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*Sixteenth year of publication.*

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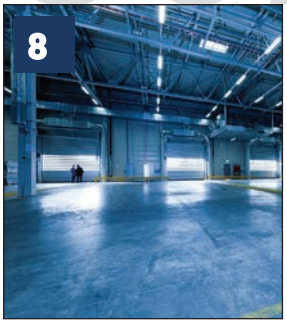






## The *Logistics News Warehouse Annual's* 16th year of publication


*The* Logistics News Warehouse Annual *is a collection of case studies, white papers, opinion pieces and thought leadership articles designed to provide warehouse practitioners and supply chain executives with a handy resource bringing together best practice and strategic thinking in the field.*

# The Times They Are A-Changin'

*BY MARTIN BAILEY, INDUSTRIAL LOGISTIC SYSTEMS*

***Way back in 1964, Bob Dylan sang about* The Times They Are A-Changin', *and that's certainly true about warehousing worldwide. What is driving these changing times?***

Firstly, customers are changing. There is pressure on faster and more accurate deliveries. The world has bought into the 'I want it now' philosophy. This means warehouses have to rethink their route to market. Faster order assembly, faster transport and more accurate deliveries. For the warehouse, this means better processes, better equipment, longer hours and possibly more automation.

Customers also want a lot more variety. They demand a bigger and broader range. For the warehouse, this means more SKUs and mostly smaller volumes for each SKU. This drives more (different) equipment, different processes, different packaging and different routes to market.

Then we add more e-commerce – and a digital demand system – and the warehouse has become a lot more complex. The total network from source to customer (and lots of reverse logistics) has radically changed and the warehouse needs to adapt accordingly.

Then came COVID-19. Around the world, governments put a multitude of businesses to sleep and then when they decided to wake them, they were surprised that the supply chain struggled to suddenly spring to life. So now, many imported goods are delayed somewhere between manufacturing and an international freight system that is experiencing large delays.

With all this chaos, we have added all sorts of new technology to manage our warehouses. Better data gathering, better data analysis, more digitisation of processes. All very exciting, but it often leads to a lot more bureaucracy. More data often means less useful data and a loss of gut feel about what is best. And still to come are machine learning and artificial intelligence, which will improve our forecasting and make lots of daily decisions for us.

For the warehouse, automation is also a game changer. Lots of warehouse processes are easy to automate, so warehousing has become a home for automation. But, along with automation comes a whole new world of processes and a different world of intensive maintenance.

*The Times They Are A-Changin'* is certainly valid in our warehousing industry. The best of luck to all of you in these changing times. •


PHOTO BY CLEYDER DUQUE FROM PEXELS

PHOTO BY JAKE NEBOV ON UNSPLASH

*Warehouse management plays a crucial role in the supply chain of any e-commerce business. Gear up for the upcoming year with new ideas and strategies that can enhance your business productivity and efficiency.*

# Top warehouse management trends for 2022

*COURTESY DEBARPITA SEN, SHOPROCKET*

Customers these days demand a seamless shopping experience with facilities like one-day delivery and shorter lead times. This kind of immense pressure on e-commerce business owners to fulfil orders faster will urge warehouse managers to reinvent warehouse management practices in 2022 so that they can optimise picking, packing and shipping effectively.

Implementing technology into warehouse management is going to be the most cost-effective and quickest way to increase the efficiency of warehouse operations. As we progress into 2022, warehouse management technologies are likely to grow by leaps and bounds. Let's take a look at some of the top warehouse management trends 2022 that are going to rule in the next year:

## Automation (AI and machine learning)

Advanced technologies such as robotics, machine learning and artificial intelligence (AI) are likely to be integrated in 2022. Although in labour-intensive regions, implementing full-scale robotics is a little difficult as certain tasks will always be cheaper if undertaken by people, warehouse managers are trying to find ways to implement robotics, machine learning and AI into the back-end to improve operations.

What are the implementations of these solutions that will dominate 2022?

- Automation of labour-intensive activities such as self-managing inventory systems, self-driving forklifts, autonomous ground vehicles and other tasks that reduce manual dependency.
- Real-time tracking of warehouse operations and shipping through business intelligence, which will ultimately transform warehouse management. The process will mainly consist of AI-powered inspections, packaging and more.
- Forecast demand through warehousing solutions. Though this trend is already being followed in some places, it will be adopted tremendously during the following year.

## Sustainable warehousing

With an increased number of people willing to reduce their carbon footprints, 2022 will witness a sea change in warehousing management techniques. More and more business owners will be looking for sustainable warehousing in the coming year. It will not only reduce utility bills, but also provide employees with an eco-friendly business they are proud to be a part of.

How you can opt for sustainable warehousing?

- Invest in energy-efficient equipment.
- Changing your lighting is one of the most effective ways to make any warehouse more environmentally friendly. Opt for eco-friendly options such as LED lighting. While the initial cost may be higher than traditional bulbs, they will definitely last longer as well as conserve energy in the long run.

## Use less packaging

Efficient packaging weighs less and costs less to ship. Switch from traditional packing materials to products that are biodegradable. While packing materials made from synthetic plastics can take hundreds of years to break down in landfills, biodegradable materials degrade within a couple of years. Many biodegradable materials are also compostable. All in all, making your packing more efficient and switching to biodegradable packing materials significantly reduces waste and decreases your carbon footprint.

## Insulate your warehouse properly

Poor insulation disrupts the temperature control you set up for your warehouse building. This drives up your heating and cooling bills and increases your warehouse's impact on the environment. Make sure your warehouse is properly insulated to help keep climate controlled air inside where it belongs. In addition to keeping your employees comfortable, doing so reduces wear and tear on your warehouse management system and reduces energy bills.

## Blockchain technology

There are a number of stakeholders involved when it comes to efficient warehouse management. Manufacturers,


PHOTO BY JACQUES DILLIES ON UNSPLASH

suppliers, customers, auditors, warehouse managers and many more create a successful warehouse. In such a scenario, 2022 will witness the rise of blockchain technology in warehousing, which will help in creating an efficient system for recording multiple transactions, tracking assets and simplifying the accessibility of document management.

## Proficient last-mile deliveries

Thanks to e-commerce, there is a growing need for last-mile deliveries occupying a critical position. E-commerce sales and demand for quick delivery continue to increase every year. In 2019 alone, global e-commerce sales grew nearly 21.5 percent, according to Statista. In 2022, more and more business owners will be looking to provide an Amazon-esque shopping experience to customers by working out logistics in a way that would offer same-day delivery. This kind of demand from customers will automatically increase the need for modern last-mile facilities in order to deliver easily and frequently.

How can you implement last-mile facilities in your supply chain?

- **The right warehouse location.** Warehouses situated near major highways and bridges can deliver to more destinations.
- **Building quality.** Many warehouses are old and their structural and electrical capabilities are strained and limited. They are designed for businesses of the past. Today, high volumes of goods need to be shipped daily. Retailers should look for properties that have the features that allow for efficient throughput.
- **Substantial ceiling heights.** High ceilings can accommodate modern vertical racking systems, an important consideration for the last mile. Consider how goods flow in and out of the warehouse. Wider column spacing allows for modern efficient racking system installation.
- **Cross-dock capacities.** To address one of the biggest challenges facing the food and beverage industry, last-mile facilities will optimise their cross-dock capacities. Cross-docking, the practice of receiving goods at one door of a facility and shipping out through another almost immediately, allows for the successful transportation of perishable goods and eliminates the need for storage of food and beverages.
- **Sustainable warehousing.** Sustainable features such as electric charging stations will be an important part of last-mile facilities in the coming year. Since over 30 percent of the cost of delivery happens in the last mile – most of which includes labour and fuel – cutting fuel costs and providing an eco-friendly solution will give users a winning advantage.
- **Introduction of drones.** 2022 is likely to witness drone technology in warehousing. Large retail companies such as Amazon have successfully used drones in their warehouses for inventory management. Smaller retailers will probably be following their example and enjoying the benefits of drone technology. •

# Efficient supply chain solutions fundamental to success

*BY DOUG HUNTER, MANAGER CUSTOMER AND ECOSYSTEM ENABLEMENT AT SYSPRO, DOUG.HUNTER@SYSPRO.COM*

***Like people, no two warehouses are ever the same. Systems that enable them also differ for good reason. Pick and implement wisely to get the efficient supply chain you need.***

Many factors affect solutions for manufacturers and their suppliers. These differentiate the way your organisation uses supply chain solutions. The same solution can be configured to enable processes in different ways to suit that industry/company.

## Factors to consider

### Relative supply chain position

- A manufacturer sending stock to distributors or a DC.
- A supplier of components or input materials to that manufacturer.
- A retailer supplying end customers/consumers from store/shop shelves or counters.

### The industry involved

- Grocery, food/beverage and pharmaceutical: shelf life and traceability are factors.
- Industrial/automotive components: original equipment (air conditioner, engine/motor, etc.) model, year and/or variants exist.
- Fabricated metals (steel sheet/blocks, pipes, etc.): in-warehouse processing such as cut-to-size.
- Fashion and footwear: product 'structures' are more complex – consider the style/colour/size matrix, there is one product, but a package of many variants

### Scale

Are you Nestle or a 'mom and pop' organisation? Both are complicated in different ways.

## Dealing with differences

Planning and execution are affected by different IT solutions or a combination of them. The closer your operation is to end consumers (the last sale in the supply chain), the more responsive operations must be to on-shelf-availability and changing buyer behaviour. Planning the next few days fed by today's sales from outlets/shops leads to responsive replenishment solutions, starting with a forecast, but amended rapidly to drive the correct order volumes to correct stores. Elapsed time is critical – this is an execution-focused solution

If you run large DCs supplying many stores, forecasts can be aggregated to identify what items must be in stock in what volumes at what time. You can use historical point-of-sale (POS) data, including independent variables like weather, disposable income, new car sales (whatever fits) in a demand forecasting solution. Here, the planning horizon is months/quarters (not days) driving the plan for buying supplier goods and sophisticated warehouse (WMS) execution. Collaborative demand drives your enterprise resource planning (ERP) solution to time phase execution and optimises orders to suppliers. The emphasis here is on planning.

## Making supply chain solutions efficient

For many organisations, planning and execution can be handled by ERP alone. Efficiency comes from users'/ managers' ownership of their business process/activity, making sure inputs are correct and on time. What does that mean?

- **ERP planning:** open order accuracy – make sure old purchase and sales orders not fully received or shipped are closed off or the system will think they're still part of the plan. Ensure planning parameters – order point, order quantity, lead time to supply, product structures (recipe/bill of materials) should reflect reality and be checked regularly (key value items most frequently).
- **Inventory accuracy is paramount:** right place, right quantity, right time – ensure receipts are checked and captured physically and are on the system at the same time. Regular stock checking of key products ensures that system and bin reflect the same quantity. Set your system to first in, first out (FIFO) or first expired, first out (FEFO) appropriately so dead stock is avoided.
- **Space utilisation/warehouse layout:** space is always restricted and usually zoned – make sure zones are not over using space. Optimise stock mix so that fast/ valuable versus slow/cheap are balanced to effectively use working capital.
- **Picking optimisation:** optimise batch or wave picks, sort picking routes to minimise movement and time, and include bin stock count en-routes.

For many organisations, an ERP system like SYSPRO ERP covers the whole supply chain: forecasting material/ production planning and execution, fair warehouse picking, product recall and inventory management/ optimisation. For very large manufacturers/suppliers, ERP plus advanced warehouse management and collaborative demand forecasting may be necessary. For large retailers, solutions will be forecasting and replenishment, ERP plus specialised warehousing and transportation route planning software. Value-add in warehouses includes cutting steel to size, pre-labelling and hanging fashion items.

Efficiency comes from knowing where the opportunities for you are, picking the right IT tools, understanding them and using them properly. Do this to reap service and profit rewards. •

# Save energy in your warehouse to meet green initiatives

*Implementing sustainable practices throughout a warehouse will not only save money for the organisation, but will increase customer goodwill.*

*BY JIM HUSTON, MANAGER OF SYSTEM ENGINEERING – W&H SYSTEMS*

Warehouses and distribution centres can realise great savings by implementing energy management systems. It has been estimated that properly run energy management programmes targeting energy efficiency can save five to 20 percent on energy bills without a significant capital investment. From small to large sites, these savings can represent thousands to hundreds of thousands of revenue each year, and many can be achieved with minimal cash outlay. Due to the size of warehouses and distribution centres, even small improvements can have a large positive net effect on the bottom line.

Where do the savings come from when implementing an energy management system? Poor power factor can act as a major energy drain. Inefficient use of supplied power can easily be overlooked because it has few outward signs. There are no blown fuses, tripped circuit breakers or failed electrical apparatus to alert facility personnel of a problem. Material handling equipment can be made more efficient with the use of high-efficiency motors and an energy management system that shuts down parts of the system automatically when not in use. If a conveyor is required, sensors detect incoming products and automatically start it up again.

By ensuring that equipment is used only when needed, companies can see savings from:

- Improved operating efficiencies.
- Less downtime due to undetected equipment problems.
- Extended equipment life cycle.
- Reduction of power draw.
- Lower costs of environmental compliance.

## Energy-saving equipment for the warehouse

The cost of operating equipment in manufacturing facilities and distribution centres is an ongoing cost that requires a substantial amount of electrical power. Companies can reduce electrical demand by upgrading to energy-efficient equipment that utilises high-efficiency motors. Conveyors, sortation units, AS/RS, etc. can be powered by high-efficiency motors or high-efficiency variable-frequency drives.

Many warehouses and distribution facilities are extremely large and house material handling systems that handle varying sizes and weights of containers or products. An individual conveyor system could measure five to six miles. Managing and maintaining this equipment can be a challenge.

Facility managers are always looking for new ways to improve their performance in order to keep equipment running smoothly and efficiently. For example, depending on the complexity of the facility's conveyor system, it could account for as much as 50 percent of a facility's electrical load. Because of these systems' huge use of electricity, it is a natural target for improving efficiency and saving energy.

One way to reduce power consumption is to retrofit existing conveyor motors with highly efficient, variable-speed motors that feature a 'soft-start', which reduces the mechanical shock to the conveyor belts when restarting, significantly cutting maintenance costs. In addition, the soft start alleviates the motors' high draw of electrical current during a restart.

While energy-efficient motors may be more expensive than standard equipment, the true cost of motors is not the purchase price, but the cost of daily operation. Over time, the savings provided by an energy-efficient motor can far outweigh its higher purchase price. Energy-efficient motors are also generally more reliable, longer lasting and put less of a load on electrical distribution circuits.

## Saving space saves on utilities

Vertical warehousing helps some companies beat the high cost of land, cut transportation costs and reduce the operation's environmental impact. By building the warehouse up instead of out, the warehouse has a smaller footprint and thus saves on costs. A multi-storey warehouse allows a company to operate in a dense urban area, rather than locating miles from the population centre. Locating the warehouse near the end customer also saves on transportation costs.

Vertical equipment such as vertical carousels, AS/RS, conveyors, etc. save on space in the warehouse. Automated storage and retrieval systems, such as vertical carousels and vertical lift modules, take advantage of unused overhead space to recover 60 to 85 percent of the floor space typically required by shelving and drawer systems. Improving space utilisation in a warehouse saves on the footprint of the building. By reducing the amount of space required for storage and retrieval operations, organisations can construct smaller, more energy efficient buildings, shrinking the construction footprint by up to 15 percent in some cases, conserving natural resources and reducing maintenance costs. This improved space utilisation helps reduce energy costs, which helps reduce an organisation's overall carbon footprint.

## Lighting and other energy saving tips

To lessen the load, remove one or two bulbs in lighting fixtures that take four or more bulbs. Lighting each bulb in the fixture isn't necessary where lighting isn't critical. Use timers or sensors so that lights turn off when no one is around that area of the warehouse. High-intensity discharge (HID) light sources, such as metal halide and high-pressure sodium lamps, have long dominated the market for lighting indoor spaces with high ceilings, but today other technologies have proven more efficient under many common situations.

For aisles, fluorescent fixtures (high-performance T8 lamps and ballasts) work best for heights of less than 6m. For locations requiring greater clearance and for many high-bay areas, fluorescent lights (high-performance T8 lamps or high-output T5 lamps) are usually the most efficient choice. LED lighting is the most efficient and has dropped enough in price to be cost-effective for many warehouses.

Painting walls white and installing windows to introduce natural light will improve light levels while reducing energy, provided the windows use thermal or double-paned glass.

The HVAC system is a huge drain on energy in a warehouse. If the warehouse is unoccupied much of the time, evaluate the level of heating and air conditioning really necessary to make the environment comfortable or store the company's products. Oversized ceiling fans may be able to reduce temperatures in the facility. Regular maintenance, such as changing filters, is important for good operation and to avoid energy waste.

Dock shelters, which enclose the entire back of a truck are more energy-efficient than roll-up dock doors because they reduce outside air exchange. Dock shelters most likely won't be found in warehouse facilities built on spec because they're more expensive than typical loading docks. Regularly checking and repairing gaps in the seals around loading dock doors is a quick energy saver.

A warehouse with older insulation is losing energy to the environment. Traditional batt insulation can be replaced by more efficient spray foam or loose fill. Spray foam insulation is the most expensive, but is twice as efficient as batt. Loose fill is a middle alternative that is easy to install in existing spaces and still provides superior insulation.

Finally, don't think of sustainability in terms of costs; think of it as an investment resulting in revenue savings – a better bottom line and a better image that win the respect of your customers and your community. •

# CALL FOR ENTRIES

The global pandemic has posed significant challenges for supply chains across the globe, disrupting the flow of raw materials and finished goods as well as highlighting vulnerabilities in many operations.

South African companies are certainly no stranger to disruption, yet it is in extraordinary times such as as now that the need to adapt, innovate and respond effectively to the changing environment shines a brilliant light on the importance of our profession and the practitioners that meet these challenges daily.

We are looking for the supply chain game changers, the practitioners and innovators who have made a tangible difference within their supply chains to share their story with the rest of our industry. The Logistics Achiever Awards has showcased, recognised and celebrated excellence in logistics and supply chain management for over 30 years.

LOGISTICS ACHIEVER AWARDS

**Recognise Excellence**

**Encourage Innovation**

**Entries close on the 13 April 2022!**

## What's New?

We live in a truly digital age with the ability to take advantage of a variety of media. In an industry first, each winning entry will still be highlighted in the *LAA Case Study Annual* and now a 30-minute docu-style case study video will be produced for each entry, offering greater insights into the projects through discussions with the entrants, on-site footage as well as final commentary from our judging panel.

All of these videos will promoted to and shared with the industry. Our aim is that these insights will both inform and inspire our industry and reflect in more detail what our local organisations are capable of.

## Logistics Achiever Awards Objectives

### RECOGNISE EXCELLENCE

To recognise professionalism and excellence in the effective application of strategic, tactical and operational logistics and supply chain management principles, concepts and practices in southern Africa.

### ENCOURAGE INNOVATION

To encourage all companies and organisations in southern Africa to review, evaluate and upgrade their current logistics and supply chain management practices.

### CREATE AWARENESS

To create a greater awareness and understanding of the value of effective logistics and supply chain management.

LOGISTICS ACHIEVER AWARDS
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Logistics Achiever Awards **Rewarding Excellence** in Logistics and Supply Chain Management

***If you have a story to share, submit your entry today, visit www.logisticsachieverawards.co.za or contact Karl Murray on karl@logisticsachieverawards.co.za for further information.***

# How packaging optimisation can improve your supply chain

*By optimising how you package your products, you can see tremendous efficiency and cost benefits to your business and supply chain.*

The packaging process is an important part of the shipping and freight industry. Without the right packaging, items will not have the right protection and support during transportation and delivery. This can lead to damaged goods, wasted materials and unhappy customers.

Packaging optimisation makes the packaging process more economical and efficient to the supply chain. Product retailers seek package optimisation to help them pick the right kind, size and quantities of packing material in order to achieve cost savings throughout the supply chain. This is one of the most critical factors for brand perception and image. Companies like Apple, Starbucks and Cadbury are all considered premium brands for the care they put into product packaging.

Over the last few years, e-commerce has become a staple for many businesses. This is especially true in the light of the COVID-19 pandemic, where you must have an online presence to be successful and to sell products to your customers. The primary purpose of packaging in the e-commerce industry is to protect the product from the point that it leaves your warehouse to its delivery point at the customer's doorstep. Packaging not only protects the product, but can also help in creating a great first impression with the customer. It has been said that some businesses have seen a 30 percent increase in consumer interest when they pay close attention to how they package their products.

## Benefits of packaging optimisation

**• Cost savings**

One of the most obvious and immediate benefits of packaging optimisation is that you can get amplified cost savings. These savings are possible because even a small reduction in package sizes can lead to tremendous


PHOTO BY JAKE NEBOV ON UNSPLASH

savings throughout the supply chain. Not only are you saving on material costs, you are also saving on weight for transportation. It only takes a few centimetres of reduction in the primary packaging to translate into savings along the supply chain. This reduction means more boxes can be bundled into one shipment instead of needing several truckloads. When you can accommodate more boxes in secondary packaging, this leads to fewer trucks, fewer transit miles, fewer packaging materials and less fuel use.

**• Reduction in damages**

Package optimisation helps retailers choose the right packing materials to protect the products they ship to customers. This leads to a reduction in damages because fragile items placed in the wrong type of packaging can be damaged during transit. Even a single damaged SKU can lead to extra costs including replacement, additional logistics support, packaging waste and administration.

**• Improves efficiency**

Depending on the types of products you distribute, you may be able to use the same size box for all your products. This will reduce the complexity of your packaging process. However, if you have a variety of products, this won't be an option for you. Trying to use the same sized boxes for your different products will lead to wasted space and reduced efficiency in your delivery process. It is important to find a balance between the complexity of your products and the efficiency of your packaging solutions. By reducing the number, size and shape of shipping containers, you can achieve substantial savings in your supply chain.

**• Minimal carbon footprint**

Materials like plastic, Styrofoam and even cardboard are proven to be harmful to the environment as they produce a lot of waste and take years to break down. In fact, one of the biggest causes of environmental degradation is the plastic that is used in packaging. Unfortunately, materials like plastic are the most flexible, durable and reliable options, and they meet the needs of quality primary and secondary packaging.

Although it is unlikely that we will ever eliminate plastic use around the world, it is possible to reduce how often you use it with your product packaging. You can reduce the size of the packaging, limit the use of non-biodegradable substances and opt for more eco-friendly products when you redesign your product packaging. Not only will these changes minimise your carbon footprint and help the environment, but you will also win points with your customers, especially those who are environmentally conscious.

**• Effective delivery**

By proactively thinking about how your packaging can support your product design, you can save thousands of rands every year. Swedish furniture retailer IKEA saves approximately $1.36 million every year by rethinking product designs from a delivery perspective. By separating its furniture products into several components, it reduces packaging size by up to 50 percent. Customers then assemble the components to full-sized products in their living spaces, which makes the shopping, delivery and assembling process a win-win solution for both parties. •

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# Navigating the pitfalls of a WMS implementation

*COURTESY TOMPKINS ASSOCIATES*

*As an operations-centric execution system, a WMS deployment is susceptible to many pitfalls that can result in poor project results and potentially a failed implementation. Understanding how to avoid or mitigate the potential landmines can make or break a WMS implementation.*


Many warehouse management system (WMS) implementations underperform. They overrun budgets, blow out schedules, fail to deliver promised results and inflict excessive go-live pain. While implementations backed by strong project management functions are generally well equipped to deal with these potential hazards, they are not immune to underperforming because of them. Below are four planning challenges that can negatively impact your WMS implementation, as well as solutions for dealing with each pitfall.

## The job is bigger than expected

This is probably the most common reason that WMS implementation projects founder. The schedule, resource requirements and budget set when the project was approved turn out to be inadequate due to a variety of factors. First, the participants in a WMS selection and approval process may have been overly optimistic when determining resource requirements and the timeline. Since they probably wanted the project to proceed, they tried to accommodate perceived budgetary thresholds and schedule goals. Also, a WMS design process is typically an iterative proposition. You need to peel back the layers during the detailed design process to determine what actually needs to be done. Selection requirements typically only represent the first layer. There may be a lot of unknowns buried in the underlying layers that impact schedule, budget and resource requirements.

The best approach for dealing with this pitfall is to avoid it by doing your due diligence during the selection and approval process. This should include a critical review of each bidder's proposed project plan and resource estimates that not only covers completeness, but also involves a direct discussion on contingencies the vendor or integrator has included to cover the unknowns. Any vendor or integrator with a successful deployment track record will have a standard implementation approach or methodology, therefore the only tasks they should miss are the unknown requirements (see the next pitfall). It is far more likely that they will underestimate the complexity of the requirements gathered during the selection.

In addition, when compiling your budgetary request, you need to ensure that the tasks you are responsible for are adequately defined with appropriate contingencies. This is especially true for the resource requirements that you will have to provide to support set-up, facility preparation and testing.

All of this won't entirely eliminate the possibility of ending up with an insufficient budget. No one wants to go back to executive management asking for more money and/or communicating a schedule pushback when this occurs, but bad news will not improve over time. The cost of addressing any resource gaps and the impact of any schedule slippage tends to grow over time.

Unfortunately, the established schedule and budget may be inflexible. If you must play the resource and timeline hand originally dealt, then you need to look at what functionality and features can be deferred or offloaded to a subsequent phase. Continuing without directly addressing the shortfall will not turn out well.

## Misaligned and hidden requirements

Most WMS implementations depend on a detailed design process to deliver the required functionality and features. During the process, the WMS vendor or systems integrator develops design documentation and specifications that drive configuration and any software extensions that must be developed. This is generally done through a mixture of observations, workshops and reviews with key client stakeholders and subject matter experts (SMEs).

The challenge here is that team members can always see things differently especially given different personal perspectives and project roles. This is compounded when a distribution operation has a lot of requirements that exist outside of documented standard operating procedure. These hidden requirements may not be fully articulated to the vendor or integrator by the SMEs because they seem obvious, or they get lost in the shuffle.

The best remedy is frequent playback sessions where relevant processes and features are reviewed end to end, covering everything from design approval all the way through delivery. These sessions will enable you to discover and address any misalignment between the vendor or integrator and client stakeholders and SMEs.

## Too little or too much thinking outside of the box

Hopefully, key business and operational requirements were defined and vetted during the selection process, but as already discussed, there is generally a vendor or integrator led detailed design process that drives solution configuration and any extension development. This process relies on client stakeholders and SMEs to provide the input on what the system truly needs to do. When it comes to the details, client stakeholders and SMEs have a natural tendency to view functionality and feature requirements through the prism of how things work today. This can result in missed opportunities to increase operational efficiencies and improve service levels.

The flip side to this situation is when client stakeholders have what they think is a great idea to improve operational performance. This can jeopardise the schedule and budget. The stakeholders don't want to give up on the nifty idea and the software vendor or integrator is too hesitant to push back.

Open, direct communications are the best avenue to avoid these pitfalls. Client stakeholders and SMEs should be constantly challenged to consider better ways of doing things. Vendors and integrators need to be encouraged to push back whenever they believe a specific process is heading down a path that will add unwarranted implementation complexity and risk. Project management needs to make sure that all parties feel comfortable speaking their respective minds.

## Project plans that fail to deliver value

Behind every WMS implementation there is some form of project plan. While necessary, they do not always live up to their potential and can become an unwieldy tool that consumes too much effort for the value produced. An exhaustive list of tasks is compiled with little consideration given to resource requirements. The list with its task dependencies is typically defined based on a pre-detailed design perspective with individual task durations shoehorned into the overall desired project timeline. Tasks are viewed as strictly linear when they may need to reflect a more iterative process. All of this can result in a project plan that delivers diminishing value over the project life cycle with too much time spent inventorying the individual trees on a weekly basis instead of assessing the overall health of the forest.

Developing a well-structured plan is key to avoiding this pitfall. When appropriate, summarise instead of detailing. Many detailed activities are better managed through punch lists by the responsible workstream than buried within a massive plan. The plan structure should be adaptable to fit changing conditions and insights that impact the original assumptions used to develop the plan.

The plan structure should support an earned value measurement mechanism for monitoring budgetary performance that needs to go beyond a fixation on perceived duration and critically evaluate when value is earned. Finally, avoid walking through project plan details during weekly project status meetings. These meetings should focus on the health of the various sections that make up the forest rather than a discussion on the status of individual trees. •

PHOTO BY TIGER LILY FROM PEXELS

# Warehouse tech improves security

BY HALEY FOX

*With the growth of e-commerce, warehouses are busier and more occupied than ever, leaving them at risk for security breaches. Technology is here to help.*

Technology has advanced in ways that improve convenience and flexibility in everyday life. But modern technology has also been at the forefront of solving major logistics and operational challenges for businesses and enterprises.

Here is how technology has influenced and advanced warehouses, and how security and operations can be improved by deploying these new solutions.

Warehouses need the highest level of security and access due to the millions of rands worth of inventory that passes through them every day. Currently, the complex logistics involved with managing an industrial warehouse, storage facility or manufacturing plant is leaving gaps in security protocol. Luckily, new access control technology is effectively managing loss prevention for warehouses.

## Modern warehouse access control

Warehouses have dozens of access points dispersed throughout the entire facility. They also have teams of employees and vendors coming on and off site daily. Managing warehouse access with onsite legacy systems and key card distribution is no longer the most secure or efficient way to operate security. Improving warehouse security means upgrading to cloud-based access management and mobile or face recognition access credentials.

**• Cloud-based access management**

Cloud-based access control allows warehouse administrators to manage security from anywhere. Instead of managing access points and credentials on site, it can all be done remotely from the cloud. This eases the operational and administrative burden by centralising the entire warehouse security management. Cloud-based access management also allows administrators to view access events in real time. This increases overall security visibility, which is particularly beneficial for warehouses that often have night shift employees and security.

**• Mobile or face recognition access credentials**

Access control as an industry is moving beyond the traditional key card system. This is particularly beneficial for larger operations such as warehouses. Different employees need different levels of access for different areas, and different keys or key cards are used to open different doors and access points. In addition to being time-consuming and inefficient, key cards do not offer the highest level of security as they can be lost, stolen or duplicated. Using credentials like face recognition and mobile access are, however, a secure and convenient way to navigate through a secure facility.

## Benefits of modern warehouse access control

By upgrading warehouse access control, security and operations are improved significantly by:

- Eliminating the overhead from key cards and fobs.
- Managing access points and access permissions remotely.
- Granting and assigning different levels of access to different users or user groups.
- Auditing warehouse access events and viewing real-time events.
- Upgrading from legacy systems, which require expensive maintenance, software upgrades and technical training or assistance. •

# What to consider for a Software-as-a-Service WMS

*BY CHAD KRAMLICH, COURTESY WWW.SUPPLYCHAIN247.COM*

*Discover what every supply chain organisation needs to know about Software-as-a-Service (SaaS) to make an informed decision on its next warehouse management system (WMS) deployment.*

As on-premises software deployments give way to the proven economics of deploying on the cloud, another option has surfaced in recent years that is gaining much momentum among supply chain businesses: Software-as-a-Service (SaaS).

More and more companies are choosing SaaS as the way to run their warehouse management systems (WMS), and for good reason. However, to appreciate the advantages, it is important to first understand the differences between these three viable options:

**On-premises deployment:** You own the hardware and software. You are responsible for maintaining and upgrading it. You control the systems and data internally. Upfront capital costs and ongoing maintenance costs are high and provisioning during peak demand might be a challenge.

**Cloud deployment:** You purchase the computing power. The provider then owns, provisions and maintains the hardware. Your software and data are hosted there and you pay on a monthly, quarterly, annual or per-use basis. Capex is eliminated, while business resiliency and scalability are assured.

**SaaS deployment:** SaaS is software delivered over the cloud. Your software is accessible online via a controlled subscription. You own the data, but your provider stores and manages it. SaaS is quick, easy and efficient to deploy. However, it does not offer the scale or control you get with cloud or on-premises deployments.

## A matter of priorities

Deciding what deployment model is best for you depends on your business strategy and operating philosophy. Traditionally, WMS installations have been facility-specific. WMS is an execution-based system and governs the way products are shipped from location to location. As a result, many firms are reluctant to relinquish control of their WMS.

Over the past five years, however, SaaS has proven to be quite dependable, especially in terms of performance. Those companies willing to surrender the touch-and-feel of servers find the remote connectivity afforded in a SaaS deployment provides tremendous cost savings in terms of hardware and labour (cloud-based benefits), but also great flexibility across geographies (where Internet connectivity is reliable).

It comes down to what you want to invest in. The current trend sees warehouses operating with more automation and fewer people on the floor. As SaaS becomes more popular, IT staff can be reduced or repurposed, lowering overhead while pushing system management responsibilities to a qualified provider.

## The issue of modifications

As a word of caution, if you do a lot of system modifications, you may want to retain your IT staff. It has been found that system modifications raise enough problems to consider a 'no modifications' approach as best practice. This is because every time you modify your software, you create unexpected downstream complications that require more workarounds, ultimately leading to systems falling out of warranty or becoming prematurely obsolete. And while modifications are possible in a SaaS environment, the idea that each warehouse or operation is totally unique has become rather quaint.

Modern supply chain software has reached a critical mass where very few operations fall out of a base WMS product norm. Most facilities operate the same way. By keeping your modifications to a minimum, you enhance the continuity of your operations across your operating footprint, warehouse training becomes more standardised, expansions become simplified and cost is lowered. And with a standard product running everything from the cloud, speed-to-market is enhanced.

If you're ever inclined to modify something, first think about how you can approach the change operationally before writing new software code. You will likely save yourself many headaches in the process. •

# How to maximise warehouse productivity – without robots

*BY VIKRAM PAVATE, CEO OF LOCIX INC., COURTESY SUPPLYCHAINBRAIN.COM*

***As operators consider robots and full automation, they should first consider how they can leverage warehouse spatial intelligence (WSI)-based analytics to improve operations and meet demand while saving costs, allowing them to gain a comprehensive understanding of warehouse activity.***

The inexorable growth of e-commerce and tight labour constraints have led operators to consider fully-automated warehouses. In contrast to traditional warehouse operations, e-commerce warehouses require a significantly higher number of workers because picking, packing and shipping e-commerce orders is more labour intensive. However, the reality is that all warehouses are not ready to deploy them. This boils down to a number of factors, including cost, complexity and time. So, what solutions can these warehouses put in place to manage the growing demand?

While exploring the potential to introduce automation in a manner that augments their current processes, warehouse operators are also actively exploring potential opportunities to leverage data and advanced analytics to achieve the same goals. While increasing levels of analytics are being integrated into traditional supply chain execution software applications such as warehouse and transport management systems (WMS, TMS), etc., warehouse spatial intelligence (WSI) solutions have emerged as a new category of cloud-based data and analytics. This new spatiotemporal approach combines unique spatial and real-time data sets (precise indoor location, images and videos and advanced sensors) with cloud-based advanced analytics to gain actionable insights and automate decision-making without human intervention. WSI solutions have been demonstrated to enable high ROI and fast payback by improving real-time operational visibility, enabling logistics and warehouse operators to significantly increase worker productivity, asset utilisation and safety.

## Smarter with space

The deployment and use of WSI solutions is cost effective and highly scalable due to the commercialisation of cameras, battery-operated wireless sensors and cloud-based services, enabling operators to achieve high ROI and rapid time to value. In contrast to traditional data capture technologies based on barcodes and RFIDs, WSI systems leverage rich data with a high level of spatial context in real time. These new data sets are well suited for the advances that have taken over the past decade in advanced analytics, including computer vision, machine learning and artificial intelligence.

WSI solutions can be deployed stand-alone or easily integrated with open application programming interfaces (APIs) with current WMS, TMS, learning management systems (LMS), Internet of things (IoT) and enterprise resource planning (ERP) software applications to extend and enhance their respective value propositions. The ease of integration allows operators to analyse massive amounts of data without the need for expensive upgrades and updates to their current legacy software systems. Unlike legacy methods that use periodic and batch-level data analytics, WSI captures data and analyses it in real time, allowing improvements to be made immediately to maximise benefits.

A few of the representative benefits that WSI-based solutions bring to warehouses include:

**Worker productivity.** WSI solutions allow operators to improve overall warehouse efficiency by reducing travel time and distance travelled per worker. By integrating WSI to WMS, slotting, labour scheduling and inventory placement can be improved through intelligent recommendations to boost productivity. WSI solutions have now been demonstrated to increase worker productivity by up to 30 percent.

**Asset and space utilisation.** WSI solutions can also accurately and precisely locate and track forklifts, assets and other key material handling equipment in a timely manner to provide continuous data and improve resource allocation. Detailed congestion analytics can be used to improve scheduling, optimise warehouse layouts, reduce aisle widths and drive increased space utilisation.

**Loading dock efficiency.** WSI can significantly lower truck dwell time, while boosting dock-level efficiency and visibility across the entire warehouse. Operators can better track truck arrival and departure times across the facility, enabling renegotiated shipping contracts and reduced costs through tighter dwell time limits, as well as decreasing the travel time and distance for loading. Moreover, WSI-based dock-level apps can be integrated with truck appointment and scheduling apps, as well as IoT-based solutions (such as GPS) to accurately track the arrival of trucks at the warehouse. Overall, communication can be vastly improved and labour-intensive processes can be eliminated with automated and real-time alerts and integration with data-entry systems.

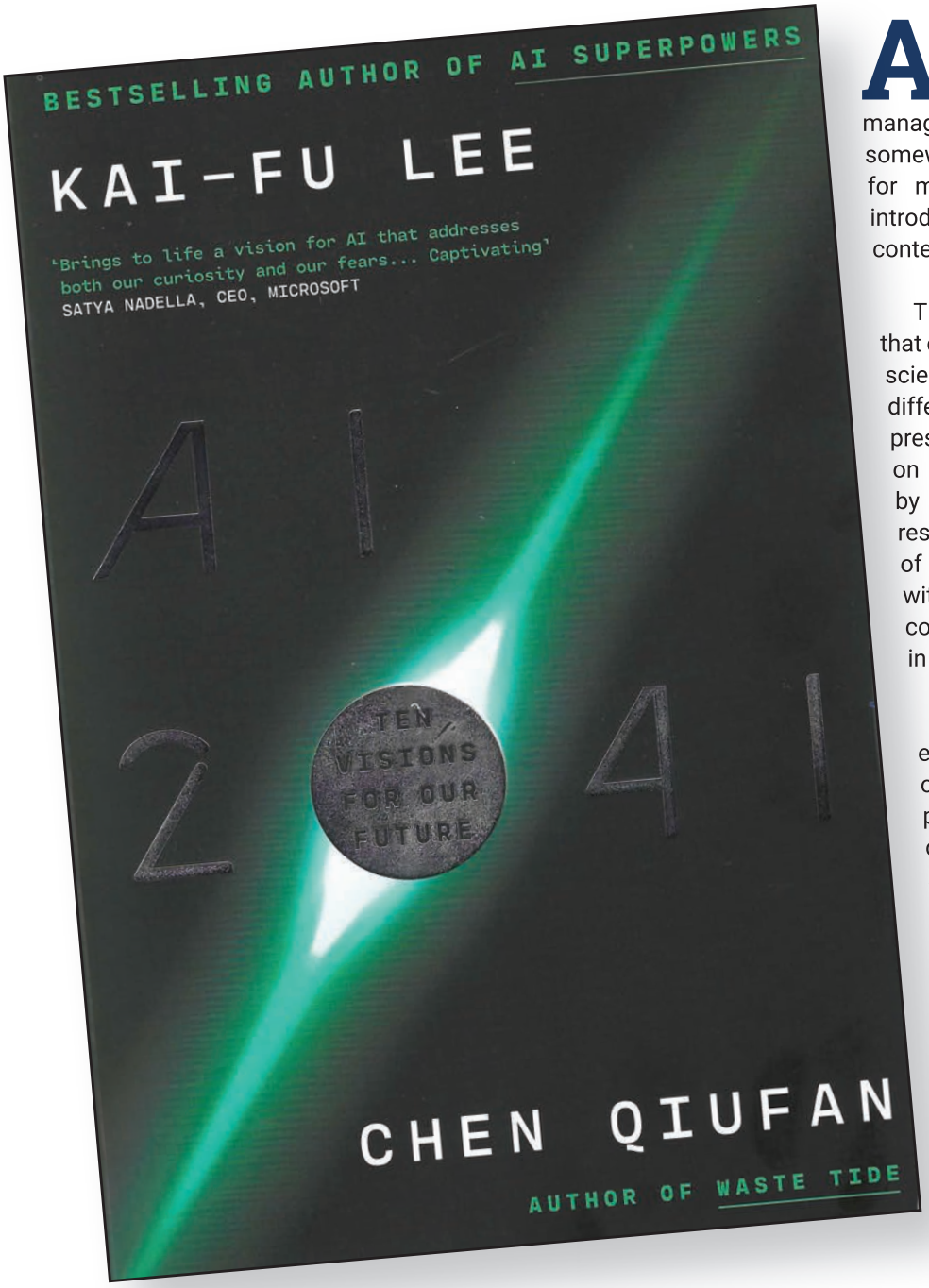
**Safety.** Real-time location data and heat maps are crucial for warehouse safety as operators can leverage detailed congestion analysis to improve routing and movement within the warehouse. This allows operators to increase productivity and safety by optimising warehouse layout and operations to maintain safety. When integrated with forklifts, WSI can assess and improve driver behaviour as well as create alerts to mitigate dangerous forklift and worker interaction.

**Integration with robotics.** As warehouses continue to evolve, more automated materials handling equipment will be deployed within warehouses, including automated storage and retrieval systems, Cobots (collaborative robots) and automated guided vehicles (AGVs). While these will have their own spatial analytic capability driven by commoditisation of lidar (light detection and ranging), vision systems and sensors, they will still co-exist with human workers and other legacy materials handling systems. WSI solutions can play a key role in integrating the real-time location of workers, legacy materials handling and new automated material handling equipment for seamless interoperability.

Additionally, WSI systems can be used by operators to gain operational visibility across all their facilities at the same time, leading to substantially better forecasting and strategic planning. To date, many warehouses operate on siloed information, resulting in significant inefficiency. WSI is key to breaking these silos as it pulls and analyses data from multiple sources in a common interface to provide clear visibility and productivity metrics. For all warehouses, having operational visibility across all parts of the operations, whether it's picking, replenishment or docking picking, is mission critical. WSI can provide the spatial and analytical lens needed to form actionable insight when operators review workforce schedules, warehouse layouts, asset and space utilisation and other operational costs. •

# AI 2041 – Ten Visions for Our Future

*Authors Kai-Fu Lee, CEO of Sinovation Ventures and author of AI Superpowers, and Chen Quifan, award-winning author, translator, creative producer and curator, have written a collection of 10 stories about the future of AI, blending storytelling with scientific forecasting.*




Artificial intelligence (AI) is already well known and used increasingly in logistics and supply chain management. It nevertheless remains a somewhat vague and nebulous concept for many professionals and this book introduces AI as science fiction within the context of 10 visions of the future.

The authors chose 10 future scenarios that could be realised in 2041, and wrote a science fiction story on each, introducing different types of AI that are likely be present in those scenarios. It is based on how the future will likely be shaped by AI and offers insights into possible response and implications of the use of AI in future. Each chapter starts with a story and ends with a detailed commentary on the technical use of AI in the context of the specific story.

The stories cover deep-learning-enabled programmes and the risk of sharing too much data, deepfake productions, breakthroughs in computer vision, biometrics and AI security, augmented reality, quantum computing, AI-enabled autonomous weapons, bitcoin security, ethical and social issues, breakthroughs in computer vision, biometrics, the future of money, AI security and more. •

# Forklift perimeter lights improve safety

*600SA Holdings has introduced new safety perimeter lights on all its CT Power forklifts for enhanced safety in warehouses*

With forklifts constantly moving items from one place to another and visibility often compromised by narrow aisles and high stacking, the industrial equipment environment presents an element of risk.

At their busiest, warehouses can become sites of accidents or injuries if employees are not constantly vigilant or don't have the right tools to do their jobs. Even the best warehouse optimisation tools cannot make up for human error caused by a lack of concentration.

With this in mind, 600SA Holdings, a division of EIE Group, a materials handling and industrial equipment group of companies, has introduced safety perimeter lights as a standard feature on all its CT Power electric forklifts.

600SA's Inland Sales Manager, Sonia Pretorius, says safety is paramount for all 600SA-associated products. "In addition to urging our customers to provide training for their forklift drivers, we have now ensured that our CT Power forklifts are the most visible machines in any distribution centre, reducing pedestrian injuries and possible disabilities by up to 40 percent."

Red laser lights are projected onto the warehouse floor from the sides of the forklift, creating a highly visible red, 1m perimeter or 'barrier' around the forklift. This allows warehouse employees to see the equipment from any angle.

In addition, a blue laser light projects 2m onto the floor from the back of the forklift, creating an early warning signal for anyone in close proximity to the machine when it reverses.

*Sonia Pretorius, 600SA's Inland Sales Manager.*

Pretorius says the lights are an ingenious way of alerting warehouse employees to the whereabouts of the forklift at any given time. "Considering the tight spaces that forklifts and people negotiate in warehouses and the overall focus on safety, it is surprising that CT Power is the only forklift distributor that offers these types of lights as a standard feature."

She says the safer a work environment is, the more productive employees are. "In fact, a 2017 Harvard study indicated that safety in the workplace made employees feel more engaged and increased productivity by 12 percent."

"Not only do safety measures make people feel better about where they work, they also result in less downtime due to the reduction of accidents and injuries. This leads to greater efficiency and productivity – a win-win situation for everyone."

BY ALEKSANDARLITTLEWOLF - WWW.FREEPIK.COM

# Should a business deploy a WMS in SaaS or licence mode?

*BY BERGERON FABIEN, GENERIX GROUP*

***Your operation has outgrown its ERP's inventory management capabilities. To efficiently support activities in the warehouse, you will need to implement a warehouse management system (WMS). But which one? And how should it be deployed? On-premises? On the cloud?***

With so many options on the market and a variety of implementation models, it can be daunting to select the WMS best adapted to your operation. Here, we take a closer look at two deployment models, Software-as-a-Service (SaaS) and licence acquisition (on-premises), and discuss some of the reasons why most distribution and manufacturing operations should favour the former over the latter.

## SaaS vs licence for a WMS solution

When purchasing a WMS through a licence model, licensees are, in fact, buying a product that they then own. Typically, companies obtain the rights (albeit often limited) to the actual software and its source code through a single, high expenditure. They must then implement the WMS on privately owned servers – either on-premises or external.

Meanwhile, by subscribing to a SaaS WMS, operators gain access to the software and its functionalities, but do not own the product itself. The WMS remains hosted on the service provider's servers, which operators access via the Internet. Instead of one initial expenditure, as with the licence model, companies pay monthly or annual fees to use the WMS and benefit from the provider's maintenance and support services.

One key difference between the two models, then, is that a licence buys operators a product, the WMS itself, whereas a subscription to a SaaS WMS provides access to the software and to a range of adapted services. Companies that decide to purchase a licence must therefore purchase these services on top of the WMS itself. Given the high initial expenditure required to purchase a licence, this can have a serious impact on a company's financial agility.

### Total cost of ownership (TCO)

Some might argue that, over time, subscription fees will amount to a larger TCO than the licence model. This is not the case. Hypothetically speaking, a SaaS WMS solution that runs on local infrastructure could possibly be more expensive than a purchased WMS. However, since users typically turn to SaaS solutions precisely to avoid on-premises deployments, the TCO of a SaaS WMS will always be significantly cheaper.

When determining the TCO of a WMS licence, companies must consider the costs of acquiring the technology and infrastructure needed to run it. On top of the hardware, they must also think of the ongoing maintenance costs to ensure that the solution always runs optimally. And because the WMS is implemented on private servers, TCO must also include the costs of a dedicated in-house IT team to develop, integrate, support and improve the solution.

A SaaS WMS is hosted on the service provider's servers, which spares companies from such expenses. With SaaS, there's no need for an expensive infrastructure upgrade or a specialised local IT team. The subscription fees cover the use of the WMS itself as well as maintenance and support services from the provider.

### Scalability

Since we're on the topic of maintenance services, let's look at what companies can expect when the time comes to develop and update their WMS.

Because SaaS subscribers are paying for a service, not a product, they do not have to wait or spend more of their precious capital to benefit from the software's newest version and functionalities. The service provider, in fact, has an incentive to keep developing its product; the better the service, the more likely they are to retain and grow their customer base. And since the solution is hosted on the provider's servers, the implementation and integration of new modules is typically a painless operation – at least from the subscriber's point of view.


This is not the case under the licence model. In that case, the developer's main source of revenue comes from selling new versions of the WMS. It, therefore, makes commercial sense for them to withhold new functionalities until they can market a new, complete version of their WMS. For licensees, this means that they are at the developer's mercy when it comes to scaling their system. It also means further implementation and integration fees, which adds to the solution's TCO.

There's yet another, somewhat collateral advantage to the SaaS model. With SaaS, a relationship naturally builds between subscribers and the service provider that enables a rich feedback loop. Thanks to constant retroaction from users, developers can scale the solution with modules and capabilities that are truly adapted to their client's real requirements. This is far less likely to happen with the licence model where the relationship with the vendor often ends once the terms of the contract have been met.

## System availability

Prospective buyers sometimes worry that a SaaS WMS is more at risk of becoming unavailable if something goes wrong than a product that is implemented on local servers. That worry is unfounded, as a SaaS solution is often the safest option between the two models when it comes to availability.

Under a subscription model, service providers commit to a service-level agreement (SLA) where they guarantee the system's uptime. On the other hand, when something goes wrong with an on-premises or privately owned WMS, companies must scramble to find the resources to fix the issue. If their IT team is unable to solve the problem, a WMS malfunction can severely slow down, if not completely halt, operations for hours as they wait for external support. And that support, of course, costs money.

## The takeaway

When Microsoft saw that Google's Workspace, which is only available as SaaS, was gaining on its Office suite, the developer moved its solution to the web and created Office 365. Since then, Microsoft has been able to reverse the tide and solidify its share of the market.

SaaS solutions are not a fad. As we have seen, TCO, scalability and the system's availability make the subscription model a very attractive solution. This is especially true for small and medium-sized businesses and companies with limited access to capital. •

# CALL FOR ENTRIES
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**Encourage Innovation**

**Entries close on the 13 April 2022!**

Have you implemented a solution which reduced your impact on the environment and realised tangible benefits for your supply chain?

**We are looking for your green supply chain story...**

The LAA Enviro awards have been a well-supported awards category of the LAA awards, recognising the impact that supply chains have on our environment and showcasing the innovative case studies that have resulted in significant reductions in waste, $CO_2$ emissions and improved operational efficiencies.

The global pandemic has posed significant challenges for supply chains across the globe, disrupting the flow of raw materials and finished goods as well as highlighting vulnerabilities in many operations.

South African companies are certainly no stranger to disruption, yet it is in extraordinary times like now that the need to adapt, innovate and respond effectively to the changing environment shines a brilliant light on the importance of our profession and the practitioners that meet these challenges daily.

We are looking for the supply chain game changers, the practitioners and innovators who have made a tangible difference within their supply chains to share their story with the rest of our industry. The Logistics Achiever Awards has showcased, recognised and celebrated excellence in logistics and supply chain management for over 30 years.

## Enviro Awards Objectives

### RECOGNISE EXCELLENCE

To recognise professionalism and excellence in the effective application of strategic, tactical and operational logistics and supply chain management principles, concepts and practices in southern Africa.

### ENCOURAGE INNOVATION

To encourage all companies and organisations in southern Africa to review, evaluate and upgrade their current logistics and supply chain management practices.

### CREATE AWARENESS

To create a greater awareness and understanding of the value of effective logistics and supply chain management.

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***If you have a story to share, submit your entry today, visit www.logisticsachieverawards.co.za or contact Karl Murray on karl@logisticsachieverawards.co.za for further information.***

# GLTC wins SPAR Supplier of the Year award

*Goscor Lift Truck Company (GLTC) has been awarded the coveted SPAR Group's Supplier of the Year accolade for 2021.*

***Left to right: The award handover: Daniel van Rensburg, GLTC KZN Battery Division Manager; Cecil Oates, GLTC Managing Director (on screen); Michael Keats, GLTC KZN Director; Solly Engelbrecht, SPAR Group Logistics Executive; Patrick Barber, GLTC Sales Director (on screen).***

The award coincides with the 20th anniversary of GLTC's partnership with SPAR group. The leading materials handling equipment solutions provider currently has over 1,000 units deployed across SPAR's distribution centres in South Africa, including forklifts, reach trucks, order pickers and power pallet trucks.

GLTC is the sole distributor of leading materials handling brands including Crown, Doosan, Bendi, Sunlight lead acid batteries and DEC tow tractors in southern Africa, allowing the company to offer a full basket of materials handling equipment and warehousing solutions to the market.

Michael Keats, Director at GLTC, says a partnership mentality has been central to the longevity of the relationship between the two companies. Apart from reliable and efficient equipment, GLTC focuses on offering an unparalleled service regime to the retail group, ensuring high equipment availability and uptime. This includes on-site support and technical staff in KwaZulu-Natal and Nelspruit, with service support teams in all the other regions.

This is the second time that GLTC has taken home SPAR's Supplier of the Year award, having previously clinched it in 2016. "We are very proud to be in partnership with SPAR and to have received this award for the second time. The service quality matrix that SPAR uses to measure its Supplier of the Year, and the fact that we are being pegged against many other key service providers to its distribution centres, is a great gauge for best practice in our industry. To come out on top is a great accomplishment. We plan to sustain these service levels and develop upon them. The open communication between us and the customer allows us to critically evaluate our service level offering and assists us to keep improving as we grow together," says Keats.

"We are proud to have GLTC as one of our key suppliers and look forward to an ongoing partnership and future technological advances where we can push the efficiency boundaries within our operations," adds Ruark du Preez, SPAR Group Fleet Optimisation Manager.

"GLTC has been an integral partner in the success of SPAR's operational efficiencies, and we are honoured to have them as a supplier. We look forward to the successful continuation of this long-standing business relationship into the future," concludes Solly Engelbrecht, SPAR Group Logistics Executive. •

# Giant industrial park planned for KZN

*Investec Property plans to redevelop the old Corobrik site into one of the largest business and logistics parks in KwaZulu-Natal.*

In a vote of confidence for KwaZulu-Natal, Investec Property is redeveloping Durban's Corobrik site, located in Durban's northern corridor. The Brickworks is being positioned to attract large users of the warehousing and logistics space, nationally and internationally.

With the total development over three phases valued at an estimated R6 billion on completion, The Brickworks is on a path to becoming one of South Africa's most pivotal logistics and distribution hubs due to its superior location, access and security. "Investec Property, a subsidiary of Investec Bank, is proud to be the development company spearheading the creation of what is set to be an iconic industrial park," joint-CEO David Rosmarin says.

"We believe that this development is also a vote of confidence in the future of KwaZulu-Natal and South Africa. While the property market has been challenged by the pandemic and lockdowns, industrial property, in particular warehousing and logistics facilities, has proven to be resilient. The growth in e-commerce has driven demand for best-in-class logistics offerings," Rosmarin says.

The development represents one of the largest earthmoving contracts in KwaZulu-Natal currently, moving 1.7 million cubic metres of earth to create extensive platforms. The commencement of top structure development is planned to begin in the second half of 2022.

"Our large platforms will allow for the construction of warehouses, up to 100,000 square metres under roof. The market has responded positively and we are in discussions with numerous users and clients," says Investec Property's Iain Burns, Development Manager of The Brickworks.

Strategically located between Riverhorse Valley and Umhlanga, with access to major arterial and alternative road networks, The Brickworks will offer world-class facilities to a range of users, with the capacity to store and distribute goods without them being compromised.

Rosmarin explains that the first phase of construction will result in approximately 150,000 square metres of gross lettable area (GLA), worth close to R2 billion. Once all three phases have been developed, The Brickworks will measure in excess of 450,000 square metres of GLA at an estimated value of R6 billion.

The reinvigoration of the factory site will bring ongoing and sustainable economic stimulus to KwaZulu-Natal, and it is also a victory for the City of eThekwini as it forms part of the city's Economic Development Incentive Policy (EDIP), which aids investment in the city and contributes to job creation. •

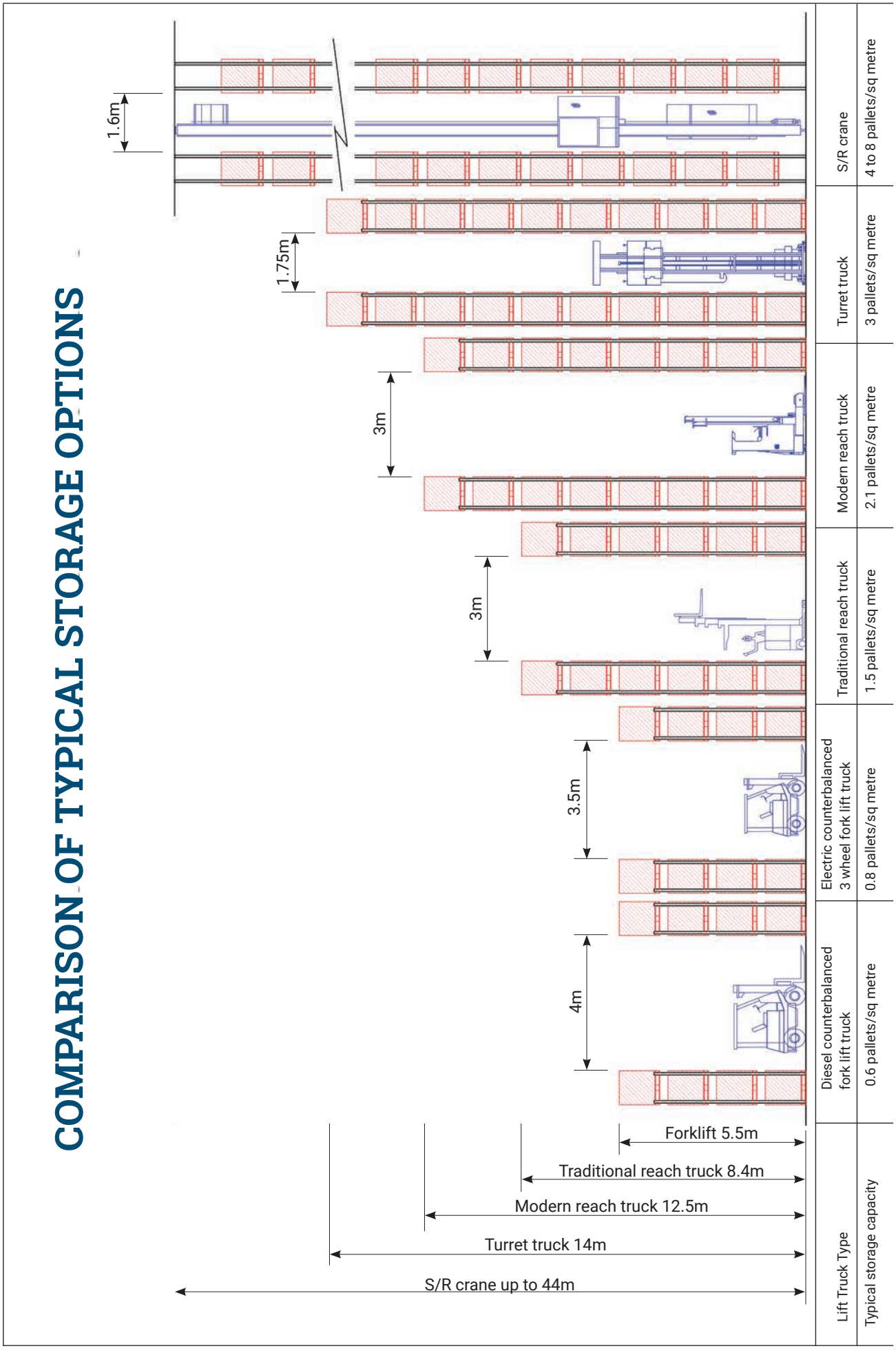
# Picking Capacities and Technology – Large case type operations

| Category of Goods | Typical picking capacity per person per hour | | | | | | Accuracy | Secondary sort needed | Typical maximum facility capacity |
|---|---|---|---|---|---|---|---|---|---|
| | 0 | 100 | 200 | 300 | 400 | 500 | | | Cases/ shift |
| A | | | | | Pick to belt - PTL | | High | Yes | High |
| A | | | | Pick to belt | | | High | Yes | High |
| A, B, C | | | Label - to pick truck | | | | Medium | No | Med-high |
| A, B | | | Voice - to pick truck | | | | Medium | No | Med-high |
| A, B, C | | RF pick to truck | | | | | High | No | Medium |
| A, B, C | | Paper - no WMS | | | | | Medium | No | Low |
| | Selective Rack | | | Deep Lane Storage | | | | | |

# Picking Capacities and Technology – Small item type operations

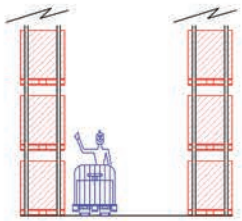
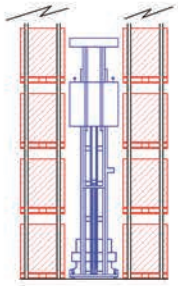
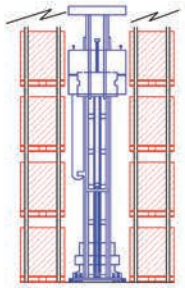
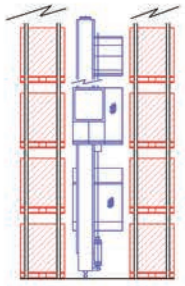
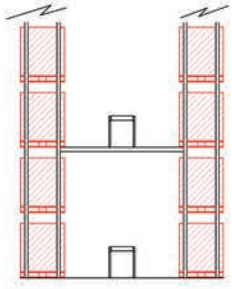
| Category of Goods | Typical picking capacity per person per hour | | | | | | | | | | Accuracy | Secondary sort needed | Typical maximum facility capacity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900-1200 | | | Cases/ shift |
| A | | | | | | | | | | Vending | | No | High |
| A | | | | | | | | | Auto inject system | | V high | Yes | V high |
| A | | | | | | Miniload system | | | | | High | No | Med-high |
| A | | | | | Pick to belt - PLT | | | | | | Med-high | No | Med-high |
| A | | | Pick to belt | | | | | | | | Medium | No | Med-high |
| B,C | | | Carousels | | | | | | | | High | No | Medium |
| C | | RF carts | | | | | | | | | Med-high | No | Low |
| C | RF picking trolley | | | | | | | | | | Medium | No | Low |
| C | Paper picking trolley | | | | | | | | | | Low | No | Low |
| | 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900-1200 | | | |
| | Rack and Shelving | | | Carton and Pallet Flow | | | | | | Special | | | |

# COMPARISON OF TYPICAL STORAGE OPTIONS




| Lift Truck Type | Diesel counterbalanced fork lift truck | Electric counterbalanced 3 wheel fork lift truck | Traditional reach truck | Modern reach truck | Turret truck | S/R crane |
|---|---|---|---|---|---|---|
| Typical storage capacity | 0.6 pallets/sq metre | 0.8 pallets/sq metre | 1.5 pallets/sq metre | 2.1 pallets/sq metre | 3 pallets/sq metre | 4 to 8 pallets/sq metre |

# TYPICAL PICKING STRATEGIES FOR LARGE ITEMS

| EQUIPMENT | TYPE OF EQUIPMENT | THROUGHPUT IN CASES PER SHIFT PER MAN | PICK HEIGHT | PARALLEL OR SERIES |
|---|---|---|---|---|
|  | ELECTRIC PALLET TRUCK | 1,400 | 2.5M (2 PAL) | SERIES |
|  | MAN UP ORDER PICKER | 600 | 10.5M | SERIES OR PARALLEL |
|  | MAN UP TURRET TRUCK | 300 | 13.5M | PARALLEL OR SERIES |
|  | MAN UP S/R MACHINE | 600 | 30M + | PARALLEL ONLY |
|  | PICK TO BELT MEZZANINE | 1 500 | 1.8M PER LEVEL | PARALLEL ONLY |

# Directory of supporting industry associations

**CILTSA**
Chartered Institute of Logistics and Transport SA
011-789-7327 • www.ciltsa.org.za

**CIPS**
Chartered Institute of Purchasing and Supply Southern Africa
012-345-6177 • www.cips.org/southernafrica

**CSCMP**
Council of Supply Chain Management Professionals
SA Round Table
011-678-1820 • www.cscmp.org

**RFA**
Road Freight Association
011-974-4399 • www.rfa.co.za

**SAAFF**
SA Association of Freight Forwarders
011-455-1726 • www.saaff.org.za

**SAEPA**
SA Express Parcel Association
info@saepa.org.za • www.saepa.org.za

**SAIIE**
Southern African Institute of Industrial Engineering
011-607-9557 • www.saiie.co.za

**SAPICS**
The South African Production and Inventory Control Society
011-023-6707 • www.sapics.org.za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- Executive Programme in Supply Chain Management
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