

Logistics

# Optimizing warehouse operations with **AI automation**

ST Logistics

Singapore's leading third-party logistics provider transforms a challenging labor market into an opportunity for future development by automating its warehouse logistics operations, supporting faster, more environmentally sustainable services.



Lenovo

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## Who is ST Logistics?

Based in Singapore, ST Logistics is the country's market leader in third-party logistics services for aviation, defense, healthcare, homeland security, and public sector organizations. From its headquarters in Toll City, the company provides end-to-end supply chain, bulk storage, warehousing, distribution, and transport solutions to customers around the world. As well as delivering excellent customer service, ST Logistics is investing heavily in technology as part of its "Smarter Green" initiative, which aims to boost environmental sustainability.

***ST Logistics***

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## The Challenge

To strengthen its competitive edge and embrace innovation, ST Logistics is constantly looking for more sustainable and forward-thinking solutions. Meanwhile, as younger generations pursue opportunities in other sectors, Singapore's logistics industry is facing a labor crunch. To stay ahead of the competition and strategize for future trends, ST Logistics looks to transform its operations.

Traditionally, workers at ST Logistics transferred goods via forklift from racks and pallets across the company's warehouses—following instructions from a warehouse system that was not integrated with other operational solutions. This approach frequently caused inefficiencies with order processing, leading to reduced productivity, decreased customer satisfaction, and high costs. At the same time, ST Logistics' use of warehouse space was not optimal—creating further inefficiencies and reliance on manual labor.

ST Logistics designed a strategic automation roadmap to elevate efficiency and sustainability, partnering with Lenovo to seamlessly integrate AI solutions for transformative success.





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Automation and AI are offering new ways for us to boost productivity and efficiency. To enjoy the benefits of this cutting-edge technology and stay competitive, we must deploy it rapidly and effectively—and that requires tremendous resources and expertise.”

**Chang Pin Chuan**

Head of Homeland Security & Public Sector,  
ST Logistics

# Delivering an end-to-end solution

Partnering with Lenovo as part of its broader digital transformation strategy, ST Logistics leveraged its in-house expertise and Lenovo's advanced AI-powered solutions to co-develop a smart warehouse system that optimizes operations.

The Lenovo Manufacturing Solutions feature three core components: a Warehouse Execution System (WES) and Autonomous Mobile Robots (AMRs). Alongside the IT infrastructure, Lenovo provides dedicated AI consultancy and support services to ensure a solid foundation for success.

## Services

Lenovo AI Advisory Services—consulting and solution design services that leverage robotics and AI to improve efficiency and optimize processes  
Lenovo AI Managed Services—maintenance and operational support

## Software

Warehouse Execution System (WES)

## Hardware

Autonomous Mobile Robots (AMRs)  
Lenovo ThinkSystem SR588

# Taking logistics to the next level

By connecting its existing Warehouse Management System (WMS) and Warehouse Control System (WCS) with the new WES, Lenovo empowered ST Logistics to automate the entire order processing system—from receiving to shipping—across its warehouses.

The integrated solutions provide real-time execution and exception reporting, ensuring uninterrupted operation. In addition, the WES offers holistic data dashboards and an integrated exception handling system. With the new solution, users can now manage all exceptions from a single, automated platform.

Today, the automation solution powers a fleet of autonomous mobile robots that pick and transport goods from different workstations across ST Logistics' warehouses. At the same time, the WES leverages AI algorithms to automatically calculate how to prioritize the storage of goods so items that are ready for immediate shipping are always easily accessible.





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“By collaborating with Lenovo, we gained access to cutting-edge AI-powered solutions that complement ST Logistics’ vision for smarter, greener logistics. Lenovo’s expertise, combined with our strategic direction, enabled the successful automation of our warehouse logistics.”

**Hamarian Mohamad**

General Manager, Homeland Security, ST Logistics

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## Results

By automating its warehouse operations with Lenovo Manufacturing Solutions, ST Logistics has unlocked a 30% improvement in overall efficiency and productivity, which has contributed to 40% faster order processing. ST Logistics achieved this at the same time as reducing its energy consumption by 30%, helping the company stay on track to meet its environmental sustainability goals. Furthermore, ST Logistics now has the ability to run its operations 24 hours a day, 7 days a week and drive rapid expansion.

- ✓ Up to 40% faster order processing
- ✓ 30% reduction in energy consumption
- ✓ 30% efficiency and productivity improvement
- ✓ 24/7 continuous operation enabled





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“Our clients rely on us to get the resources they need to save lives, protect the country, and innovate. By automating our logistics processes with Lenovo solutions, we can ensure that goods flow smoothly across our network and reach customers on time, every time.”

**Lance Ong**

Deputy General Manager (Operations),  
Homeland Security, ST Logistics



# Why **Lenovo**?

With this project marking the company's first step into AI-powered automation solutions, ST Logistics looked for a partner with broad experience deploying AI in warehouse operations.

"Through meetings and onsite visits, Lenovo gained a clear understanding of our goals, and delivered more than hardware and software," explains Lance Ong, Deputy General Manager (Operations), Homeland Security at ST Logistics. "Their support and ecosystem drove tangible outcomes, and we know we can always count on them, forming the foundation of our strong partnership."



# How can third-party logistics companies stay ahead of the competition?

ST Logistics partners with Lenovo to level up its operations with AI-driven automation.

Unleash the power of manufacturing