

A Detailed Guide of Technology in the Supply Chain

Is your business making the most of technology for your supply chain? When is this technology going to maximise your logistics output and in which areas is it less useful?

Introduction

Over recent years there have been rapid advancements in technology, and the logistics sector hasn't been left behind. Many companies wonder when supply chain technologies are actually beneficial to their specific supply chain processes, and in what situations are they going to be less useful.

The technological landscape

In today's fast-paced and interconnected world, the logistics industry stands as the backbone of global commerce, ensuring that goods move seamlessly across borders and into the hands of consumers. However, as supply chains grow more intricate and consumer expectations rise, traditional logistics models are increasingly under pressure to deliver greater efficiency, transparency, and sustainability. Technology has emerged as the game-changer, enabling companies to navigate these challenges and unlock new opportunities.

The logistics sector now benefits from more options for supply chain optimisation than ever, with technology being at the forefront of these solutions. All of these technologies can, and have been shown to, benefit supply chains in many ways, including efficiency, accuracy, and time and cost savings.

However, these solutions are often expensive investments, and can drive up the cost of logistics services as a result. Because of this, we must consider whether or not these technologies have benefits for our specific supply chain processes, as they often excel for certain situations more than others.

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This whitepaper explores how technology is revolutionising logistics operations, with a focus on emerging tools, benefits, when and when not to use each tool, and actionable insights for industry leaders.

Ideal for logistics managers, supply chain professionals, and business leaders seeking to enhance operational efficiency. Leverage these insights to stay ahead in an ever-changing logistics landscape.

Summary

A Frame

ASRS

CartonWrap

Drone Inventory

Goods To Person Robotics

Pick By Light

Rabot

Conclusion

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At a glance

Order fulfilment capacity with A Frame	Reduction in picking time per order with finger scanning	Accuracy of Pick by Light
4x	20%	99.5%+

Logistics technology has the potential to transform operations, but its success depends on the right application in the right context. This whitepaper examines the role of innovations like AI, automations such as A Frames, and tools to enhance efficiencies in logistics, such as finger scanning and goods to person robotics. Not just highlighting their benefits, but also critically analysing when and why they may fall short.

A Frame

Best for small SKUs and high order volumes, doesn't work well with large or fragile SKUs

ASRS

Best for fast moving, small-medium SKUs, doesn't work as well with large or slow moving SKUs

CartonWrap

Best for single product orders, similar Genesys solution is better for multi-product orders

Drone Inventory

Best in high-SKU, low-turnover warehouses, doesnt work as well in high human traffic areas

Goods to Person Robotics

Best for high SKU variety, small to medium order volumes, and fast-moving products. Doesnt work as well for large, bulk orders or heavy items

Pick by Light

Best for small/medium items that can be stored in bins, less effective for bulky products

Rabot

Best in structured, high-volume packing environments, least effective in small, low order volume facilities.

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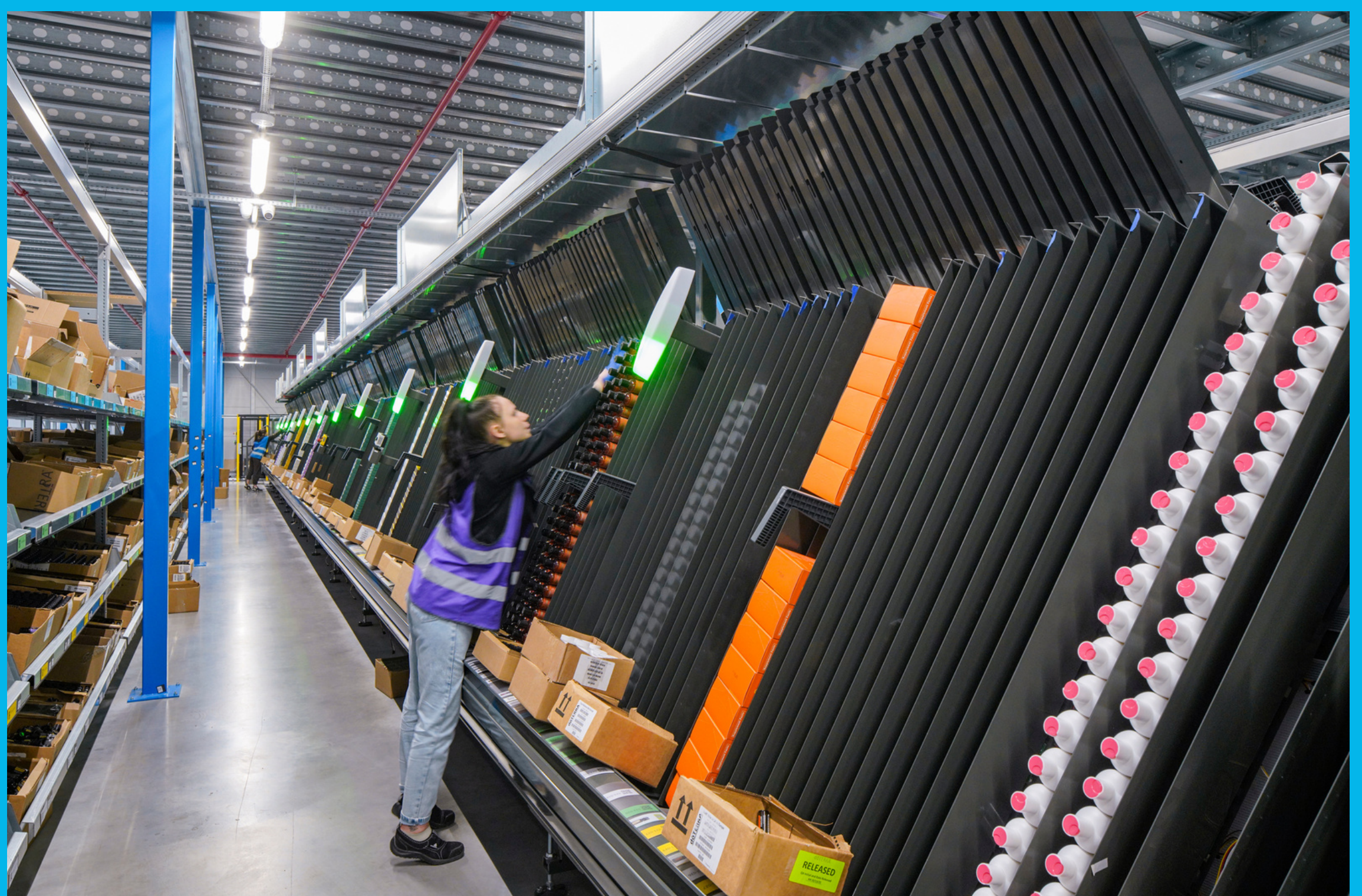
A Frame

An A Frame solution is an automated picking system designed to handle high-volume order fulfillment with speed and accuracy. It consists of vertical channels or silos arranged in a triangular or rectangular frame, which resembles the letter A. Each channel holds a specific SKU (Stock Keeping Unit).

The A-Frame solution works by automatically dispensing products from the channels onto a conveyor belt below, onto which you can put a tote, box or bin. The dispensing mechanism is controlled by software that coordinates the picking process based on order requirements. The system collects the items needed for each order and directs them to the packing or shipping area.

A-Frames high speeds mean they can handle thousands of picks per hour, making them ideal for peak periods or large order volumes. The automated dispensing increases accuracy by eliminating human error from the picking process.

They are also extremely efficient and scalable - the compact design and automated process reduce manual labour and time, and allow them to be expanded or integrated into larger warehouse management systems.



A Frame technology is a fantastic solution that can enhance your accuracy, speed, and efficiency, but do they work for all products and supply chains?

The challenge

If an A Frame works best for businesses with smaller SKUs, non-fragile products, and higher order volumes, then of course it doesn't work as well for businesses who don't fit into these categories, or may not be worth the investment.

For fragile products, technology such as finger scanning or Pick by Light may benefit your supply chain more - you can still have experts carefully handling your products, whilst using the finger scanning or Pick by Light technology to speed up the picking process. The same goes for businesses with smaller order volumes, as the lower price point of finger scanning/Pick by Light makes the investment and efficiency boost worthwhile (see page X for more information on finger scanning, and page Y for more on Pick by Light).

For businesses who have large SKUs that cannot be placed into smaller picking bins, drone inventory technology can create efficiencies within your supply chain by reducing time and human error that may occur during inventory tracking (see page X for more information on drone inventory)

The solution

A Frame technology works best for businesses that have smaller SKUs, as they fit into the channels of the frame much better than larger products would. Since the A Frame will drop these products from the channels onto the conveyor belt below, SKUs that are less fragile are more compatible with the system.

An A Frame will have the most benefits and ROI for a business with large order volumes, as you will be saving much more time on the picking and packing process with A Frame technology, justifying its higher price point.

The proof: doTERRA

With the expansion into new markets, doTERRA faced the challenge of efficiently scaling their order fulfilment operations while maintaining quality and speed. Radial together with doTERRA analysed product data, end-customer profiles, and market trends to identify the ideal solution. The result was the implementation of the A Frame, a move aimed at doubling same-day shipping, handling sales fluctuations seamlessly, and streamlining the handling of sales peaks.

The A Frame became the backbone of order processing, combining the Central Belt System with the a fast-mover picking machine (SDA), transfer stations, and tailor-made software. All orders are now picked into totes, starting in the SDA area and moving on to the fast-mover area for direct picking from flow racks. Automated document insertion and tote transport to one of the 40 packing stations ensures efficiency and accuracy. The empty totes are then directed to the tote buffer for reuse.

4x Order fulfilment capacity

By implementing A Frame, the order fulfilment capacity has quadrupled, enabling them to handle a significantly higher volume of orders with ease. Moreover, the A Frame have virtually eliminated delays in the order processing pipeline. This achievement ensures that doTERRA can consistently meet customer demands while maintaining the quality and speed that are synonymous with their brand. doTERRA's partnership with Radial has not only allowed them to maintain their position as the world's largest essential oil company but also to efficiently scale their operations and meet the growing demand for their products. The implementation of cutting-edge automation technology has proven to be a strategic move, ensuring rapid, high quality and reliable order processing.

ASRS

Automatic Storage & Retrieval System

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An Automated Storage and Retrieval System (ASRS) is a cutting-edge warehouse automation technology that streamlines the storage and retrieval of inventory through advanced robotics, software, and precision-engineered equipment. These systems are designed to maximise space, improve accuracy, and accelerate processes, making them an indispensable tool for modern supply chain operations. At its core, ASRS consists of key components: storage racks for efficient vertical or horizontal item organisation, robotic mechanisms such as shuttles or cranes for transporting items, and conveyors or lifts to deliver goods to picking and packing areas.

A Warehouse Management System (WMS) integrates with ASRS to provide real-time inventory tracking, optimise stock placement, and ensure seamless operation. The process is straightforward: items are scanned, stored, and catalogued within the system, and upon request, the robotic mechanisms retrieve the desired goods and deliver them to the operator or dispatch area. Different types of ASRS cater to various operational needs. For example, Unit Load systems handle large, palletised items, while Mini-Load systems are ideal for smaller goods stored in totes or trays.

Carousels bring stored items directly to operators, while shuttle systems and robotic cube storage provide efficient handling for high-density warehouses. The benefits of ASRS are transformative. Businesses can optimise storage by leveraging vertical space, significantly improving warehouse capacity without expanding the physical footprint. The system enhances efficiency by reducing order fulfilment times and minimising human error, contributing to improved customer satisfaction. Additionally, ASRS reduces labour dependency, leading to cost savings and improved safety.

The challenge

Products with a large or irregular size don't work well with the ASRS, as the products need to fit within the specific cube size. Slower moving goods will also negatively impact the efficiency of the technology, which may make it more difficult to justify the cost.

The solution

ASRS is best suited for fast moving consumer goods of average e-commerce product size, which would fit into a standard carrier parcel. SKU ranges are adeptly managed by the AutoStore, so are not a restriction. However, order mixes have a direct impact on productivity. Order profiles of 1-2 items per order are most efficient, and 2-3 items per order are most profitable.

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*“There is a growing and valid concern about the pitfalls of automation, driven by a collective excitement with all things modern. Logistics, and by extension, fulfilment, remains a simple process. In, store, process, out. The simpler the better, so in my view, it's better to only automate where necessary, and not simply because it appears better. Manual processes still have a key part to play in an automated warehouse.” ~ **Khalil Ashong, Country Director of Active Ants UK***

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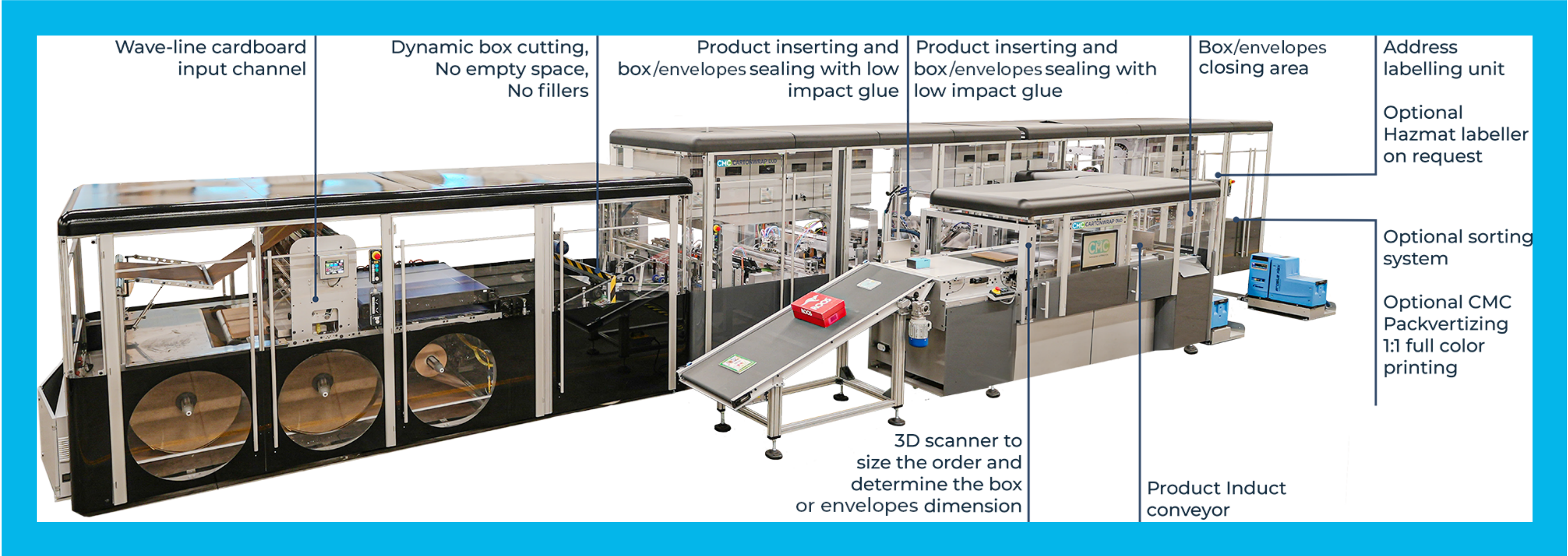
CartonWrap

CartonWrap is a machine that can pack items of different dimensions in the correct sized box automatically.

CartonWrap works by analysing the dimensions and thickness of SKUs to determine the perfect sized box or envelope for that product, and then cuts the material down.

This solution reduces packaging waste and size, which cuts down the CO2 of the parcel in transit. It also creates envelopes for thinner products, which reduces returns as the envelopes can fit through a letterbox, ad also reduces carbon emissions.

As well as being environmentally friendly, the machine is extremely efficient, packing up to 900 orders per hour. This is great for businesses with high order volumes or large peaks.



The challenge

The CartonWrap solution can only handle orders that contain one product, so if your brand's typical order profile sees more than one product being ordered at the same time, then the CartonWrap solution may not be right for you. However, the manufacturer of CartonWrap also produce a similar machine called Genesys, which can handle single and multi-product orders.

These technologies create the boxes around the products, meaning the packaging fits tightly against the product. This reliminates the need for fill in the boxes. However, because CartonWrap cannot insert fill into the package, more fragile products such as glassware and plates may not be suited to this technology.

The solution

The CartonWrap solution works for many different types of products from many different sectors. Products such as books, fragrances, cosmetics, clothing, sports equipment, and much more can work well with CartonWrap, and this technology can streamlines supply chains for these brands with ease.

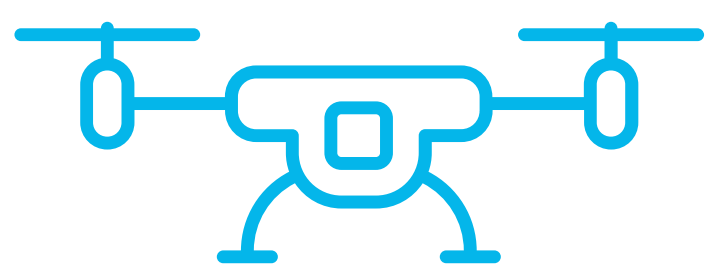
Due to the cardboard being cut down to the exact size needed for the products, cardboard usage is reduced, and the need for fill in the packages is eliminated, which creates a more eco-friendly solution, which works well for brands who are very sustainable.

CartonWrap's ability to print on demand directly onto the packaging is great for brands who frequently run promotions, or who may ship out hazardous goods.

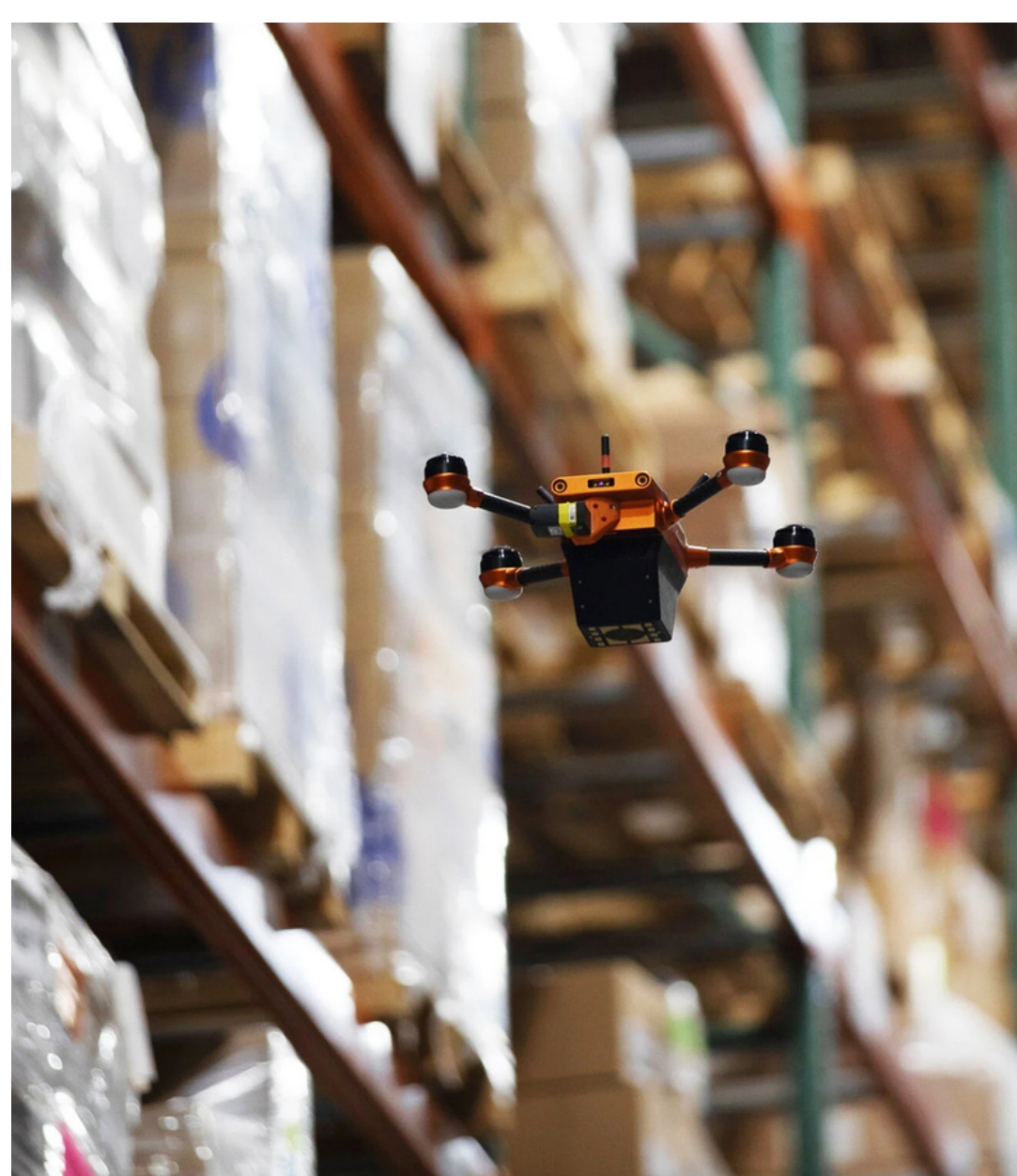
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Drone Inventory

Drone inventory involves the use of autonomous, self-flying drones to manage warehouse stock levels. These drones conduct tasks such as cycle counting, barcode scanning, and inventory tracking without human intervention, integrating directly with Warehouse Management Systems (WMS).



The drones can be scanning and checking stock and inventory levels during or after working hours, and can then go back to their charging pads until they're needed again. This greatly minimises the need for human intervention and the chance of human error.



Drone inventory provides real-time data updates and can operate without additional infrastructure, such as beacons or stickers. They navigate independently, scan stock during scheduled missions, and return to landing pads for recharging. This technology boosts inventory accuracy to over 99%, reduces manual labour, and allows for faster cycle counting, even during off-hours. It also saves costs associated with temporary labour and equipment maintenance while supporting sustainability through lower energy usage and emissions.

Designed for scalability, drone systems can handle warehouses with 5,000 to 30,000 pallet positions. While the initial investment can be high, the return on investment is often achieved within six months.

Drones are best suited for warehouses with standardised layouts and integrate quickly—operational within a week with minimal infrastructure changes.

Drone inventory optimises supply chains by resolving discrepancies within 60-90 minutes, improving space utilisation, and freeing up employees for higher-value tasks, making it a valuable tool for modern logistics.

Drone inventory systems not only improve efficiency but also enhance decision-making. With real-time data integration into Warehouse Management Systems (WMS), businesses gain better visibility into stock levels and operational trends, enabling more accurate forecasting and strategic planning to meet market demands.

Drone inventory technology is great for saving on time and labour costs, as well as reducing the chances of human error. It also only takes a few days to implement, depending on the availability of the vendor, and is billed monthly as Robotics-as-a-Service (RaaS).

The challenge

Drones are less effective in confined, low-ceiling spaces or where aisles are narrow and cluttered. Navigation becomes more difficult, increasing the risk of collisions and slowing down scanning.

Inconsistently arranged inventory or poor labelling, such as faded barcodes or missing tags, also undermines accuracy.

High human traffic creates further challenges, requiring drones to constantly adjust their path for safety.

Metal shelving, dense packaging, and electronic interference can disrupt signal quality and scanning reliability, particularly for RFID systems. Additionally, short battery life limits flight time—typically 10 to 30 minutes—requiring frequent recharging or battery changes, especially in larger facilities.

Due to not being able to open and count partial cases, drone inventory technology would not work well for situations where this is required.

The solution

Drone inventory technology works well with any product type, as long as there are words or readable barcodes on cases. The drones can view cases in locations, determine if the product is correct, make recommendations for consolidation (cubic estimates based on vision).

Drones are highly effective in large, high-ceiling warehouses, particularly where goods are stored on tall racking. They can reach areas that are difficult or time-consuming for human workers, improving both safety and efficiency.

Well-lit environments and those with reliable positioning systems—such as GPS or indoor navigation technologies—enable drones to scan accurately and follow consistent flight paths. Facilities with standardised layouts and clear labelling further support smooth operation.

Drone scanning is particularly useful in high-SKU, low-turnover warehouses, where regular audits are required but stock movements are minimal.

Performance is further enhanced when RFID tagging is in place, as drones can read tags without needing direct line of sight. “Dark” or automated warehouses are especially well-suited, as minimal human presence allows for uninterrupted drone operation.

The proof: Staci Americas

Staci Americas worked with Corvus Robotics to implement drive inventory technology into their Georgia and New Jersey fulfillment centres. They were experiencing issues with fulfillment speed (lost or misplaced inventory disrupted workflow—pickers unable to locate goods, replenishments weren't on time, and outbound orders delayed), On-Time In-Full (OTIF) penalties (delayed orders led to contractual penalties from clients and providers)

time, labor, and MHE costs (missing pallets took on average 6-8 hours to locate, disrupting the workflow of up to 20 production employees and leading to unnecessary labor and MHE costs), and storage space utilisation (occupied storage locations were often 20-50% full, preventing current customers from expanding or new customers from being added to the warehouse).



The solution was to implement the Corvus One Autonomous Inventory Management System to more accurately and efficiently track and store material for multi-client buildings in Georgia and New Jersey, and schedule lights-out flights, which are performed nightly off-shift, ensuring any inventory discrepancies flagged by the Corvus One system are corrected pre-shift the next morning, allowing production and inbound teams to focus on their tasks without having to search for inventory.

The results:

- Minimised OTIF penalties: Improved fulfillment speed while significantly reduced contractual penalties for delayed shipments
- Increased labor productivity: Production and inbound teams no longer spend time searching for inventory, eliminating unproductive labor and time costs
- Lowered auditing & cycle counting labor costs: Skilled employees redeployed to other departments
- Reduced MHE equipment usage: Fewer forklifts and cherry pickers needed for operations, lowering equipment costs and reducing emissions
- Improved space utilisation: Consolidated pallet positions, passing cost savings to customers while opening up more storage space for client expansion or new business

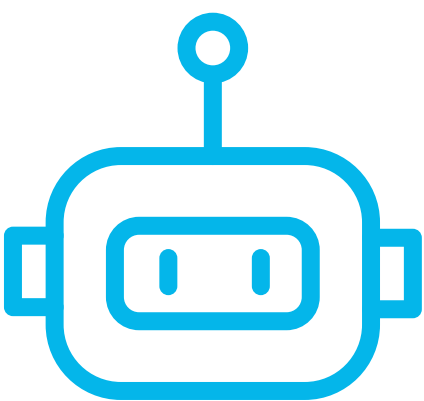
Goods To Person Robotics

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99.9%

Order accuracy rate

Goods-to-Person (GTP) robotics is an advanced logistics technology designed to streamline the order-picking process. Unlike traditional systems where workers navigate warehouse aisles to locate items, GTP robotics bring the goods directly to stationary workers or packing stations. By eliminating unnecessary movement, this approach significantly enhances operational efficiency, accuracy, and ergonomics.



At the heart of GTP systems is a seamless integration of storage units, autonomous mobile robots (AMRs) or automated guided vehicles (AGVs), and a Warehouse Management System (WMS). When an order is placed, the WMS identifies the required items, and the robots retrieve the appropriate storage units. These are then delivered to a picking station where a worker or robotic picker selects the items, packs them, and processes them for dispatch. Once the task is complete, the robots return the storage units to their designated locations, maintaining a well-organized and efficient warehouse flow.

Benefits

The benefits of GTP robotics are well-documented. Picking rates can increase to between 300-600 lines per hour, compared to manual picking rates of 50-100 lines per hour. Walking distances for workers are reduced by up to 70%, allowing them to focus on value-added tasks. GTP systems also improve storage density by up to 40%, as robots can navigate narrower aisles and optimise vertical space. With order accuracy reaching 99.9%, GTP systems minimise errors that can lead to customer dissatisfaction.

Additionally, the return on investment (ROI) is often realised within 2-3 years, making it a cost-effective solution for many businesses.



Goods to person robotics is a great example of warehouse automation. It has been shown to increase efficiency and accuracy of supply chains, which can benefit businesses in many ways. However, like most supply chain technology, it is not one-size-fits-all.

The challenge

GTP robotics is not a universal solution. It may not be the best fit for businesses handling large, bulk orders or heavy items, where traditional forklifts or conveyors are more efficient. Similarly, warehouses with low SKU diversity or large quantities of a single SKU may find it difficult to justify the investment.

Products with irregular shapes or oversized dimensions can pose handling challenges, reducing the effectiveness of the system. Additionally, highly seasonal operations with extreme demand fluctuations may struggle to scale GTP systems affordably for short-term peaks.

The solution

GTP systems are particularly well-suited to environments with high SKU variety, small to medium order volumes, and fast-moving products. Industries such as eCommerce, retail, electronics, and cosmetics benefit greatly from the ability to efficiently pick and pack orders with diverse items.

Facilities with limited space also gain an advantage, as GTP systems maximise vertical storage and allow for narrower aisle configurations. Moreover, businesses with complex picking scenarios, such as those requiring items from multiple storage locations, can streamline operations significantly with GTP robotics.

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*“We see tremendous productivity and accuracy benefits in the warehouses after implementing. Decreases in worker fatigue, higher throughputs, and increased accuracies are a few benefits. One of the benefits I like to callout is the ability to displace labor rather than remove it from the facility. Our associates are often very skilled at more complex functions, so we can utilize the G2P bots for the monotonous tasks like walking, carrying, or moving goods!” ~ **Austin Feagins, Senior Director of Transformation and Solution Design, Staci Americas.***

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Goods To Person case study: Staci Americas

Staci Americas worked together with Locus robotics to implement a GTP robotics solution

The challenge

Staci Americas' Lawrenceville, GA facility focuses on fulfillment for consumer goods products, including tumblers, glassware, coolers, and vacuum-sealed bottles. The facility has a very large footprint due to the products they carry, and associates would walk roughly four to five miles each day in the warehouse pulling heavy carts that could hold anywhere from 30 to 100 pounds of product. Order picking accuracy was also top of mind for Amware, with 3,000 different products stored in the facility and an additional 8,000 to 10,000 variations of those products due to colors and branding. When Amware was looking for an automation solution, they wanted one that would require little to no CapEx investment and be flexible and adaptable.

The solution

Locus deployed a warehouse execution platform and 20 autonomous mobile robots (known as "cobots") along with a suite of dashboards and actionable reporting tools for Amware in their Lawrenceville, GA facility.

This GTP model had a quick implementation time, and the full fleet of cobots were operating within 3-4 weeks. Another benefit was the robots-as-a-service (RaaS) subscription model for the monthly OpEx costs, as well as the flexibility to scale up or down as needed during changing order volume times like peak.

The results

During the non-peak season, the cobots have improved efficiency at Staci Americas. The facility saw a 35% year over year performance improvement in the first month alone after bringing on the cobots, and a 3x improvement in picking efficiency.

The cobots create an easy environment for associates, who know where to go for the next pick by looking at the display screen after a pick is completed. The display screen also shows the text in each associate's preferred language, which is a huge bonus with 60-80% of the pickers having Spanish as their native language.

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We intended to have a throughput of 2,500 to 3,000 orders per day. During the peak season, we fulfilled 5,000 to 7,000 orders per day, and increased our peak season units per hour (UPH) to 136% with our cobots.

~ Austin Feagins, Senior Director of Transformation and Solution Design, Staci Americas.

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Pick By Light

Pick by Light is a paperless order picking system that uses LED displays mounted on storage locations to guide operators through the picking process. Each light module includes a digital display indicating the quantity to be picked, as well as the order number and a confirmation button. When an order is initiated, the lights illuminate at the relevant storage locations, directing operators to pick the required items and quantities, eliminating the need for paper picking lists or handheld devices.

This system operates on the "light on, light off" principle: operators follow the light displays, pick the indicated quantity, confirm the action by pressing a button, and move on to the next location. This creates a visual and intuitive workflow, reducing training needs while improving accuracy and efficiency. We use it in an automatic conveyor system where barcodes enable specific routing of packages for different clients, with shared preparation lines.



Implementation

Implementing a Pick by Light system takes between 6 months and a year, depending on the size and complexity of the project, availability of products, and required components. However, it is possible to leverage our existing facilities and share them. This allows for the integration of new customer accounts at a lower cost without requiring additional investments in hardware or infrastructure, which is a significant advantage.



Cost

Initial Costs: The costs of installing a Pick by Light system include the purchase of equipment (lighting, sensors, controllers), software integration, and installation fees. Depending on the warehouse size and integration complexity, this can range from €100,000 to several million euros.

Recurring Costs: Annual costs are mainly related to equipment maintenance, software updates, and potential replacement of certain components. They are generally low, representing about 5 to 10% of the initial cost per year.



Sustainability

The Pick by Light system contributes to more efficient inventory management and reduced human errors, leading to fewer returns and less waste. It also optimizes energy consumption compared to other more energy-intensive order preparation systems.

- **Energy Efficiency:** Relatively low energy consumption compared to automated alternatives.
- **Reduction of Paper Use:** Elimination of paper picking lists.
- **Extended Lifespan:** Modular design allows components to be replaced rather than the entire system.
- **Optimisation Potential:** Reduces travel time and increases order preparation efficiency, which can lower overall warehouse energy consumption.

Accuracy	Picking speed	Training time
99.5%+	Very high	1-2
Initial investment	Scalability	Hands-free
High	Moderate	Partial

The challenge

A Pick by Light system can cause challenges for certain fulfilment operations, here are a few things to consider:

- **Product Size:** Pick by Light is less effective for bulky or heavy products requiring more specialised automated handling.
- **Reference Range:** Environments with few references or very homogeneous stock management aren't optimal for Pick by Light.
- **Order Profile:** Pick by Light is less suited for complex orders involving multiple warehouse zones or where each order has a very small volume.
- **Product Security:** Products requiring strict security checks or delicate handling (e.g., pharmaceuticals or perishable goods, scanning required) are not ideal for Pick by Light.
- **Product Composition:** Pick by Light is not suited for products that need special handling or if there are specific storage constraints.

The solution

Pick by Light works best with small to medium items that can be stored at designated locations, such as bins or dynamic shelves. Non-bulky items that can be handled by a single operator, and that have a moderate to high picking frequency are also most efficient for Pick by Light.

The best operation profile for a Pick by Light set-up would be:

- Medium to high order volumes.
- High picking operations (500+ picks per day).
- Moderate number of active SKUs (500-5,000 SKUs).

In terms of labour, Pick by Light can work well with:

- Operations with variable workforce or high turnover.
- Multilingual workforce (visual system reduces language barriers).
- Environments requiring minimal training time.

Pick by Light: The proof

200 parcels/hour

One of Staci's clients needed an efficient picking solution - that's where Pick by Light came in

Our Pick by Light model is used for many of our eCommerce and mail order clients, in sectors such as dry food, cosmetics, and literature. The types of orders for these clients are usually single-package orders with products that are at least 10 cm in height and weigh more than 200g.

The Pick by Light system is used in conjunction with an automatic conveyor system with barcode-based routing, allowing for a shared order preparation line for multiple clients. A packing station ensures proper product placement and creates a customer-recommended "unboxing effect."

The implementation of our integrated pick/pack/shop model provided a significant uplift in efficiency and accuracy for the client, key benefits include:

- Processing capacity of 200 parcels/hour/operator, each containing an average of 10 order lines
- Fully integrated flow with real-time preparation, packing and dispatch
- Reduced error rates and faster turnaround, especially during peak activity
- Additionally, we used a pre-packing method to assemble the right-size carton from the moment an order is launched. Operators pick items directly into final shipping boxes, reducing double-handling and waste.

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The strength of this solution lies in its simplicity and scalability. It's powered by a lean WMS integration, allowing real-time stock visibility and paperless order prep, which was key to reducing human error and increasing speed. We've designed it to be modular and easy to replicate across multiple clients or sites, and we leveraged a Light & Pick solution on a semi-automated line, which proved to be both highly reliable and productive.

This system offers:

- High flexibility
- Fast setup and deployment
- Minimal training required, due to its intuitive, user-friendly interface

Each parcel is also automatically labeled based on the actual weight and assigned carrier. This ensures full traceability and streamlines handoff to the conveyor and transport systems.

~ François Momplet, Senior Account Director of Eurodislog, a Staci company

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Pick by Light: expert opinion

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For operations looking for quick wins in accuracy and efficiency, Pick-by-Light technology is often a solid first step into warehouse automation. It works best in consistent, structured workflows where pick faces don't change too frequently. While it's not as flexible as more advanced automation solutions, it offers great ROI in environments where the pick process benefits from visual, real-time guidance.

~ Peter Lerigo, Senior Consultant at CILT

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**The Chartered
Institute of Logistics
and Transport**

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Rabot

Rabot AI Picking refers to a system developed by Rabot that utilises Vision AI technology to enhance warehouse packing operations. Rather than physically picking items, Rabot's platform focuses on improving the accuracy and efficiency of the packing process by integrating live camera feeds with real-time data from warehouse management systems. Rabot AI Picking enhances the packing phase of warehouse operations by providing real-time visual monitoring, performance analytics, and automated quality assurance, leading to improved accuracy and efficiency.

1. Real time visual monitoring

Rabot employs live camera feeds to monitor packing stations, providing a visual record of each order. This helps in capturing indisputable evidence to defend against fraud claims and reduce errors.

2. Performance insights

The system analyses data to track performance indicators, enabling the identification of high productivity patterns and areas needing improvement. This facilitates the building of best practices across stations and warehouse locations.

3. Error detection and quality assurance

By automating inspections, Rabot's Vision AI can identify errors during the packing process, allowing for a fully digitised quality assurance process that expands the QA team's capacity while saving on headcount.

4. Operational efficiency

The platform assists in eliminating redundancies by identifying repetitive tasks or workarounds that add time or cause errors, thereby streamlining operations.

Rabot is a fantastic solution for 3PL's who want to improve their order accuracy, as the AI prompts the packers if any items are missing from the order, and the camera gives you the ability to pinpoint where anything went wrong. Another great thing about Rabot is that it is speedy to implement, typically taking less than one month due to its simple installation onto existing packing stations.

The challenge

Rabot's Vision AI technology is most effective in structured, high-volume packing environments, but it may not be well-suited for small warehouses with low order volumes, fully automated fulfilment centres, or facilities lacking proper lighting and camera infrastructure. It can also struggle in highly variable or custom packing processes where consistency is limited. Additionally, industries with strict data compliance regulations, or organisations without mature operational processes, may find it difficult to implement and extract full value from the system.

The solution

This type of tech can be utilised wherever materials are handled at a pack station. For example, if goods come to a dedicated area for packout, a camera can be mounted overhead to view the process. Success with this technology has been noted across many different sectors: HBC, supplements/nutraceuticals, raw material handling, luxury goods. The possibilities with this tech are huge, since it learns as it is exposed to new items and processes.

The proof: Staci Americas

Staci had an impressive 99.5% order fulfillment accuracy, which is above the industry standard. However, it is Staci's mission to drive toward 100% accuracy. Prior to employing the Rabot Pack solution, Staci measured its fulfillment accuracy manually. This quality assurance process involved randomly selecting and opening packed orders and checking it against the bill of materials, evaluating the dunnage, and then repackaging them and sending them out. This process cost Staci 10% of its operational costs in the warehouse. While this method of quality control gave decent insight into overall quality of packaging accuracy, the lack of visibility video coverage on the packing lines failed to explain why any errors may have occurred.

The Rabot team set to work installing Rabot Pack at select packing stations on the Staci fulfillment floor. Rabot's automated, real-time packaging solution delivered:

- **Instant visibility into packing operations**, and the ability to correct errors before they become costly to fix and/or reach the end user
- **A system for accurately and quickly measuring baseline performance** on the fulfillment floor to drive better performance and design more streamlined protocols
- **Seamless collaborative tools for teams** that improve employee engagement and communication between operations, management, and client engagement teams
- **A way to scale fulfillment processes** with a much higher rate of accurate orders packed

33% Increase in productivity



The Rabot system has improved employee engagement, and fostered better communications across the business, leading to greater collaboration between operational management and client engagement teams. With comprehensive coverage for all orders leaving the warehouse, Staci has been able to set a systematic baseline to continually measure and monitor packing performance to ensure efficiency and accuracy.

Here are Staci's key results from implementing Rabot Pack:

- 60% reduction in quality assurance and customer support costs, improving client trust
- 100% visibility into packaging operations with video available for every order packed at Rabot-powered packing stations
- 33% increase in productivity by identifying process inefficiencies quickly, and introducing enhancement to protocols

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Conclusion

Looking ahead, it's clear that technological innovation will remain a cornerstone of modern supply chain and fulfillment strategies. As tools like robotics, AI, and drones become more accessible, they will unlock new levels of speed, agility, and data insight. But logistics is, and always will be, a people business. Technology can enhance processes, reduce manual strain, and provide actionable data—but it's the teams on the ground who interpret, act on, and optimize those insights. The real future lies in the partnership between human expertise and intelligent automation—not one replacing the other, but working together to build smarter, more resilient operations.

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Technology will continue to evolve rapidly, bringing powerful new capabilities to the logistics sector. From automation and robotics to AI-driven decision-making, these tools have the potential to transform efficiency, accuracy, and customer satisfaction. However, even the most advanced technology cannot replace the nuanced thinking, problem-solving, and adaptability that people bring to the table. Human judgment remains essential, particularly when things don't go to plan. The most successful logistics operations of the future will be those that blend advanced technology with empowered, knowledgeable people who can manage and maximize these systems.

~ Phil Reuben, Executive Director at SCALA

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