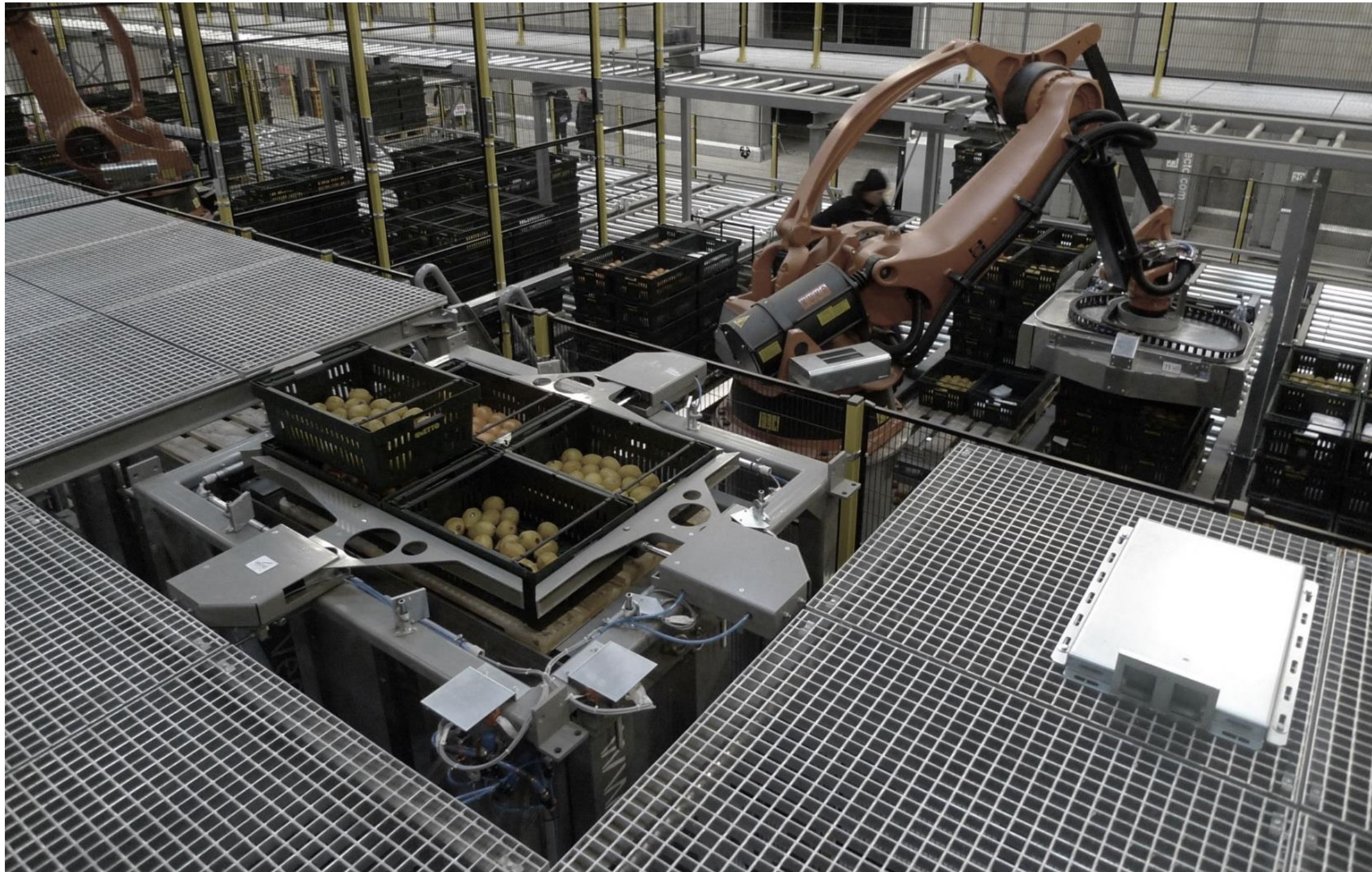
Video

5 min

WAREHOUSE PROCESSES NETTO KØGE



NEW: NETTO FRUIT & VEGETABLE AUTOMATION

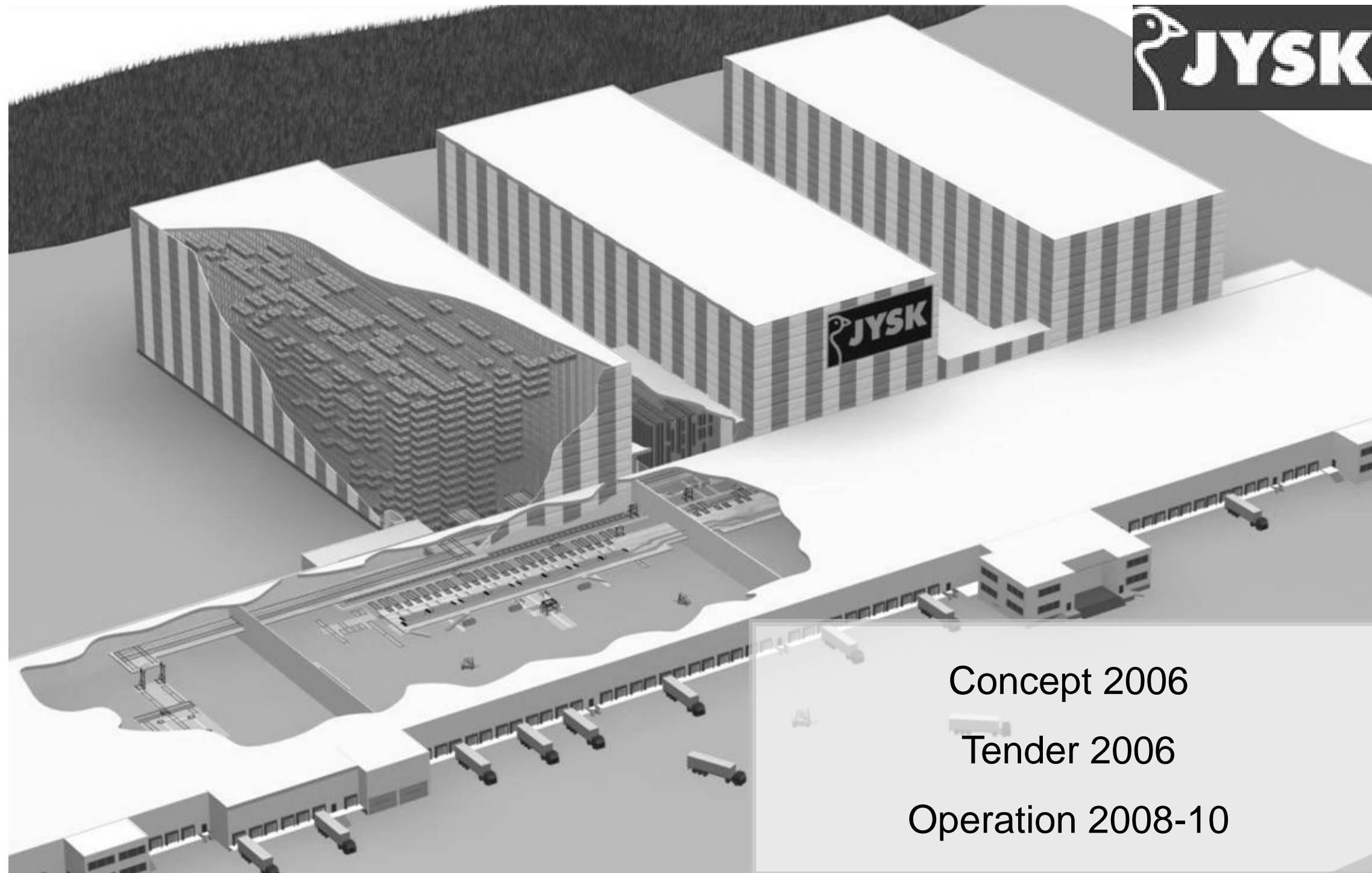


The fruit & vegetable setup is highly automated. The cases are standardized to 600x400 cases which are picked by 15 robots.

[Video](#)

[Simulation](#)

JYSK – DESIGN OF NEW AUTOMATED WAREHOUSE



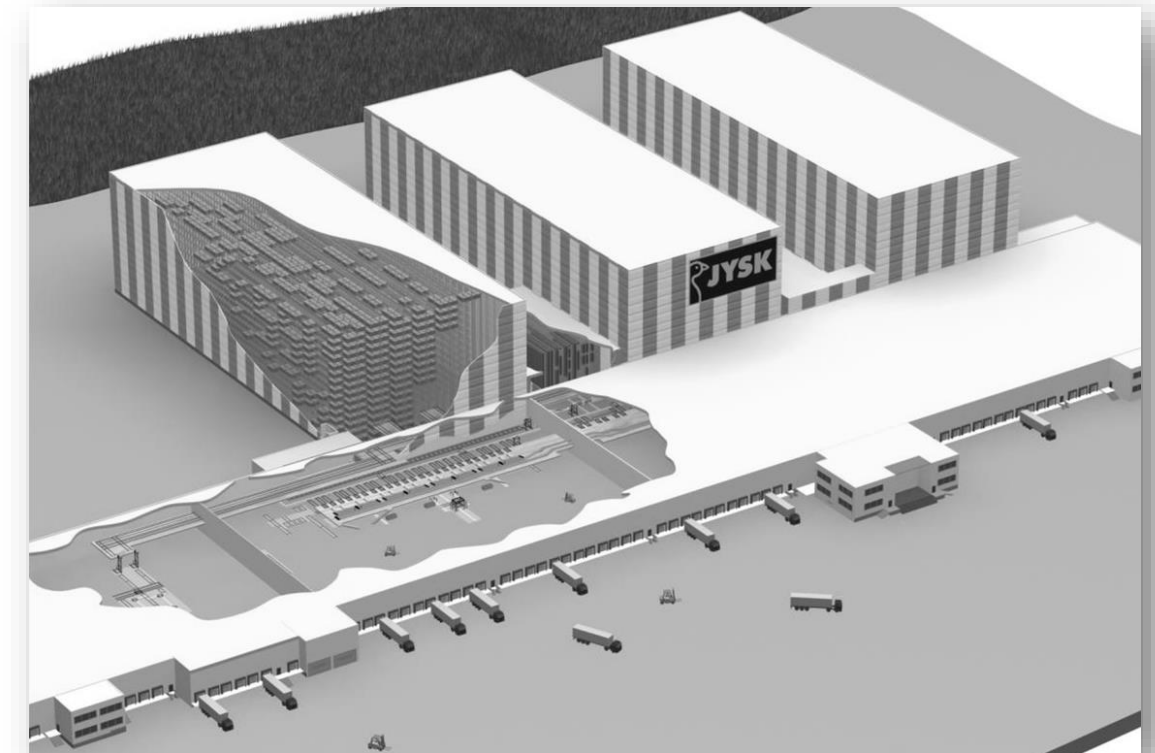
JYSK BUILDS XL DISTRIBUTIONCENTER

The challenge

- Large flow of goods **distributed to DK, NO, NL and GB**
- **Expected further flow growth**
- Need for static capacity of more than 135.000 pallets and dynamic capacity of more than 5.500 pallets each day – Similar to 166 standard trailers on a truck per day.
- Ergonomic demands for **heavy goods**
- In production September 2008

Langebæk's contribution

Strategic counseling, data analysis, concept development, detail project management, tender material, advisor at contract negotiations and implementation



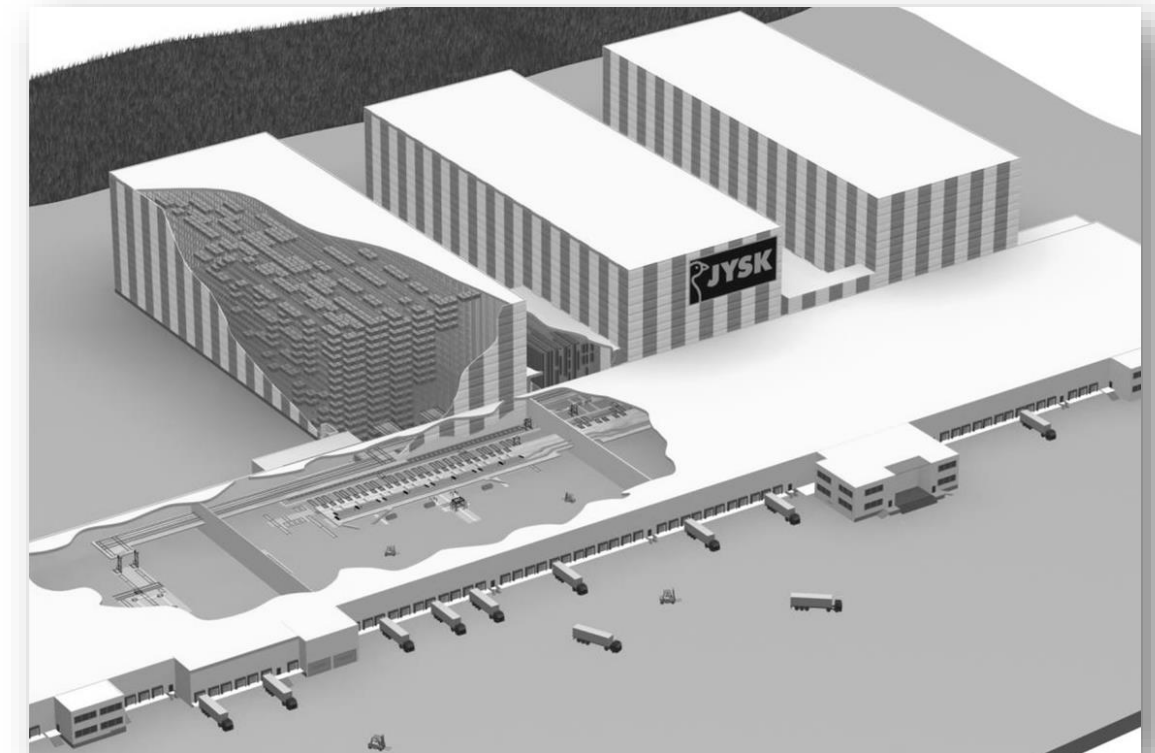
JYSK BUILDS XL DISTRIBUTIONCENTER

The solution

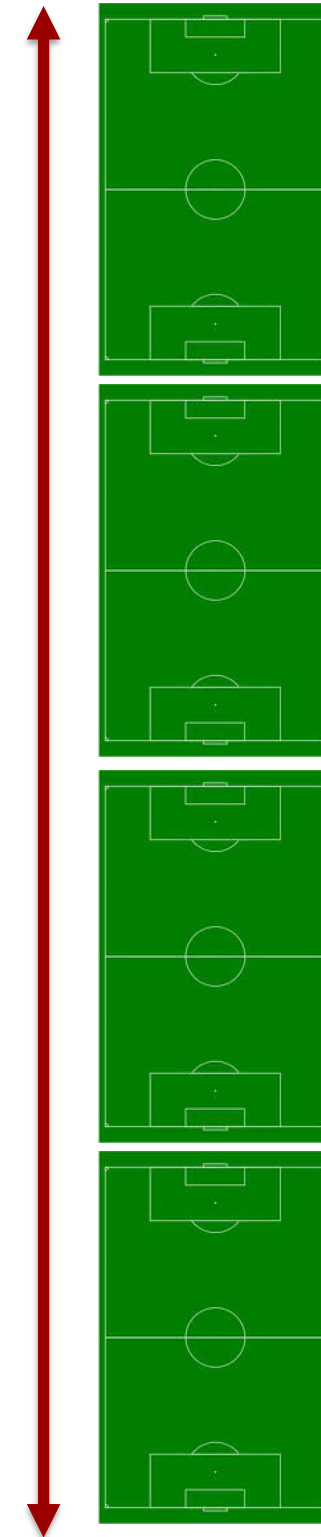
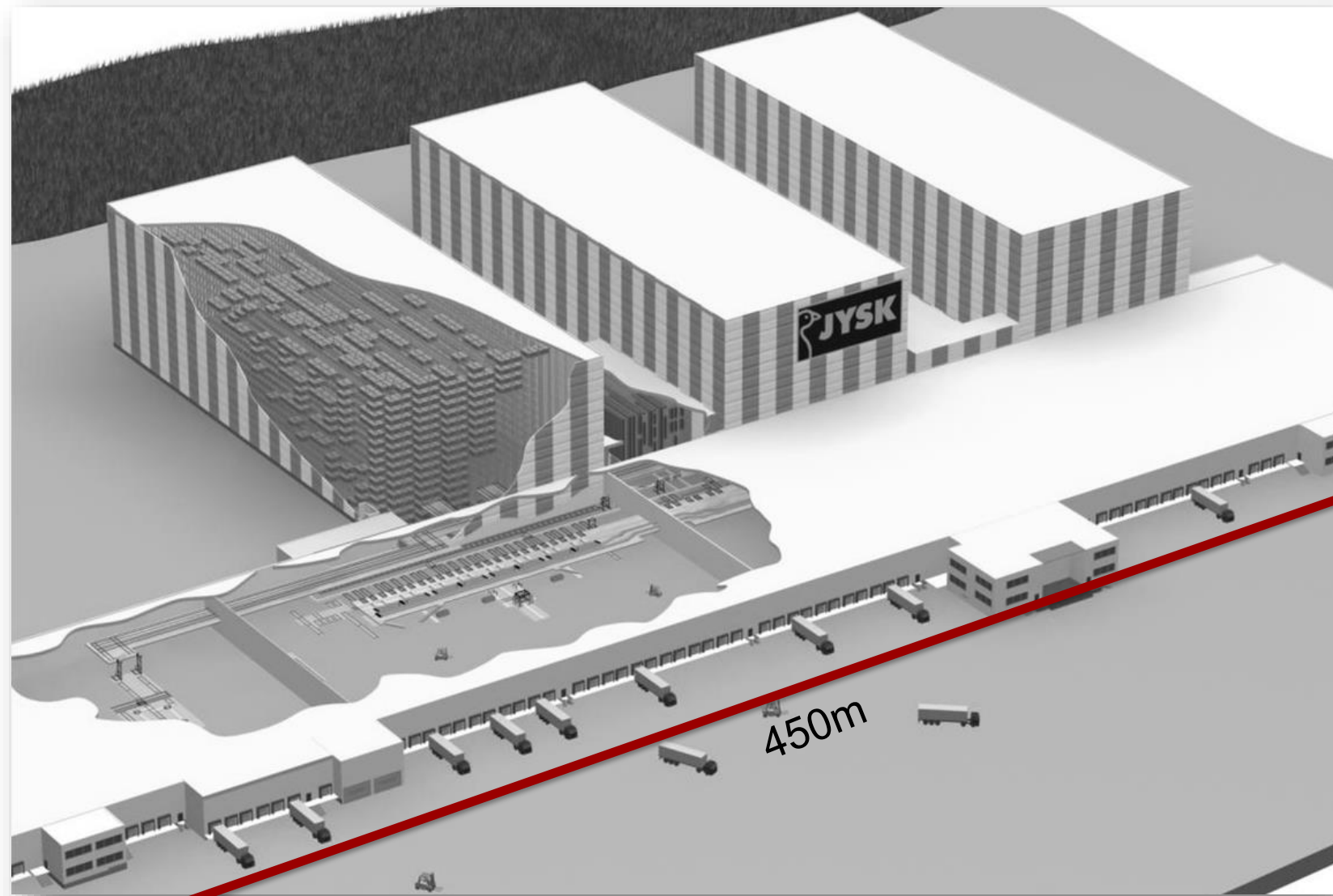
The largest central distribution warehouse in DK

- Large picking flow: **Automated solution**
- Expectation of large further growth:..... **Possibility for further extension**
- Distribution to DK, NO, NL and GB: **High filling degree of trailers**
- Need for large static capacity (good deals):..... **Large storage facility**
- Large receiving and shipping flow of trailers:..... **Long front zone - many gates**
- Heavy goods:..... **Ergonomic picking aid**

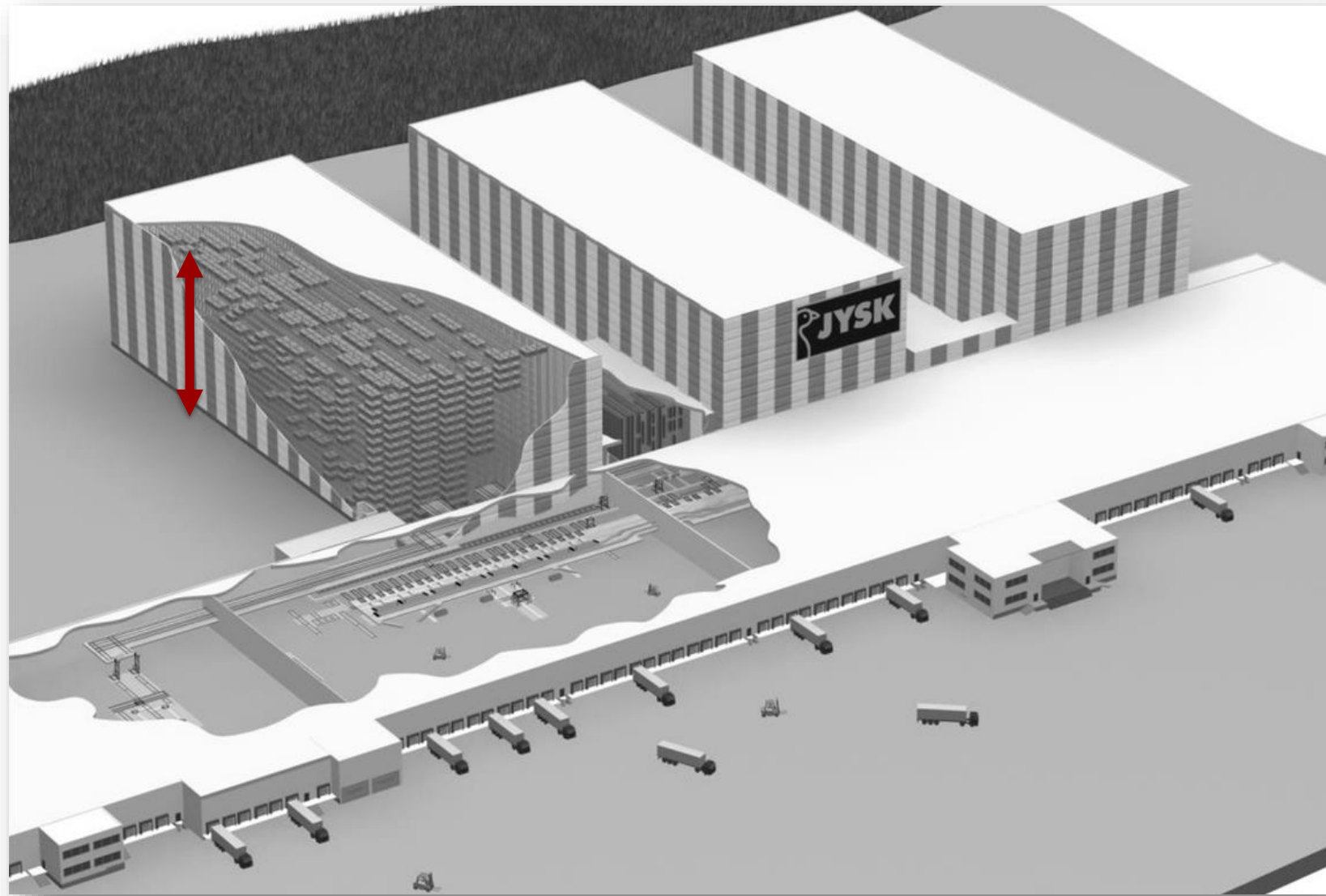
Denmark's first high bay building using clad-rack technology



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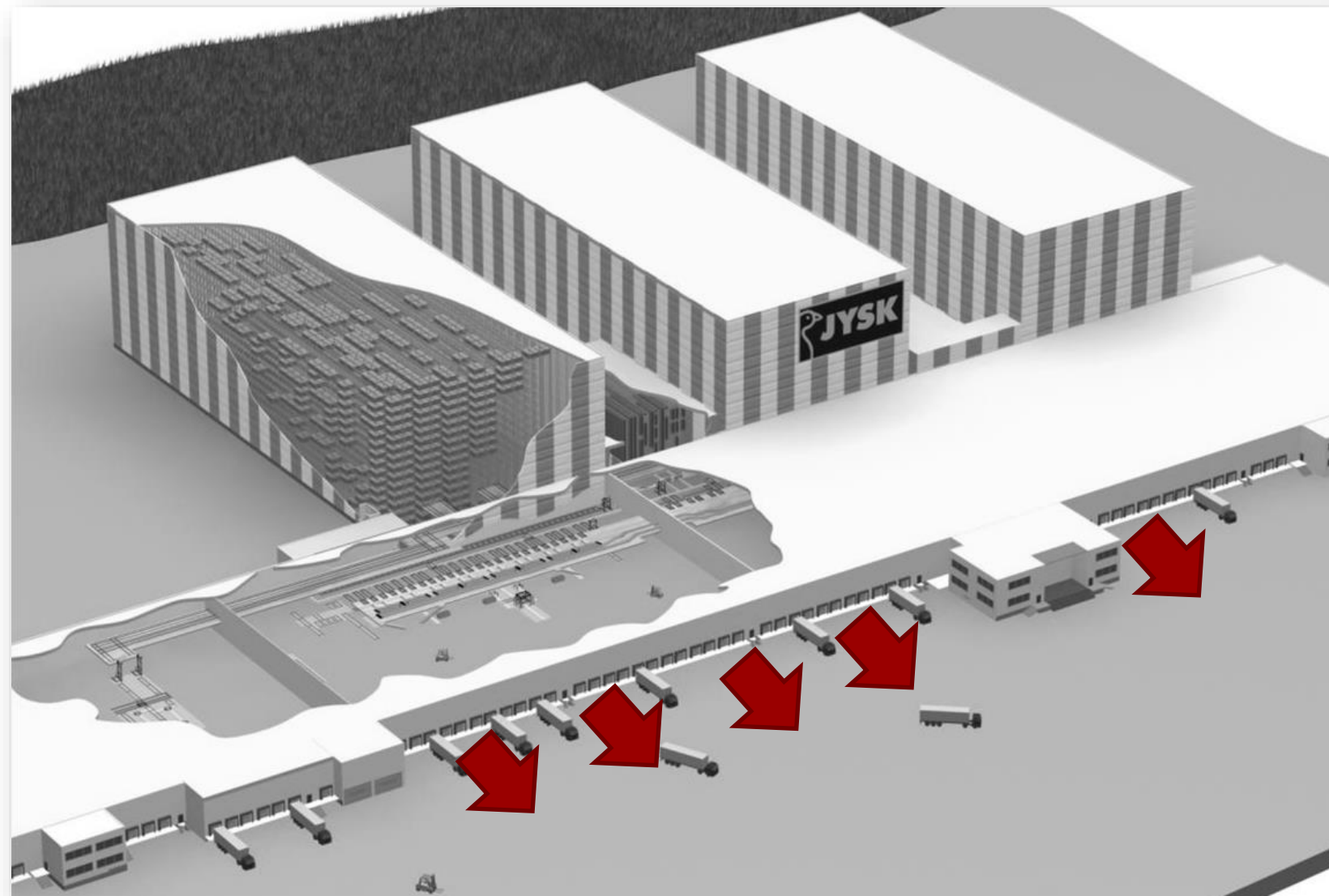


JYSK BUILDS XL DISTRIBUTIONCENTER



JYSK BUILDS XL DISTRIBUTIONCENTER

Dynamic capacity similar to 166 standard trailers per day.



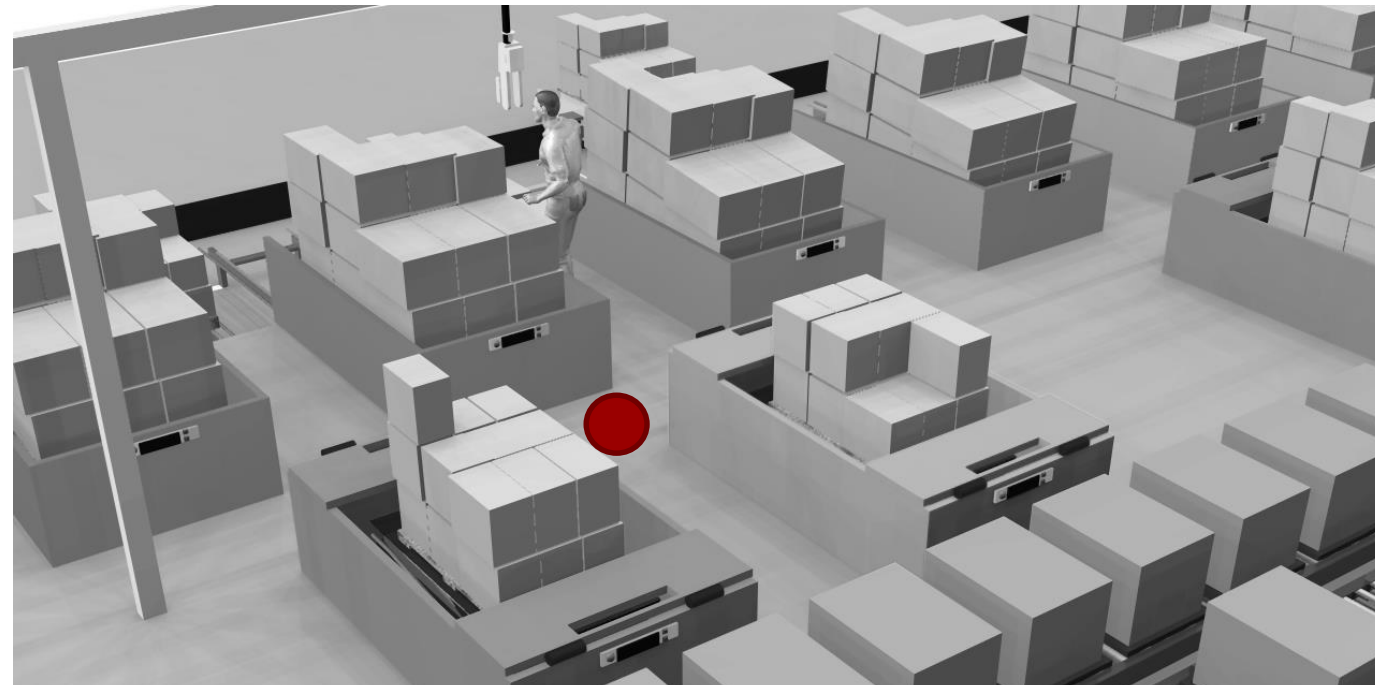
JYSK BUILDS XL DISTRIBUTIONCENTER



Installation

Video

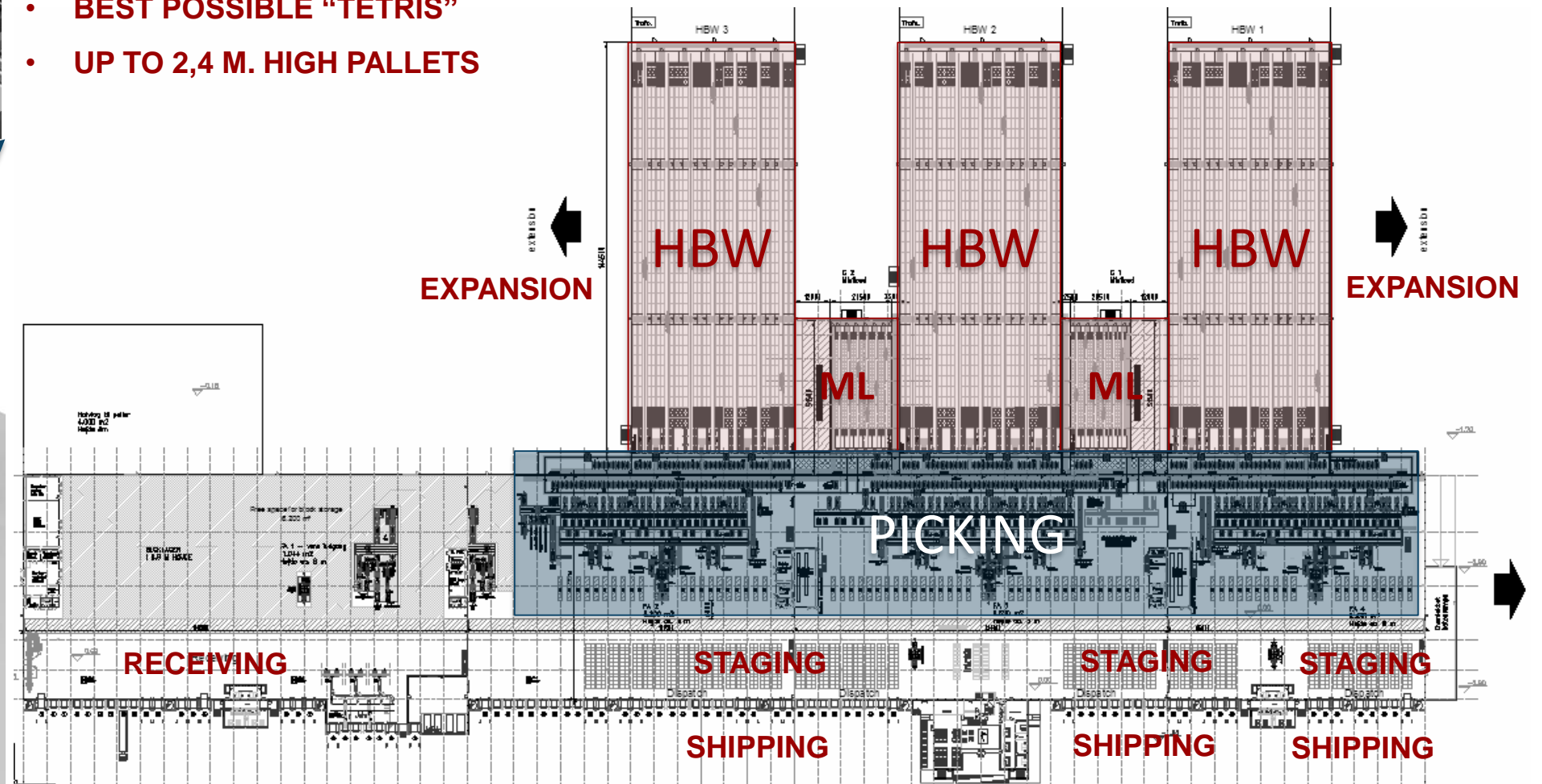
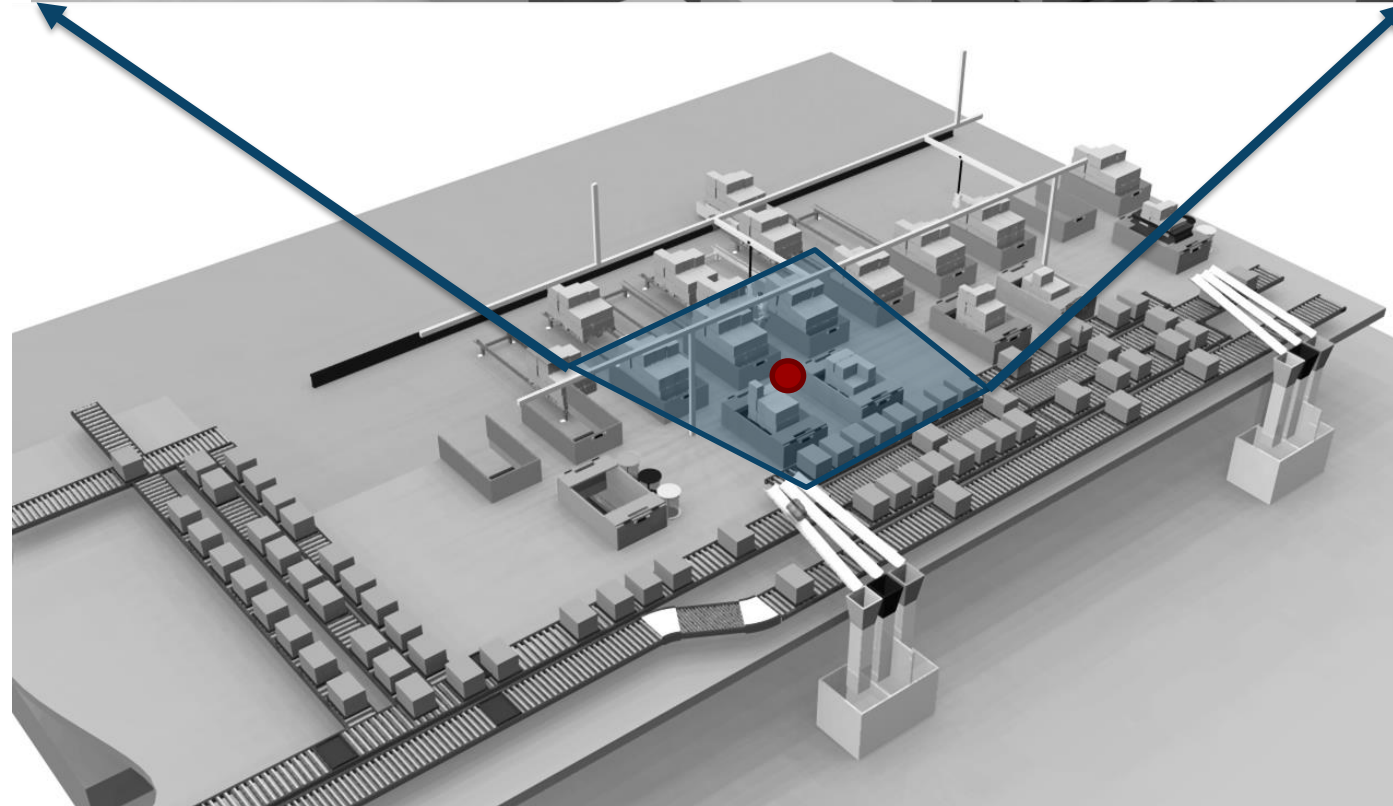
JYSK BUILDS XL DISTRIBUTIONCENTER



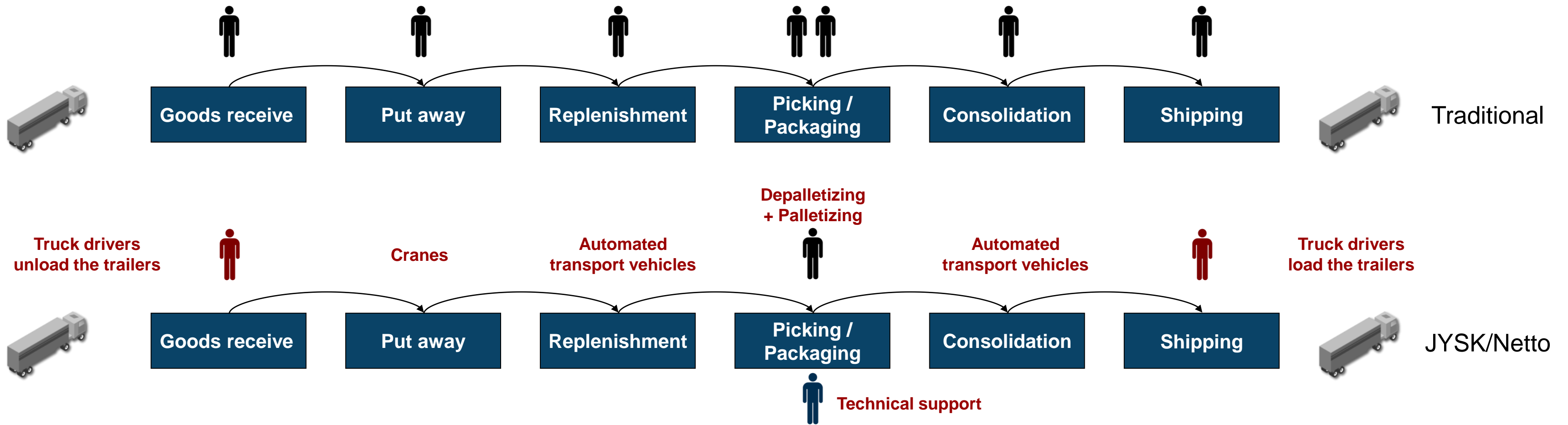
- 3 PICK-FROM PALLETS
- 8 PICK-FROM TRAYS

- 2 PICK-TO PALLETS
- ERGONOMIC PICK LIFTS
- ERGONOMI PICK AID

- BEST POSSIBLE "TETRIS"
- UP TO 2,4 M. HIGH PALLETS



WAREHOUSE PROCESSES



FULL AUTOMATION

CUSTOMER OBJECTIVES



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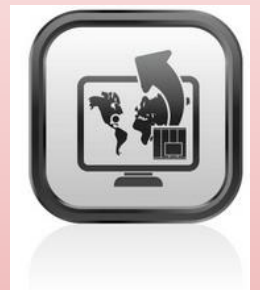
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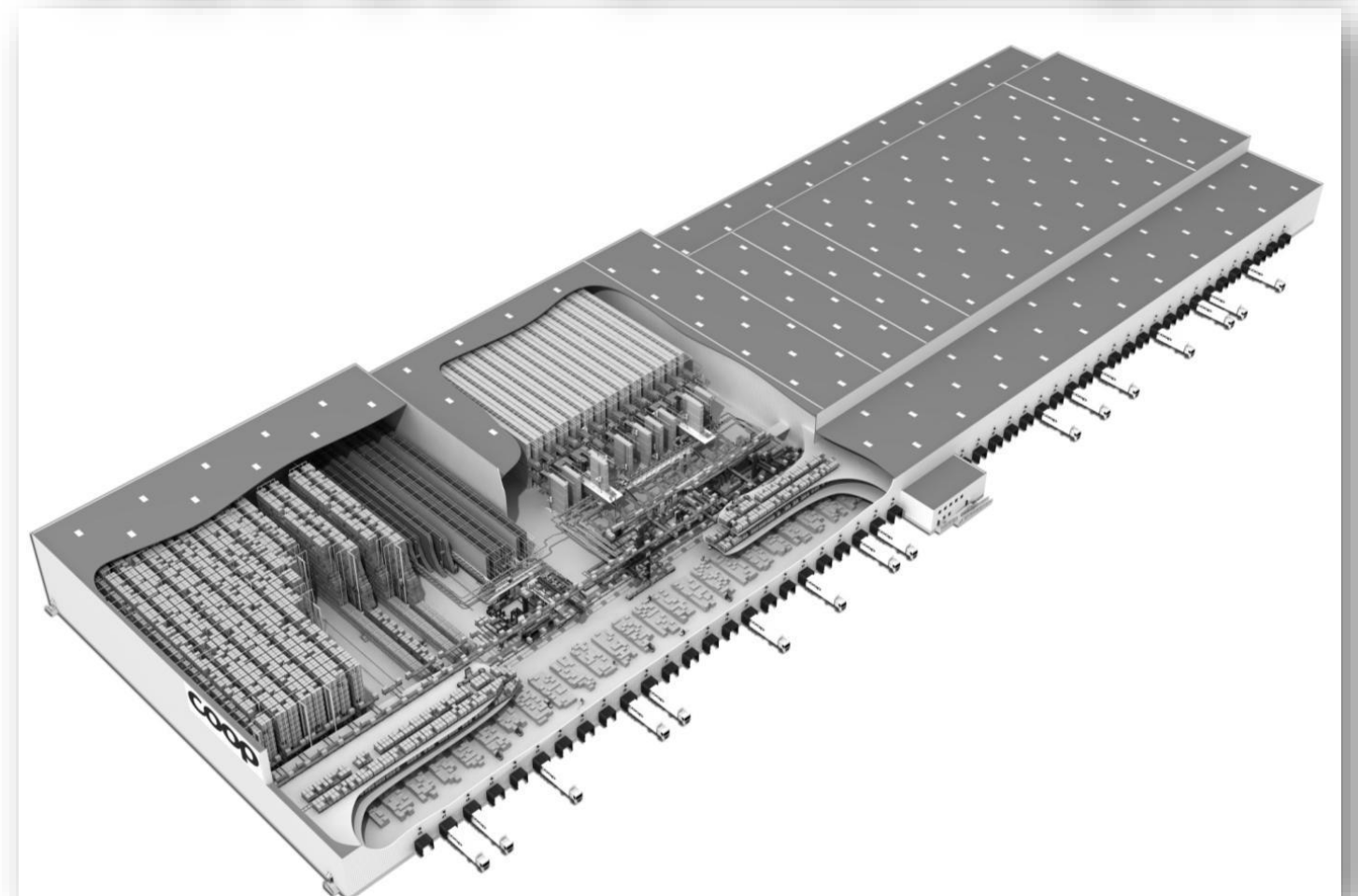
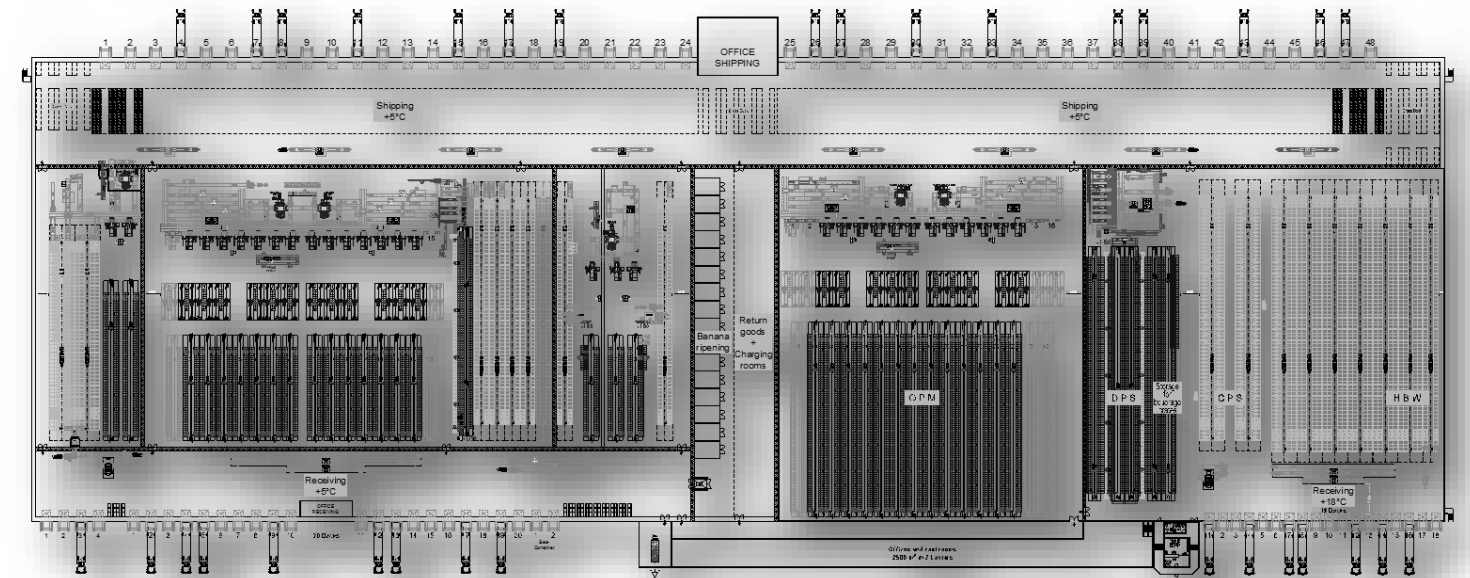
COOP NORWAY

CHALLENGE

- Develop best of breed retail automation central DC
- Centralise WH functions from 6 regional DC's
- Handle business transition from manual to full automation

LANGEBÆK CONTRIBUTION

- Data analysis and solution design
- Request for proposal, tender round and contract negotiation
- Continuous advisory support
- Project management
- Testing and hand over
- Management support



FULL AUTOMATION

PALLET HBWH



DEPALLETIZING AND DESCRAMBLING



TRAY LOADING



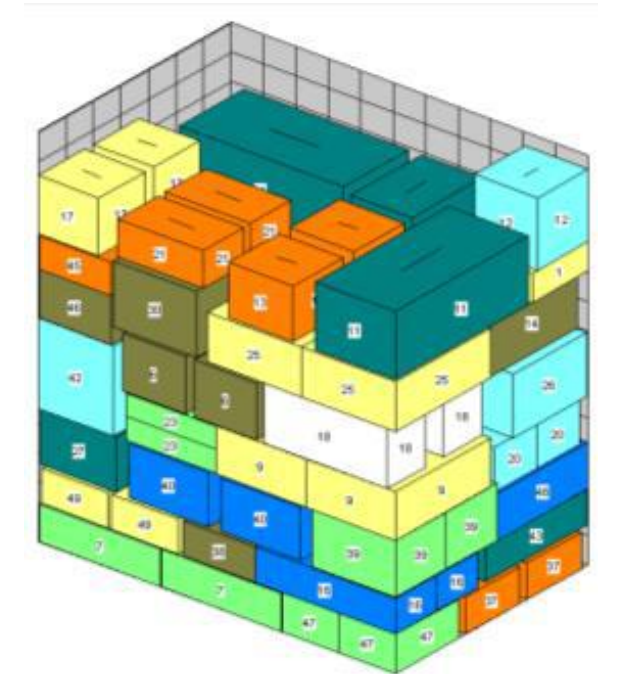
CASE WH / TRAY WH



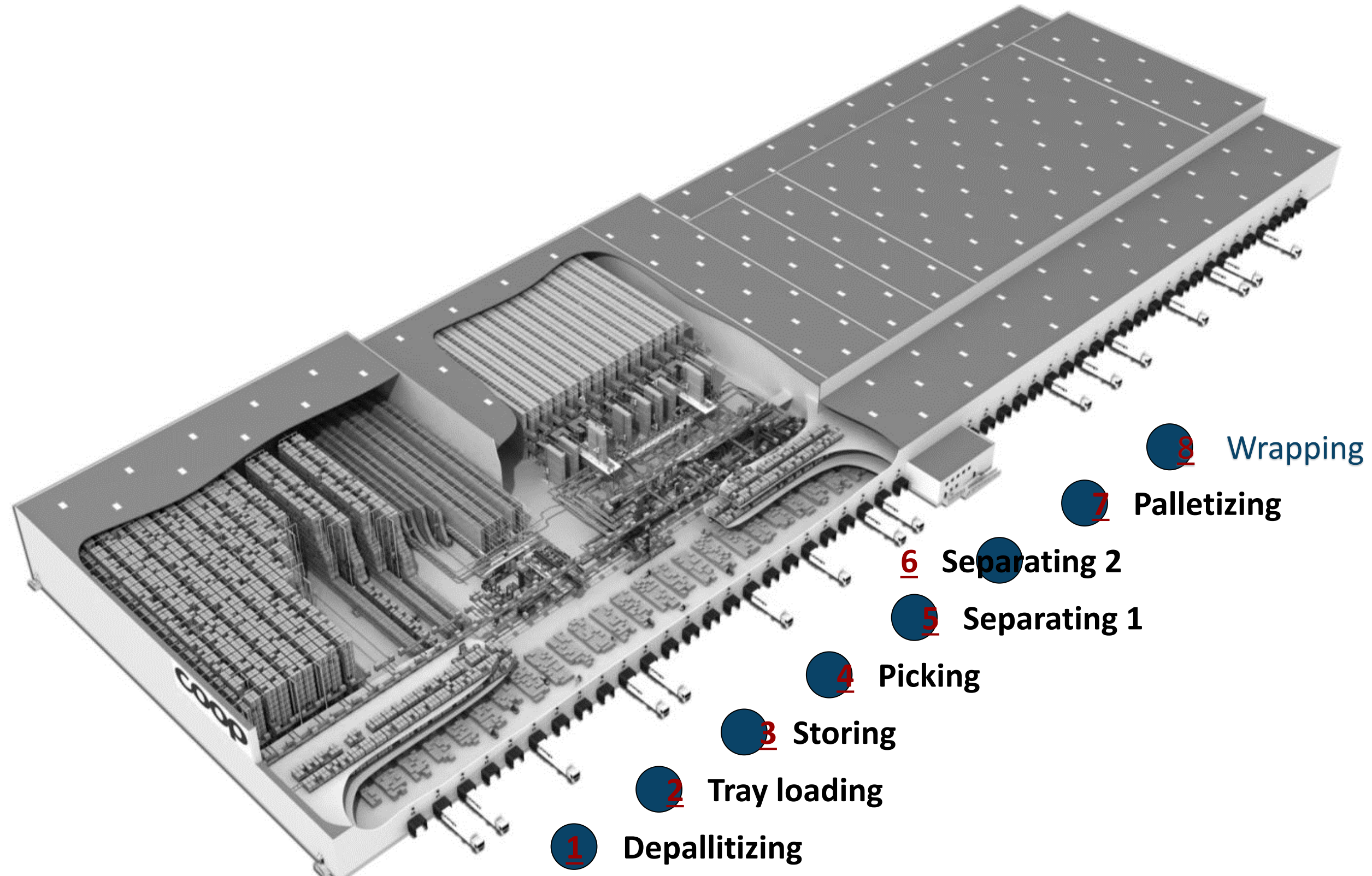
AUTOMATED PALLETIZING



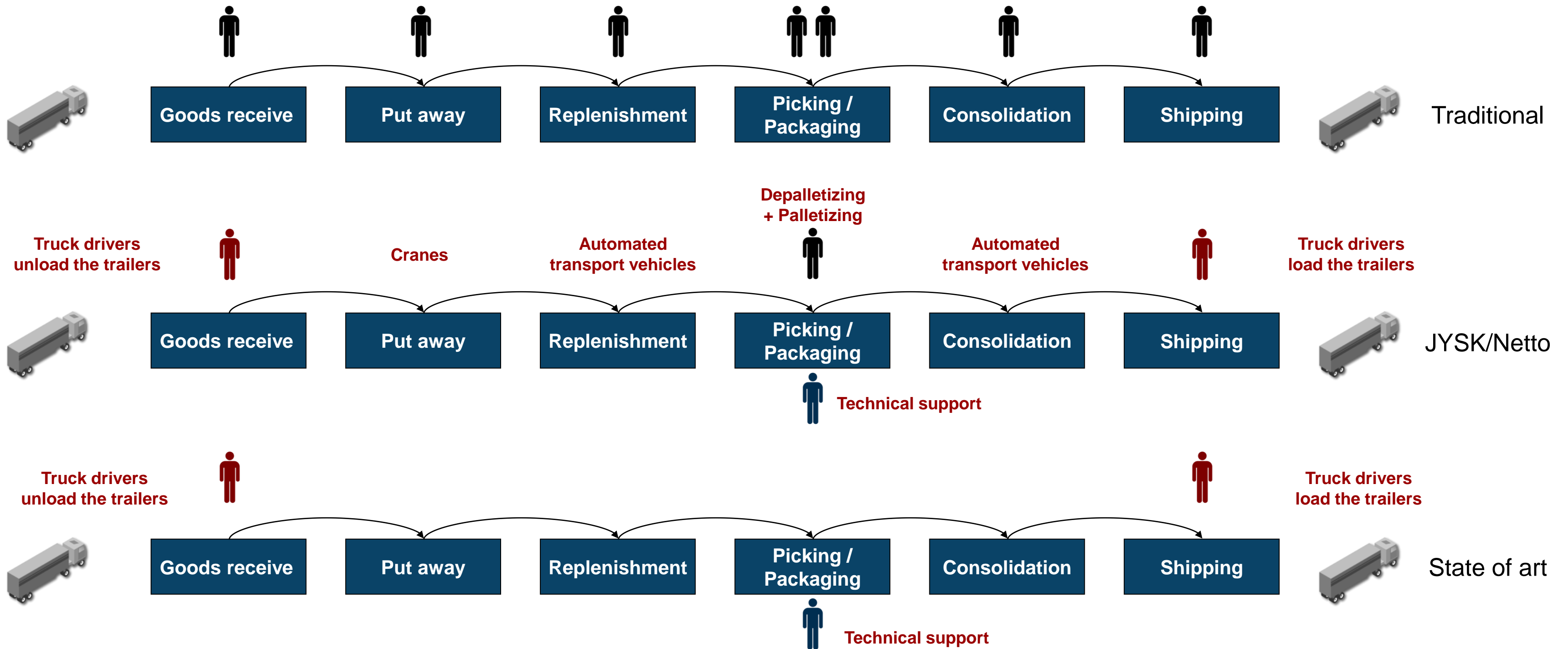
COMPACT & STORE FRIENDLY PALLETIZING



FULL AUTOMATION



WAREHOUSE PROCESSES



TAK FOR NU!

JOHN CARSTENS

07-02-2017