ZEEMAN

INTHER
improving intralogistics

A Total Logistics Transformation in a Running Operation

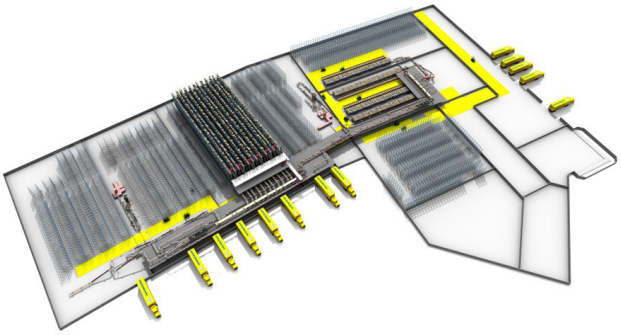
CASE STUDY: ZEEMAN – INTHER GROUP

How do you transform an outdated distribution center into a fully automated operation without shutting down the ongoing operation for a single day? For Zeeman, this wasn't a theoretical challenge, but a realistic starting point. Inther Group took on the challenge and, together with Zeeman, developed a unique logistics story centered on technology, collaboration, and courage. A journey filled with technological innovations, logistical puzzles, and organizational challenges—but above all, a shared belief in a powerful concept.

The reason: end-of-life and an eye to the future

In 2018, Zeeman embarked on an ambitious project to modernize its existing logistics operation. The retailer, known for its extensive store network across Europe, wanted to say goodbye to its outdated, manual sorting system and transition to a future-proof, automated concept that could seamlessly grow alongside the organization's retail ambitions. Together with Inther, a comprehensive solution was developed that prioritized efficiency, ergonomics, and scalability.

A key focus was improving the fill rate of roll containers, increasing the flexibility of SKU offerings, and enabling just-in-time delivery to more than 1,400 stores in Europe. Adding to the complexity was the fact that all of this took place in a brownfield site: the existing building in Alphen aan den Rijn remained operational throughout the entire renovation.



Moreover, while many logistics projects begin with a single optimization – such as a new picking process or the addition of a shuttle – Zeeman opted for a complete system transformation. They wanted to not only renew their logistics operation but completely rethink it: new processes, a new system design, new technologies, and collaboration with multiple integration partners. Inther was tasked with bringing all of this together. "They essentially tackled the entire architecture from top to bottom in one go: building, system, WMS, integration, everything. That made it a massive project for both Zeeman and Inther," says Martijn Herder, CEO of Inther Group. Inther Group acted as lead integrator in this project, taking responsibility not only for the design, system selection,

integration, and implementation of the chosen solution, but also, and more importantly, for connecting all the links in the chain. And there were quite a few of those.

> It's a complete redesign of all processes, systems, and working methods. Moving from a 25-year-old vibrating sorter operation to a state-of-the-art shuttle system, all within the same building, challenged us to the max.
>
> **– Bas Hoekstra –**
> **Director Supply Chain Zeeman**

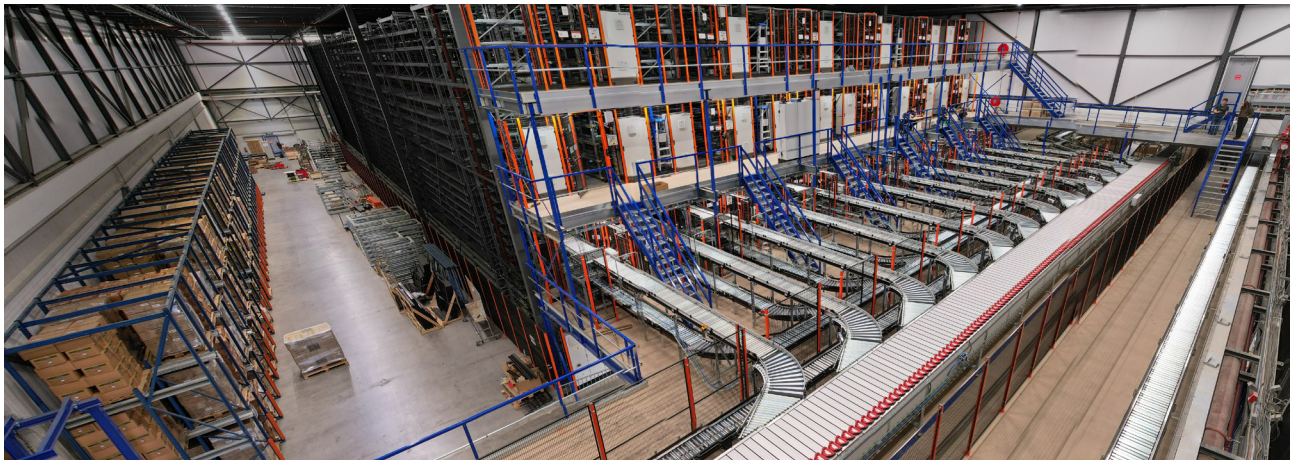
The challenge: optimization, availability, and sustainability

Inther Group collaborated intensively with Zeeman in the preparatory phase – for over two years. Through co-creation, principles were defined, technical requirements established, simulations built, and system calculations performed. Martijn Herder: "We truly collaborated with Zeeman in the preliminary phase to create a design with clear principles. Based on this, the entire system was designed and validated through simulations."

The project's launch was driven by three clear objectives from Zeeman:

- **Increase truck load factors** – more products per trip, fewer transport movements
- **Improve product availability in stores** – faster, more reliable throughput, and in the future, through more differentiated logistics cartons shipped to stores.
- **Improve warehouse ergonomics and sustainability** – less physical strain on employees.

To achieve these ambitions, a fully automated system concept was chosen, based on realistic data analysis and a modular approach. In practice, however, the project proved more challenging than planned. During implementation, several unexpected obstacles emerged: a floor that was less sturdy than anticipated, more variation in box sizes than anticipated, and limited dock space, which turned truck loading into a logistical chess game.



Nevertheless, the team remained confident in the concept. “The strength lay in the shared belief that it could work,” says Edwin Heijen, Project Manager at Inther. “We’ve overcome every bump in the road together – sometimes with sweat and tears, but always with a focus on the end goal.” Bas Hoekstra, Director of Supply Chain at Zeeman, says: “Both Zeeman and Inther dared to take on a major challenge together. Mechanization in an existing building with continuous operations. That’s not without setbacks, and that’s precisely when you have to work together to reach the finish line.”

The Inther solution: a comprehensive modular concept built on collaboration

Previously, Zeeman worked with a batch-based picking process, followed by manual sorting on a mechanical crossbelt sorter – an outdated and labor-intensive method. Inther developed a comprehensive concept that combines various proven technologies but integrates them in a new way.

> “What we’ve achieved together with Zeeman is unique in the retail world. An innovative combination of existing technologies, applied in a way that perfectly suits their high volumes and specific distribution challenges.”
>
> **– Martijn Herder –**
> **CEO Inther Group**

Inther Group delivered a fully automated logistics solution. The core of the system is a shuttle storage system with 6 AS/RS aisles, where each box is individually accessible. Thanks to various storage patterns, a wide variety of box sizes can be stored directly. This eliminates SKU limits and allows each order line to be precisely positioned for optimal container fulfillment. This provides maximum flexibility and enables order optimization at the box level for loading and shipping.

The system is fully integrated with both Inther ILC and external software. The WMS (Manhattan), the pick-to-light workstations, the ERP, an algorithmically controlled stacking solution (CICT), depalletizers (DGS), and automated loading via Elten were integrated into the project. Everything had to be implemented in one go – with the DC continuously in use. A considerable challenge, even for Inther’s seasoned logistics team. Ultimately, it enables Zeeman to efficiently manage all incoming and outgoing goods flows—from bulk, cross-docking, to order picking.

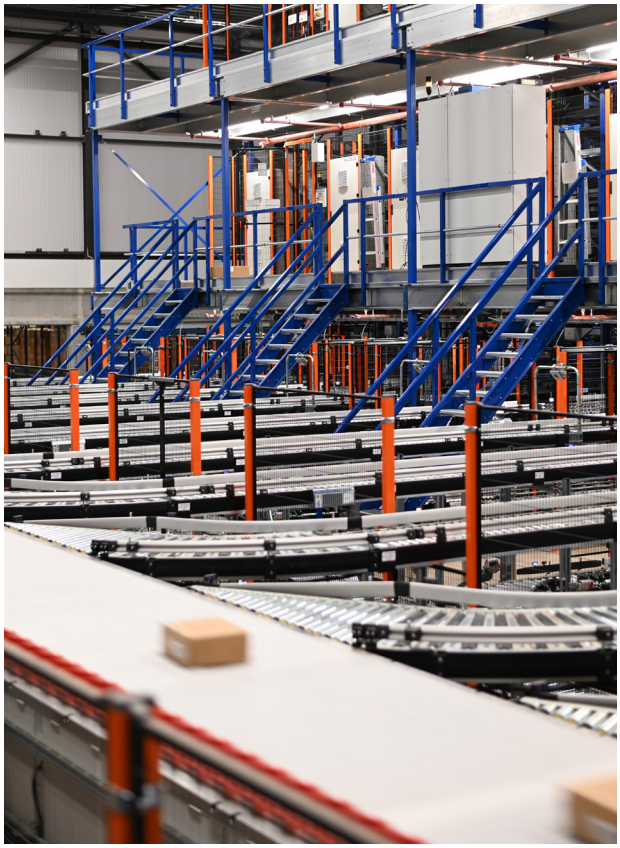
The result is a flexible shuttle system that combines three main goods flows:

- **Cross-dock flow**: OEM boxes enter the system directly from the container.
- **Inventory items:** Depalletized, buffered, and processed by the shuttle.
- **Order-picked goods**: Picked via Pick-to-Light and then directly to the shuttle.

All boxes—picked or not—pass through the shuttle system. This forms the central backbone of the operation. These boxes, regardless of their origin, are automatically stored in the shuttle and intelligently reshuffled to be processed and stacked in roll containers at the right time and in the right order, using the smart Inther ILC software and algorithm-supported loading.

Loading with precision: smart algorithms, AI, and (once again) collaboration

One of Zeeman's key principles was maximizing the fill rate of the roll containers. Inther, together with Elten and CICT, developed an advanced system that automatically presents boxes in the correct order. An operator at an ergonomic work platform sees exactly—via laser and screen—where each box should be placed. The shuttle allows boxes to be presented in precisely the correct order. This is essential for optimal fill rate. Every cubic centimeter counts—literally.



But while the project group initially calculated down to the millimeter, in practice, more tolerance proved necessary. The importance of box quality quickly became clear: irregular shapes or barcodes in the wrong place caused errors in the automated process. André Peppelman, Supply Chain Manager at Zeeman: "I am proud of the tenacity with which the Zeeman and Inther teams faced every setback. It was sometimes three steps forward and two steps back, but the teams remained confident in a positive outcome."

One of the most striking examples of innovation arose when the pallet recognition system based on fixed patterns proved insufficient. Initially, a camera solution was used to analyze stacked boxes on pallets, but in practice, the situation proved much more erratic than anticipated. What began as a hundred known patterns quickly grew into thousands of variations. This called for a smarter approach. Instead of blaming each other, the choice was made for collaboration and progress. Together with an AI specialist from Delft (NL), an AI-based pattern recognition system was developed, which now recognizes pallets with 99.9% accuracy and unstacks them independently.

"It was technical pioneering, and the result was astonishing. The AI not only solved the problem, it fundamentally improved the entire process. We're not just automating, we're making the system smarter. And that continues – it's a learning system."

– Edwin Heijnen – Project Manager, Inther Group

This loading process is a remarkable feat of system integration. Using an intelligent stacking algorithm from CICT and advanced Elten stations, the boxes are placed in roll containers, with optimal stability and space utilization. The boxes are controlled in precise order for automatic stacking. In addition to algorithms and stacking stations, Zeeman is developing planning algorithms to fill leftover roll containers with "may" items.

This will allow Zeeman to extract more volume from each container – and the process will be fully repeatable. In the near future, the roll containers themselves will even be prepared using AMRs (Autonomous Mobile Robots), which will ensure automatic dock loading. "Step by step, we are achieving our goals with high-quality production and insight into the efficiency potential of the entire system," adds Bas Hoekstra of Zeeman.

Hardware-independent integration: the proof in Alphen aan den Rijn

As a system integrator, Inther combined technologies from various parties into a single, functional system:

- **Depalletizers**
- **Shuttle systems**
- **Box erectors**
- **Roll container loading**
- **Visualization and control**
- **Inther's own conveyor equipment**

"At Zeeman, you see our strength as a hardware-independent integrator. We choose the best solution for each component and create a single, smart system," says Marc Biermann, Head of Sales Engineering at Inther. What made the project particularly challenging was the implementation at an existing location (brownfield) that had to remain fully operational.

At the same time, the building had to be adapted, from floor load to mezzanine structure. "Zeeman itself later indicated: we wouldn't do this again anytime soon during a running operation. But together we pulled it off," says Marc.

What makes this project unique is not just the technology, but especially the way it was realized. Inther collaborated closely with Zeeman and involved other technology partners early on. Together, the design was validated through simulations and rolled out in phases within a continuous operation. This wasn't always without its challenges, but the collaboration remained stable, focused, and goal-oriented.

"Zeeman's trust and openness truly made the difference. We worked as one team – with short lines of communication, transparency, and perseverance."

– Marc Biermann – Head of Sales Engineering, Inther Group

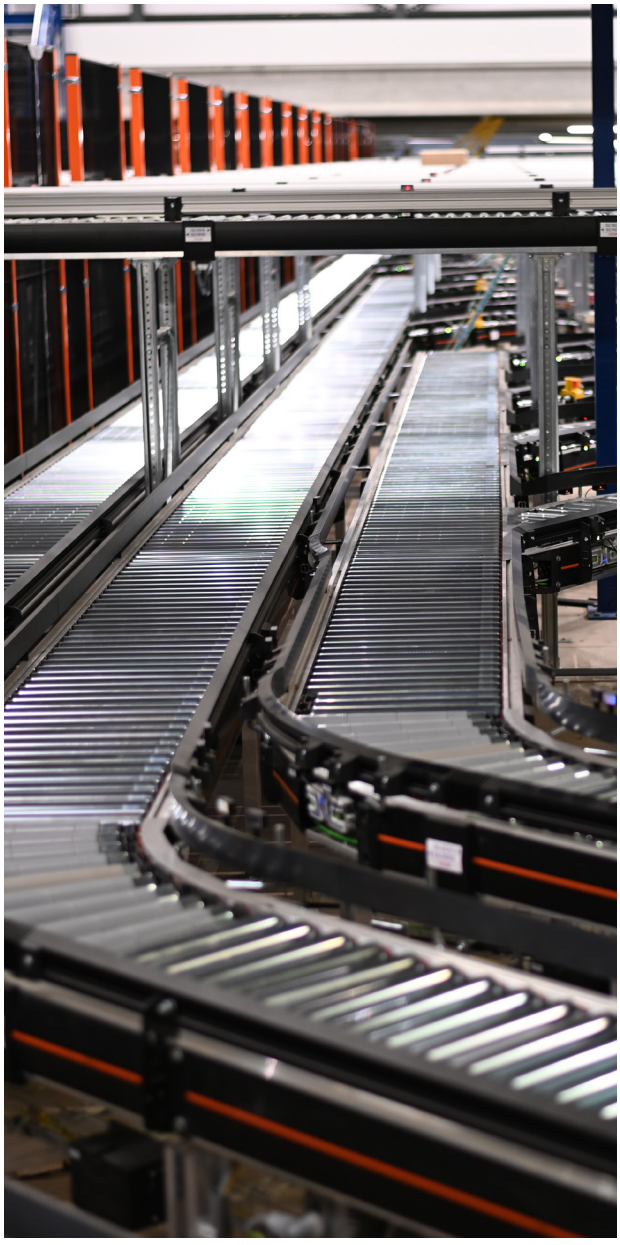
Service and collaboration as the foundation for continuous optimization

Inther Group not only supervised the design, realization, and implementation of the system, but also took a leading role in the service and maintenance process. From the outset, the specialists from Inther's service department were involved and worked closely with Zeeman's technical department. Together, maintenance plans were developed, spare parts were tested, and SLAs were tailored to the realities of the operation.

"Zeeman has a skilled technical department, which greatly strengthens our collaboration. The mutual understanding of technology and processes ensures rapid communication in the event of malfunctions, preventive maintenance, and improvements. You immediately notice a customer's technical expertise. This facilitates rapid response, facilitates a pleasant working environment, and elevates our collaboration to a higher level," says Luuk Philipsen, Service Account Manager at Inther.

The system is now running stably, and further refinement is being worked on daily based on real-time data. The excellent collaboration and contact with Zeeman is also reflected in joint improvement projects, which benefit both Zeeman and Inther, such as:

- **Data science dashboarding:** customer-specific dashboards that provide insight into performance, malfunctions, and optimization opportunities.



- **Predictive maintenance:** data-driven analyses allow maintenance actions to be increasingly aligned with the actual use of components.

- **Fill rate optimization:** collaboration with Zeeman and software partner CICT to refine stacking algorithms and thus reduce the number of required roll containers.

> "The system is not yet fully developed – and that is precisely its strength. We continue to work together on improvements."
>
> **– Luuk Philipsen – Service Account Manager, Inther Group**

Result: a scalable, future-proof system for 1,400 stores

Although the combination of technologies is new, the concept builds on Inther's experiences from previous projects. What makes Zeeman unique is its scale and the way everything is integrated. The combination of automated storage, advanced picking methods, smart sorting, and algorithm-supported loading is rarely seen in the retail sector in this way.

The project spanned several years, with phases of analysis, design validation, implementation, and optimization. After commissioning, Zeeman now has a fully scalable system, independent of item structures, and capable of operating without SKU limits. The entire operation—from receiving to shipping—is now focused on flexibility, speed, and fill level optimization. "An automated warehouse also demands something from the entire supply chain. It forces you to standardize processes and have organized data. That's a journey Zeeman is still in—and one in which they're also making enormous strides," says Edwin Heijnen.

The benefits at a glance:

- **No more SKU limits:** each box can be individually controlled
- **Optimal container loading** through sequence-based supply
- **Flexibility in flow management:** direct cross-docking, inventory, or order picking
- **Integrated AI** and pattern recognition for depalletizing
- **Reduced physical strain** and improved ergonomics

The system at Zeeman has been live for over two years now. Tens of thousands of boxes are processed daily to supply more than 1,400 stores. The output, flexibility, and scalability make the system future-proof. And perhaps even more importantly: the relationship between Inther and Zeeman is strong, professional, and focused on the long term.

> With so many different suppliers, Inther has performed its integration role well, a reliable partner that brings the components together into a single, functioning whole
>
> **– André Peppelman –**
> **Supply Chain Development Manager Zeeman**

In conclusion

With millions in investment, dozens of technologies, and thousands of decisions, this is one of Inther's larger projects. And even though the project isn't "finished" yet, it stands. The system is currently operating at over 90% operational efficiency and is continuously being improved. The collaboration between Zeeman and Inther Group demonstrates that even the most complex logistics operations can be optimized – provided they are intelligently designed and implemented step by step. This project demonstrates how intensive collaboration, technical expertise, and a clear vision can lead to a sustainable solution.

"We didn't just build an automated warehouse; together with Zeeman, we laid the foundation for a much more agile and efficient organization. That's what makes this project special," concludes Edwin Heijnen.

Want to know more?

Contact us at **www.inthergroup.com** or email **info@inthergroup.com** for more information about this solution or other automation challenges.

ZEEMAN

Why Zeeman chose Inther Group

The unique combination of:

- Flexible system design with a shuttle at its core
- Complete SKU independence and sequencing
- Experience with similar projects (Westfort, Snellman)
- The proven approach of intensive preparation and co-creation
- Hardware-independent integration from start to finish

Technical System Features

Component	Specification
AS/RS Shuttle	**6 aisles**
Storage capacity	**60.000 – 100.000 cartons**
Sorters	**2 Natrix sorters**
Channelizers	**2**
Pick-to-Light workstations	**20**
Pick-to-Light locations	**960**
Automatic loading	**6 Elten stacking stations**
Load carrier type	**Rolling containers**

Project details in brief

- **Client:** Zeeman
- **Sector:** : Non-food retail non-food (clothing, accessories)
- **Location:** Alphen aan den Rijn (NL)
- **Objectives:** Increase load factor, improve availability, optimize ergonomics
- **Solution type:** Fully integrated warehouse system
- **Details:** Implementation during continuous operations (not greenfield), limited dock capacity
- **Technologies:** Shuttle, (de)palletizers, pick-to-light, algorithm-loading, AMR, WMS integration
- **Goods flows:** OEM cross-dock, inventory, picking
- **Partners:** Manhattan, DGS, TGW, CICT, Elten, Lantech

Keywords

Distribution center | Brownfield | System integrator | Shuttle storage | Order picking | Roll container loading | Fill level optimization | Predictive maintenance | Data dashboarding | CICT | Manhattan | TGW | Elten | DGS

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