

UNITED FRESH CONVENTION & EXPO

Automating and Operating the Intelligent Warehouse

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THE PRODUCE NEWS



LET'S GROW SOMETHING SPECIAL

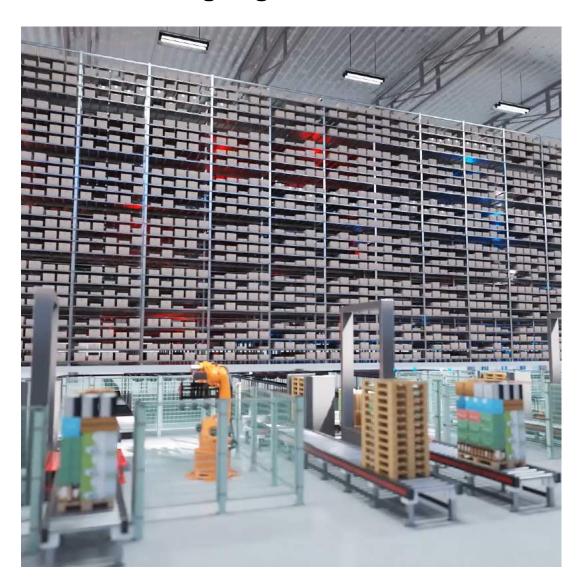




Agenda

- Introduction to Swisslog
- Market challenges and trends
- Where does automation bring value?
- Automation solutions
- Cold storage case studies

About Swisslog Logistics Automation

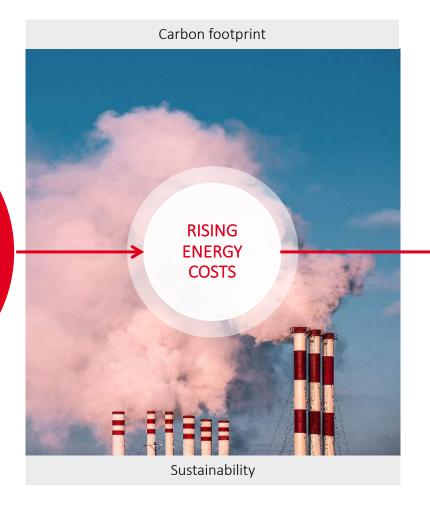


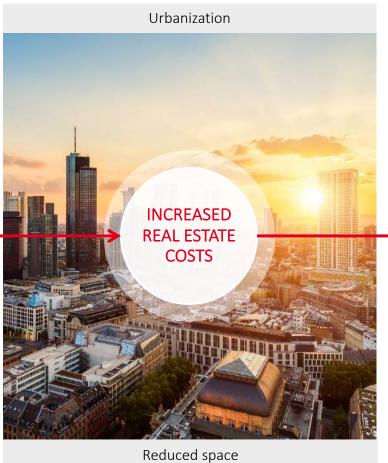
- Robotic, data-driven and flexible automated solutions
- Consulting, concept studies, project implementation, and technology implementation
- State-of-the-art WMS with integrated automation control
- Extensive food and beverage experience, including cold storage automation.
- Over 2,000 customer deployments



1. Operational expenses

Challenges & trends







2. Working environment

Challenges & trends

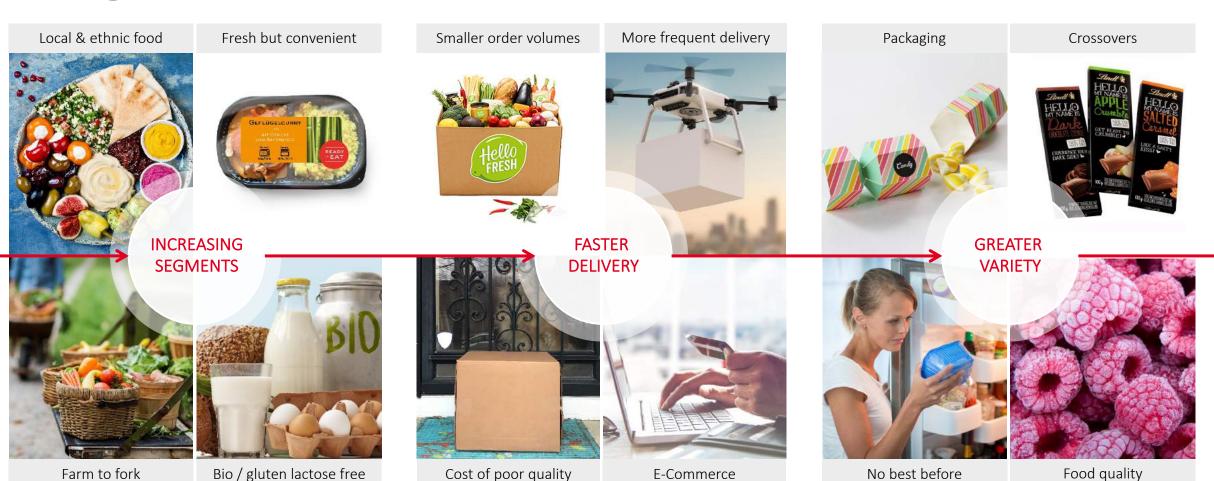






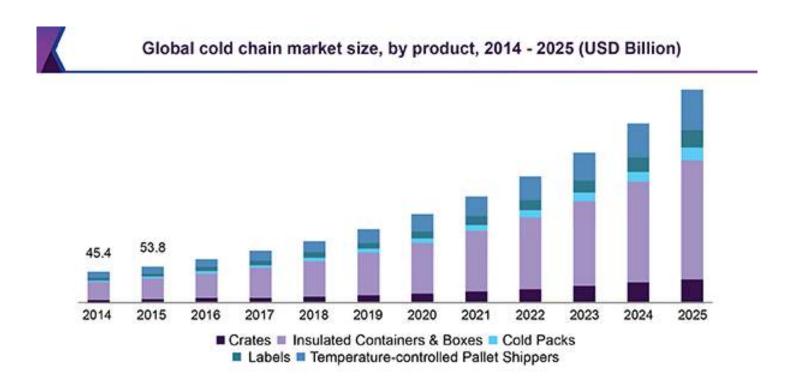
3. Market requirements

Challenges & trends





Key Trends in Cold Storage



Growing Demand



SKU Proliferation



Labor Challenges

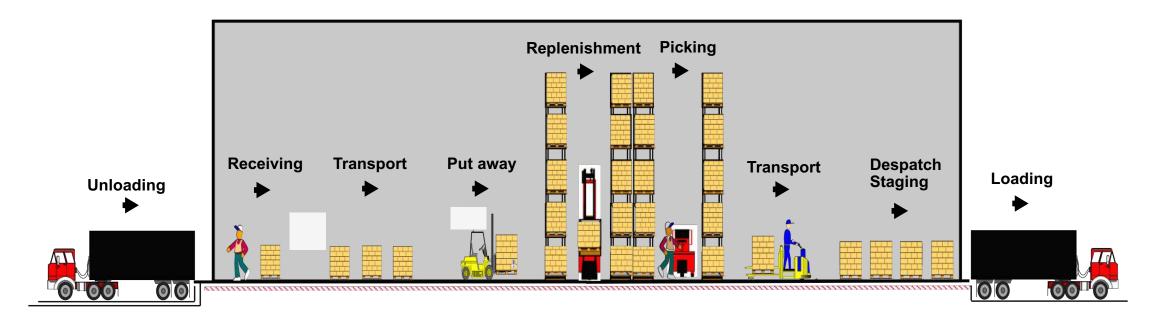






Which warehouse processes can be automated?

Considering conventional warehouse processes...

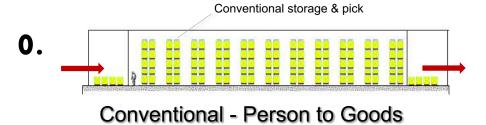






Which warehouse processes can be automated?

Increasing levels of automation...



Conventional pick

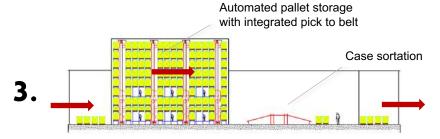
Automated pallet storage

Auto Pallet Storage & Retrieval

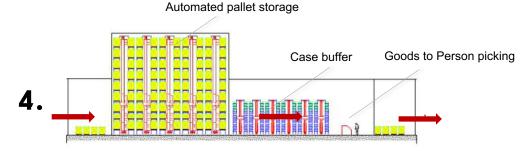
Automated pallet storage with integrated pick to pallet

2.

Auto Storage & Integrated Pick



Auto Storage & Pick to Belt



Goods to Person (Full & Split Case)

Automated pallet storage

Case buffer Automated Palletising

Fully Auto Case Pick







Automating warehouse processes

Where will automation deliver most value in labor reduction?

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

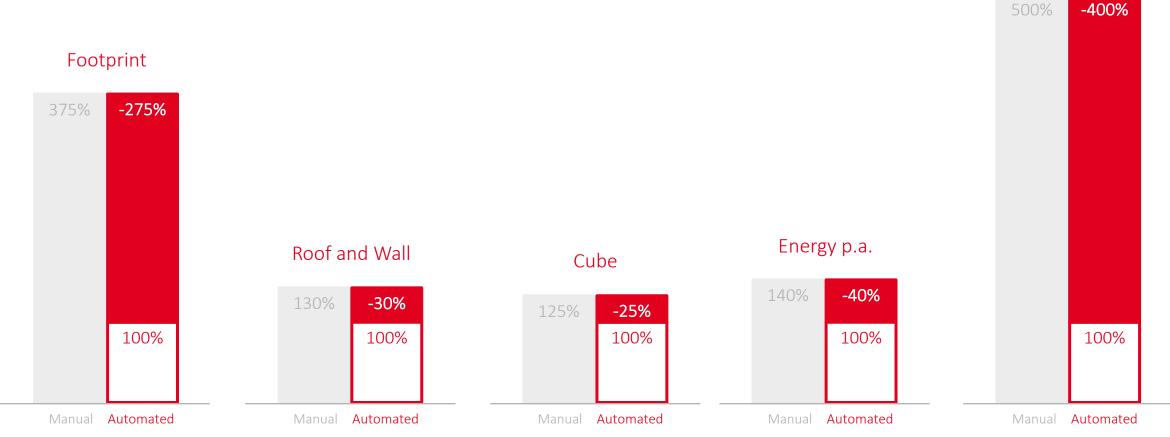




Automating warehouse processes

Savings in energy costs and footprint

Labor 100,000 pal p.a.



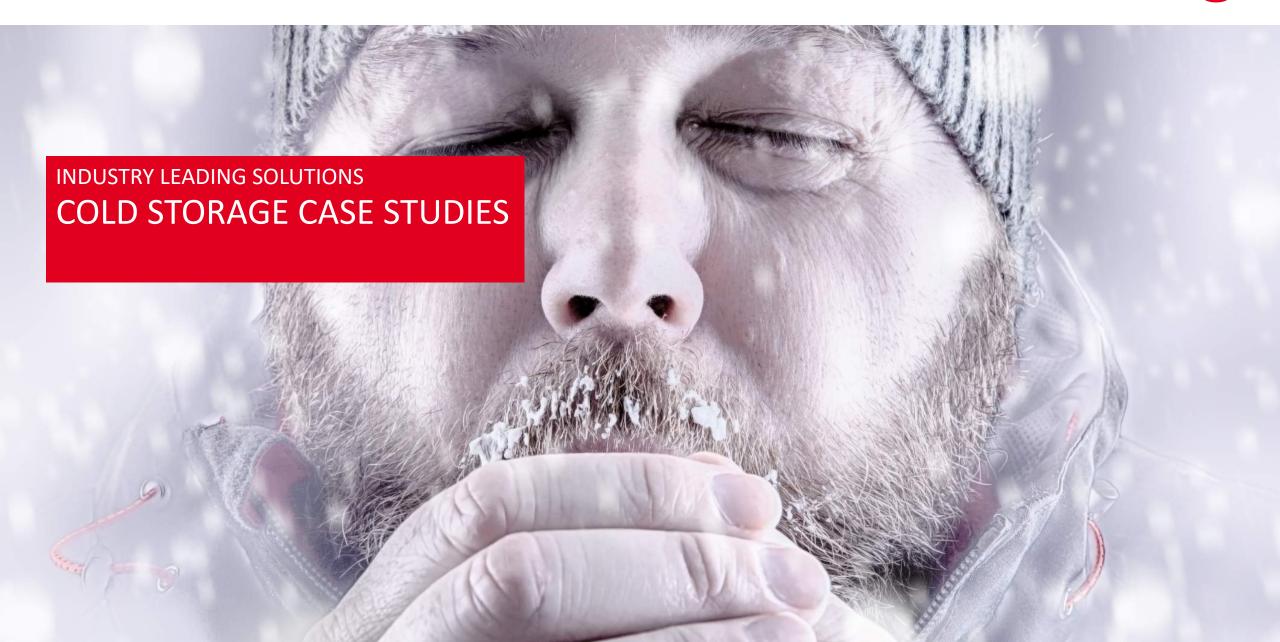
Example: deep-freeze warehouse with 17,000 pallets











Lineage, Sunnyville, TX | USA

Reaching New Heights



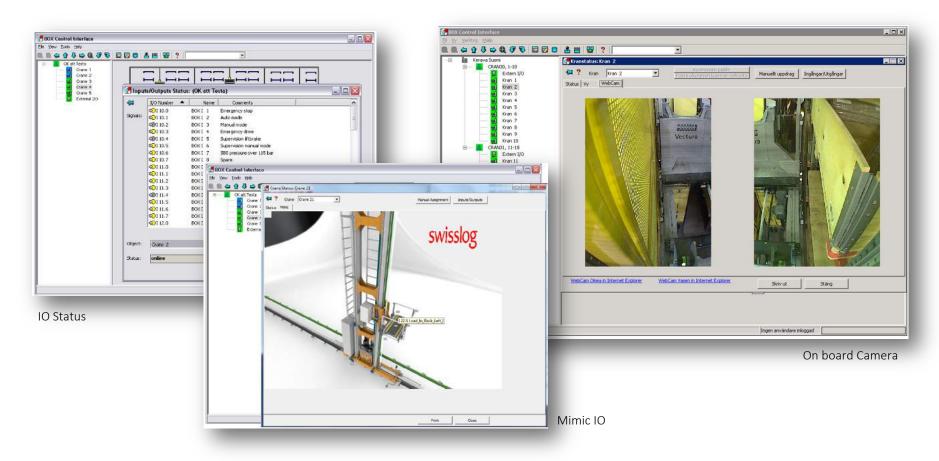
- Deep freeze storage (-20F) for 24,000 pallets
- Increasing building height was key to lowering costs
- Requires automated solution for storage and retrieval using Swisslog's PowerStore
- Saves on power consumption and overall costs, with increased storage density





Intelligent operation in cold storage

Focusing on user experience





Storage Allocation Strategies

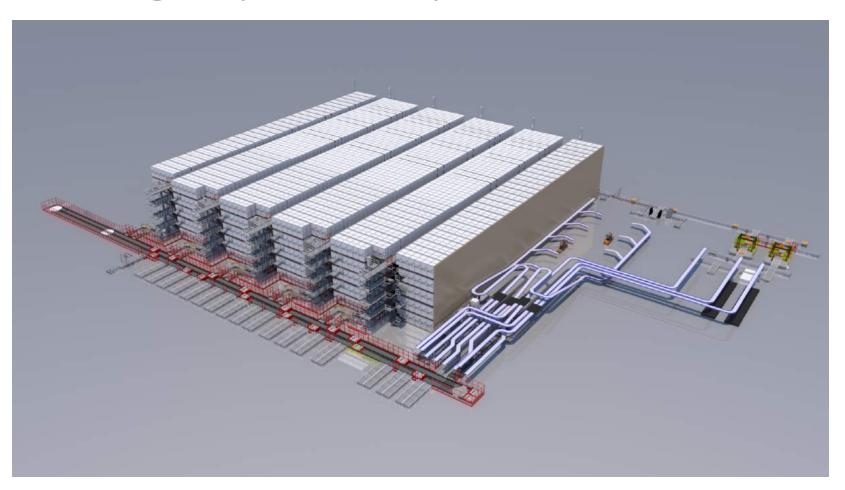
PowerStore Flexible Row Depth





Stemilt Growers, Wenatchee, WA | USA

Automating to improve efficiency and customer service





Project Information

- 5 modules 5 levels
- 13 250 Pallet Locations
- 25 Row Carriers & 25 Aisle Carriers
- Supply Carrier loop with 12 Supply Carriers
- 5 Vertical Conveyors
- Pallet Conveyor

2CLE 2019 Page: 35



