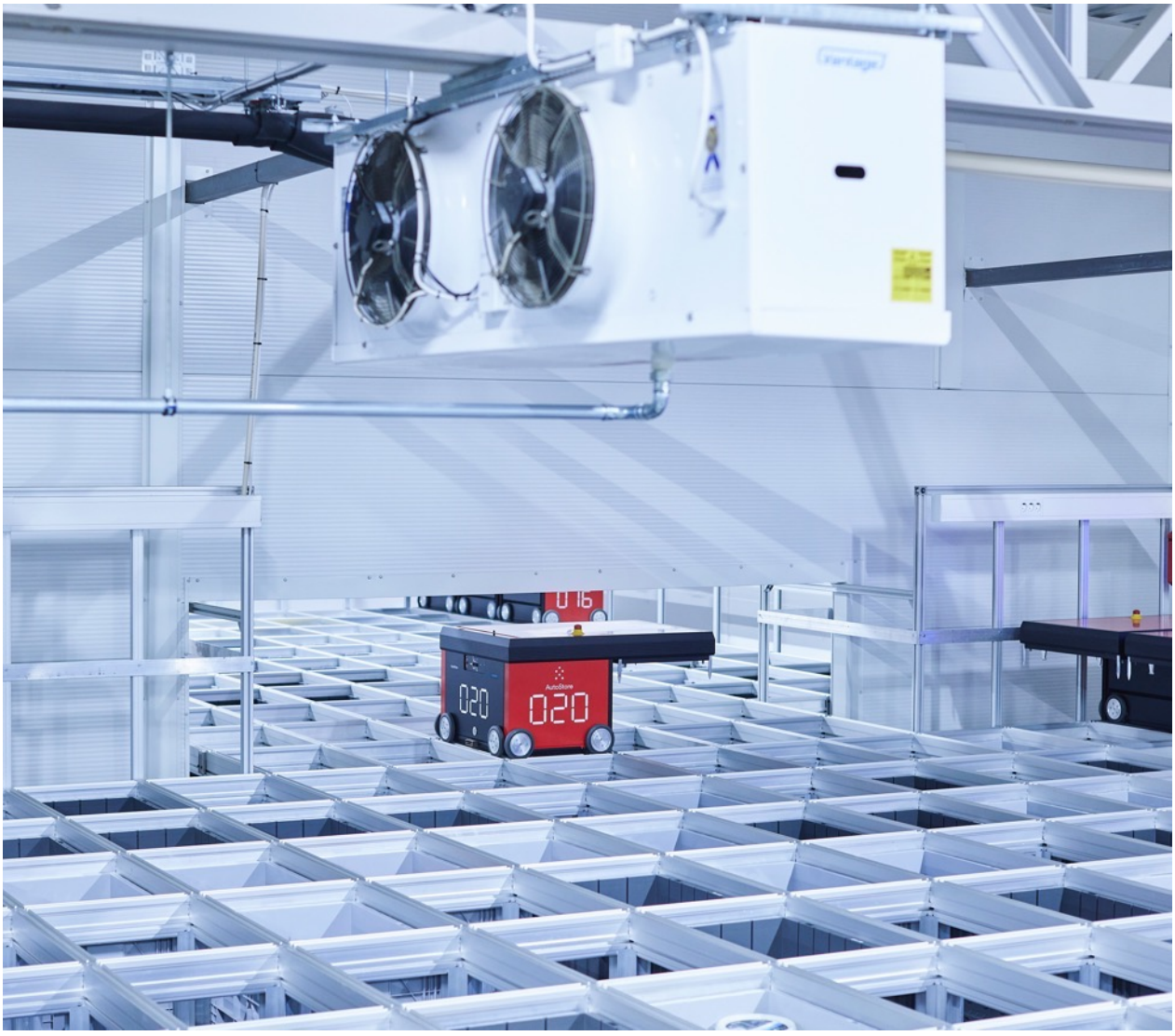


Building the Future of **Compact Automation**

What Anyone Interested in Automation Can Learn From The World's First AutoStore Multi-Temperature Solution With Frozen Storage

StrongPoint

2024 RTIH Innovation Awards WINNER

Sustainable Retail Innovation Winner

2024 RTIH Innovation Awards WINNER

Editor's Choice Overall Winner

The World's First **Multi-Temperature** **Cube Storage** Installation

Faced with increasing demands for food distribution and limited warehouse space, Haugaland Storhusholdning, a Norway-based wholesaler and distributor, reached a critical point. Their 1,500-square-meter facility was nearing capacity, struggling to manage frozen, chilled, and ambient goods in separate storage systems.

To solve this, Haugaland Storhusholdning partnered with StrongPoint to implement the world's first AutoStore™ Multi-Temperature Solution™. This award-winning innovation seamlessly integrates frozen, chilled, and ambient goods into a single automated grid. The solution revolutionizes the storage, management, and retrieval of temperature-controlled goods, and enabled Haugaland Storhusholdning to triple its revenue potential without expanding its warehouse.

> What's unique about this grid is that it's divided into three sections. We have one for frozen, one for ambient, and one for chilled. Automating with AutoStore and StrongPoint gives us the opportunity to grow our revenue by three times.
>
> **Thorstein Kirkeleit**
> Business Development Manager
> Haugaland Storhusholdning

The Challenge: Growing Demand, Limited Space

The wholesaler faced a critical challenge: scaling operations to meet rising demand without expanding their warehouse. Traditional storage methods required separate grids for frozen goods at -25°C, chilled items at +5°C, and ambient products, wasting space and driving up costs. With no room for physical expansion, finding a more efficient, scalable solution became essential.

The Solution: An Automated Cubic Multi-Temperature Grid

Through a groundbreaking collaboration between AutoStore and StrongPoint, the inefficiencies of separate storage systems were eliminated with the creation of a world-first multi-temperature solution. This compact system integrates frozen, chilled, and ambient zones into a single automated design. Using robotic technology, advanced temperature controls to address humidity and moisture issues, and AI-driven software to optimize throughput and space utilization, this solution sets a new standard in grocery fulfilment.

StrongPoint was integral to the project, contributing at every stage. From defining design specifications and collaborating with AutoStore's R&D teams to testing and deploying its proprietary software, StrongPoint ensured the successful execution of the project.

StrongPoint developed a custom-built software solution to enable smooth transitions from frozen storage at -25°C to chilled or ambient picking zones at +5°C, ensuring seamless coordination across temperature zones. Additionally, the software integrated the required Warehouse Management Systems (WMS) and the StrongPoint Warehouse Control Systems (WCS) into a unified solution.

Watch & Read **Video Case Study** | Play **Podcast**

Why This Innovation is of Interest to Anyone Working in **Automation**

Addressing Universal Challenges in Automation

Every business involved in automation faces common hurdles: how to scale efficiently, optimize space, reduce energy consumption, and manage costs. This system tackled these issues, demonstrating practical solutions that can be applied across sectors. By consolidating multiple processes into one streamlined solution, the solution shows how anyone can reduce operational complexity, minimize resource waste, and maximize productivity by leveraging the latest automation technology.

Concrete Results That Matter Across Industries

The StrongPoint solution demonstrates measurable results, including a 54% increase in storage capacity within the same physical footprint. Operational efficiency was significantly enhanced, with order picking speeds improved by 66% using advanced robotics and optimized workflows. Automation also reduced labour dependency, lowering costs while improving inventory accuracy and minimizing errors and stockouts. The system increases throughput, enables faster fulfilment, and offers a scalable, future-ready solution to meet growing operational demands.

Why It's Relevant to Anyone interested in Automation

The system's ability to process 2,000 product presentations per hour, with scalability for much higher volumes, showcases the power of well-designed automation. This throughput demonstrates how businesses can meet increasing demand without sacrificing accuracy or performance. Additionally, the project boosted space efficiency by 54%, and efficiency by 66% proving that compact, high-density systems can unlock significant value in limited spaces.

Why It's Relevant for Grocery Retailers

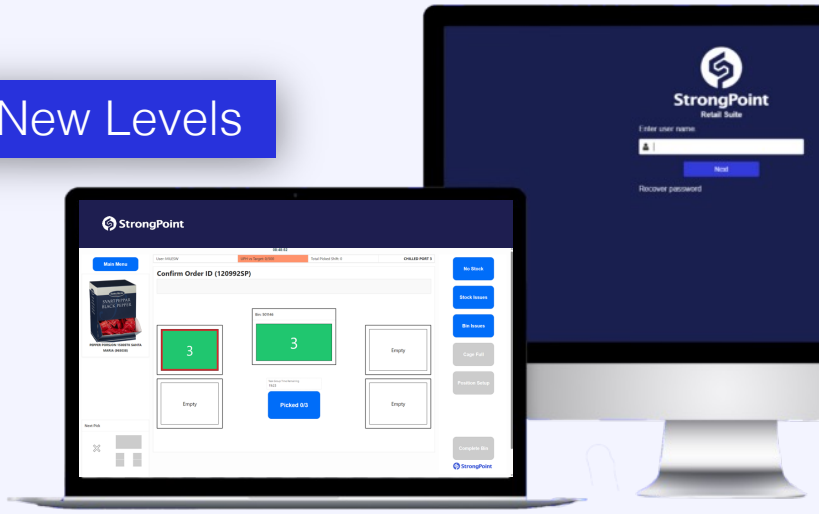
Grocery is one of the most challenging sectors for automation due to its unique demands: managing multiple temperature zones, short shelf lives, high SKU variability, and fluctuating consumer demand. Unlike other industries, grocery requires seamless integration of ambient, chilled, and frozen goods into a single solution, while maintaining quality, speed, accuracy, and cost-efficiency. This is the first cube storage solution to integrate all three temperature zones, unlocking exceptional efficiency and profitability for grocery retailers.

See it for yourself? **Contact StrongPoint** to arrange a visit

Lesson 1

Advanced Software:

Pushing Functionality to New Levels



The StrongPoint Order Fulfilment Platform, powering the world's first AutoStore Multi-Temperature Solution, offers valuable lessons for designing and managing automation systems. Its ability to coordinate complex workflows, unify diverse systems, and scale with future demands provides practical insights for grocery retailers, logistics and automation professionals

Real Time Coordination Across Temperature Zones

StrongPoint's software addresses a key challenge in automation: controlling operations across temperature zones in real time. Traditional AutoStore grids isolate frozen, chilled, and ambient zones with no unified temperature management. StrongPoint developed custom software to seamlessly connect these systems. The software coordinates robot transitions between frozen storage at -25°C and picking zones at +5°C, while managing humidity and moisture transfer. This integrated platform eliminates bottlenecks and simplifies workflows, increasing operational efficiency and scalability for future AutoStore installations.

Unified System Integration

Disconnected systems often reduce efficiency in retail operations. StrongPoint's software integrates ERP systems, manual picking, robotics, and last-mile delivery into one cohesive ecosystem. This real-time communication minimizes delays caused by fragmented processes or manual data handling. Developed to address the complexities of grocery logistics, such as high SKU volumes and temperature-sensitive goods, the system identified opportunities for greater efficiency. Its innovations provide valuable lessons for retail logistics, demonstrating how integration can simplify operations and better utilize resources.

Scalability Through Cloud-Based Deployment

Built on AWS infrastructure, StrongPoint's cloud-based platform provides scalable solutions for retailers managing growth. It addresses challenges like high SKU counts, fluctuating demand, and integrating technologies such as AI-driven forecasting and robotics. By removing the need for heavy upfront infrastructure investments, the platform reduces costs and enables quick deployment with minimal disruption. Its flexibility allows real-time adjustments, whether for seasonal demand or new automation systems. AWS infrastructure ensures reliable operations, improved data insights, and scalability to meet future needs. This approach helps retailers modernize efficiently while adapting to logistical challenges.

Real-Time Insights for Operational Control

In high-throughput environments where speed and precision are critical, StrongPoint's software provides real-time inventory visibility. Operators access live stock data, enabling dynamic prioritization of replenishment and retrieval tasks. This ensures product availability, reduces downtime, and prevents order bottlenecks. For fast-moving inventory with short shelf lives, this visibility enables quick responses to demand changes, streamlined replenishment cycles, and consistent stock across temperature zones. These features improve efficiency, reduce waste, and ensure timely fulfilment.

Configurable Design to Minimize Costs

StrongPoint's software prioritizes cost efficiency, integrating e-commerce technology needs, from manual picking and automation to last-mile delivery options. Its modular design eliminates the need for costly custom development, enabling tailored workflows that reduce both upfront and ongoing expenses. This cost-saving focus is critical in today's retail environment, where shifting customer preferences, seasonal surges, and operational complexity can drive up costs. By streamlining workflows and enabling scalable operations without unnecessary investments, the platform provides a clear path to reduced expenses, improved efficiency, and sustained profitability in a dynamic market.

› Lesson 2

Compact Design: Further Space Optimized

Redefining Space Optimization
1 single grid, 1 fleet of robots, no conveyors. simple compact design, complex software, optimal reward.

Space constraints challenge nearly every industry reliant on warehousing or logistics, but this project shows how compact design can turn limitations into opportunities.

> **By increasing space efficiency by 54%, the AutoStore grid enabled the customer to handle significantly higher volumes without expanding their 1,500-square-meter warehouse.**

This was achieved with a single grid, a fleet of robots, and no conveyors: a simplified design that maximized efficiency without unnecessary complexity. The result is a compact system supported by advanced software capable of managing intricate workflows.

> **For businesses struggling to find extra capacity, this project highlights an important lesson: that extra space you need? You may already have it.**

For automation professionals, vertically stacking totes and integrating frozen, chilled, and ambient zones into one grid removes the need for additional facilities. This approach reduces capital expenses and streamlines operational costs.

Whether in pharmaceuticals, electronics, or other industries requiring precise storage, compact design paired with advanced software unlocks hidden capacity and delivers long-term benefits.

Lesson 3

Transforming Workplaces: Prioritizing Safety & Efficiency

This project highlights how automation can improve workplace conditions while boosting efficiency. Previously, workers manually handled frozen goods in -25°C environments, leading to fatigue, safety risks, and discomfort.

> **By implementing automation, employees now operate in a much safer and more comfortable +5°C environment, significantly reducing health risks and improving morale.**

The system also cut manual labour by 66%, allowing employees to focus on higher-value tasks instead of repetitive, physically demanding work. For businesses, this demonstrates the dual benefits of automation: improving job satisfaction while increasing productivity. Automation isn't just about speed and accuracy, it's about creating workplaces that prioritize employee well-being and long-term retention.

Lesson 4

Efficiency & Throughput: Scaling Without Sacrifice

This system achieved an impressive throughput of 2,000 product presentations per hour and is built to scale for even higher volumes, proving that automation can handle rising demand without compromising accuracy or performance. By leveraging robotics, it streamlined labour-intensive processes, enabling faster and more precise operations with consistent reliability.

A standout feature is its "build for today, scale for tomorrow" design, maximizing port efficiency to ensure peak performance while its modular structure allows seamless scaling.

Adding robots or expanding operations can effortlessly multiply throughput, supporting growth without costly overhauls.

For high-growth environments, this project demonstrates how a well-planned system adapts to rising demand. Properly designed automation eliminates bottlenecks, shortens processing times, and ensures that scaling is both manageable and sustainable. The takeaway is clear: scalable systems maximize today's performance while cane be prepared for tomorrow's needs if further scaling is needed.

Lesson 5

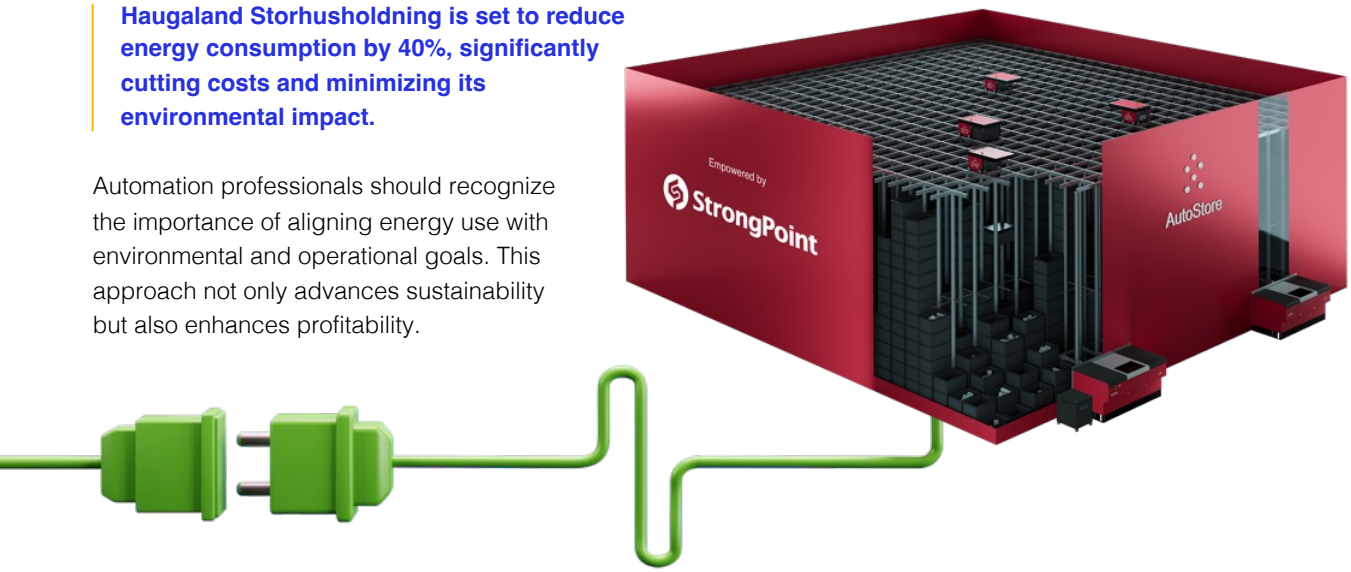
Sustainability: Unlocking Energy Efficiency

Sustainability is now a necessity, and this project offers a model for achieving energy efficiency through smart design. By controlling storage temperatures and room humidity,

> **Haugaland Storhusholdning is set to reduce energy consumption by 40%, significantly cutting costs and minimizing its environmental impact.**

Automation professionals should recognize the importance of aligning energy use with environmental and operational goals. This approach not only advances sustainability but also enhances profitability.

Businesses across industries can adopt similar energy-efficient strategies to gain a competitive edge while reducing their environmental footprint.



Lesson 6

Broader Applications: Lessons Beyond Frozen Logistics

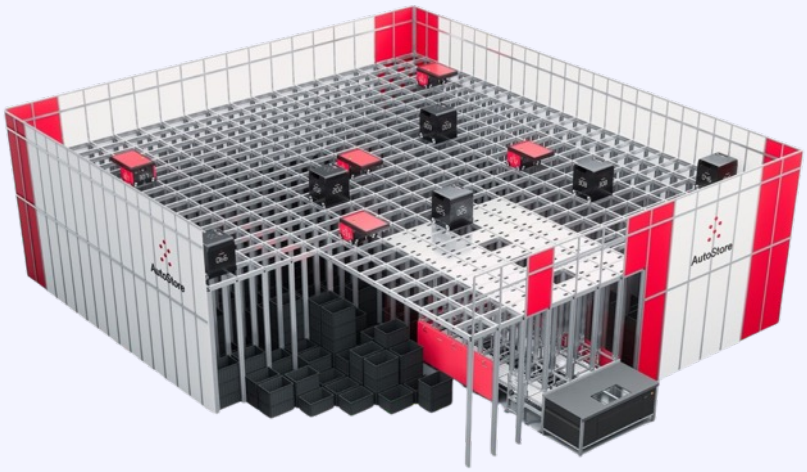
While the system was designed to solve challenges in frozen logistics, its principles extend far beyond that industry. Compact design, energy-efficient strategies, and advanced software integration are universally applicable and provide valuable lessons for sectors like pharmaceuticals, agriculture, and electronics.

In pharmaceuticals, managing multiple temperature zones within a single system can streamline the storage and distribution of sensitive medicines. In agriculture, integrating frozen and fresh produce into one system can simplify operations and cut costs. These examples show how the methodologies developed in this project offer a framework for tackling diverse logistical challenges. For anyone considering automation, this project is a reminder that the most effective solutions often have far-reaching applications.

Conclusion

This whitepaper has covered the practical lessons learned from implementing the world's first multi-temperature AutoStore system, demonstrating how new technological developments in automation can solve complex challenges in both grocery retail and other industries. From managing diverse workflows to achieving efficiency gains and reducing costs, the insights shared provide valuable guidance for automation professionals and retailers alike.

The software developed for this AutoStore installation provides automation professionals with a sneak peek into next-generation solutions designed to enhance efficiency, scalability, and operational integration. Its ability to optimize workflows and unify diverse systems creates opportunities for savings and improved performance across a wide range of applications. This project stands as proof that even emerging players in automation can deliver meaningful innovations, setting new benchmarks for what automation can achieve.



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- Engage with experts to tackle your questions and explore advanced strategies.

Ideal for anyone looking to deepen their understanding of automation and discover its transformative potential.

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