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Mobile computing – the 'new' kid on the block

By Arno Meyer, arnom@richfield.ac.za and
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Managing a supply chain can be a complex and challenging task for even the most skilled managers.

Traditionally, firms used to rely heavily on intensive manual processes to manage their supply chain operations. However, the fallacy of manually handling all aspects within a supply chain has been eradicated with the advancement of information technology (IT) innovations.

A famous quote by Bill Gates pronounces that, "We're changing the world with technology". Technological innovations have come a long way since the 1970s when mainstream computing devices were first introduced. Similarly, mobile computing devices came into use in supply chain management during the late 1990s and have continued to permeate all aspects of supply chain management. Mobile computing is a generic term used to describe devices that facilitate access to data and information without being connected to a fixed physical link such as a mobile phone or laptop.

In the most basic sense, a supply chain consists of supplier, manufacturer, warehouse, mode of transport, retailer and final customer sections. Among these sections, there are three main flows; product flows, information flows and financial flows. Satisfying customer demand largely depends on efficient and quick information exchange between these sections.

Granted, mobile devices such as barcode scanners have been used since the early 2000s; they were primarily used

to provide a singular function, i.e. to receive and transmit data. Considering the global disruption of the COVID-19 pandemic coupled with the growing usage of mobile Internet-connected devices, supply chains have become more decentralised, more complex to manage and measure, and more vulnerable to risks disruptions.

In line with the above, mobile computing provides an integrative one-stop shop platform for many applications or computer software to complete multiple tasks. One of the most significant advantages of mobile computing is that it enables a 'connected supply chain'. By leveraging structured and unstructured data generated across the supply chain, mobile computing improves the connectivity of the supply chain network. This helps firms to connect with their suppliers, vendors and customers easily.

The cognitive intelligence and predictive analytics offered by mobile computing help firms gain the right information for decision making at the right time. Additionally, mobile computing operates on a flexible, usage-based model. With mobile computing, businesses can operate their supply chain successfully in a volatile market. It enables faster planning and execution resulting in reduced time to market.

Firms can gain better access to resources and information, enhancing flexibility and responsiveness to

market conditions. To remain competitive, firms must reimagine their business processes and, particularly, their supply chains. Firms need to consider shifting from the traditional and linear supply chain models to more innovative digital supply chain networks.

Even though mobile computing facilitates the implementation of efficient and effective supply chain operations, it is not without its drawbacks. The effectiveness of mobile computing is dependent on network connection and device battery life. If either of these two factors are not adequately addressed, then mobile computing is not possible. Another key concern is that of security risks due to connections that may be susceptible to hacking. As a result, the modern-day supply chain professional needs to consider these concerns before adopting mobile computing.

Amid the breadth of technologies available today, mobile computing is emerging as a real game changer for businesses to innovate supply chains, rapidly and efficiently. Mobile computing provides both a method of communication and a source of information to employees and business owners facilitating a host business tactics, competitive initiatives and dealing with uncertainty. This makes mobile computing an essential tool in the repertoire of a supply chain professional of tomorrow. •

How technology fuels customer experience and brand value

By Laurie McGrath, courtesy *RFID Journal*

Retailers must invest in new technologies to make their supply chains agile, deliver seamless omnichannel customer experiences, build customer loyalty and stay ahead of the competition.

The fundamental shift in retail toward blended digital commerce has created several hurdles for retailers still clinging to traditional blueprints. At a time when brand interactions bridge digital and physical shopping, it is increasingly important for retailers to leverage technology to improve customer experiences and create value. Here are a few examples of how technology enhances customer experience and strengthens brand value.

Modern warehouse and production management systems for product customisation

Following the rise of individualism, modern customers now seek customised products that connect directly with their lifestyles. A study by Deloitte revealed that customers are willing to pay 20 percent more than standard equivalents for customised products. Thanks to modern warehouse and production management systems, retailers can

now satisfy individual customer preferences. These systems enable retailers to build tailor-made products at scale for each customer from a warehouse. For example, customers can create unique colourways for a pair of sneakers or add personalised text.

Allowing consumers to customise their orders creates a personalised retail customer experience and ultimately pleases customers as they get to design products that suit their needs. Customisation also helps retailers build an emotional connection with their customers through co-creation and improves customer loyalty.

Distributed order management technology for a unified customer experience

Customers expect a seamless omnichannel shopping experience that enables them to buy anywhere and pick up anywhere with the least cost and hassle. However, successfully delivering omnichannel fulfilment requires an up-to-the-millisecond view of inventory availability across channels. That is where distributed order management (DOM) technology comes into play.

Unlike static traditional order management systems that provide limited inventory visibility, DOM unifies disparate inventory pools across all channels and locations to give retailers visibility into available-to-promise inventory at eligible fulfilment locations and guarantees customers are promised what can be delivered. This creates a unified omnichannel experience that delights customers as products ordered online will be available in-store for pick up. The ability to consistently honour customer promises improves the retail customer experience, builds trust and strengthens brand value as customers know they can depend on a retailer to deliver what they need.

Store-fulfilment technology for flexible fulfilment

As customers continue to demand convenient and free delivery, big retailers are leveraging existing store networks to offer flexible fulfilment options. However, efficiently fulfilling orders from stores can be challenging due to inventory inaccuracy. Among retail executives surveyed by HRC Retail Advisory, 66 percent say that inventory inaccuracies make their buy online, pick up in-store (BOPIS) offerings inconsistent.

One technology engineered to help retailers efficiently manage inventory is a store-fulfilment solution. Such solutions improve store inventory availability accuracy and give retailers the ability to pick from store inventory efficiently, while keeping available inventory 100 percent accurate. Achieving this enables flexible fulfilment such as BOPIS and buy online, pick up at curbside in a time efficient way.

With store-fulfilment solutions, sales associates can also locate inventory quickly and prepare it for delivery. Store-fulfilment solutions make omnichannel shopping a delightful experience for customers as they can shop on their terms and satisfy their need for fast, free and convenient fulfilment.

Distributed order management system for order routing

Fast delivery remains an area of crucial importance for customers. Fifty-five percent of consumers switch to a competitor if that competitor offers faster service, according to a report from Capgemini. With distributed order management (DOM) systems, retailers can meet the customers' need for fast fulfilment. DOM ensures speedy delivery by determining the most cost-effective and efficient shipping location to fulfil an order. This may be to the store closest to the customer or a distribution centre with the largest volume of products.

The ability to intelligently route orders results in more positive post-purchase experiences as customers get their orders fulfilled accurately and fast. Rapid delivery satisfies customers, improves the retail customer experience and incentivises customer loyalty. DOM also enables retailers to control shipping waste in packaging and reduce carbon footprint in the last mile through order routing and consolidation. By making the last mile eco-friendly, retailers create a great customer experience for sustainability-minded shoppers while still meeting financial goals.

Additionally, DOM has delivery management capabilities that enable retailers to offer personalised home delivery, such as white glove services and appointment-based, in-home delivery using retailer-owned vehicles and personnel. For instance, a customer

purchasing a home theatre online can select white glove delivery when placing an order and schedule a convenient appointment time for order delivery.

By offering this type of personalised experience, the customer has control over the transaction, and the shopping experience is a delightful one as customers get their orders according to their priorities. In all, DOM enables retailers to go beyond the standard expectation for delivery, enhances the retail customer experience and builds customer loyalty.

Teleconferencing for seamless digital retail experience

Despite the recent surge in digital adoption, human touch remains an integral element of the retail shopping experience. One technology retailers can use to mirror the human connection provided in-store is teleconferencing using live video technology.

Teleconferencing allows brands to offer contactless consultation from anywhere and interact with customers while respecting the need for social distancing. For example, Gucci is maintaining customer relationships by setting up a 'faux luxury store' at its Gucci 9 hub in Florence, where store personnel livestream from a replica showroom, pulling items to the camera based on customer requests via cellphones or laptops.

Using teleconferencing, retailers provide customers with high-touch personalised interactions, tailored customer support and a human connection that gratifies customers. This translates to less customer service-related problems and more repeat business for retailers.

Augmented reality for seamless digital retail customer experience

The modern consumers' desire for real-life experiences is gradually pushing augmented reality (AR) into retail. AR overlays digitally created content into a user's real-world environment. Its superimposed computer-generated images change the perception of what a user sees in front of them, and 51 percent of consumers are willing to use AR technology to assess products.

In retail, AR technology enables customers to visualise products pre-purchase via a smartphone or on a website. This enhances the digital shopping experience by giving shoppers immersive and interactive experiences. For instance, with IKEA's AR app, shoppers can virtually preview what a piece of furniture would look like in their homes before they make a purchase.

Consequently, with AR, customers can make personalised product selections and informed buying decisions wherever they are. This reduces friction in the purchasing journey, makes shopping an exciting experience for customers and leads to increased satisfaction. AR provides retailers with opportunities to offer new and exciting value propositions to customers, differentiate themselves from the competition and drive customer retention.

Let technology be your secret weapon

In a world where customers face no shortage of choice, technology will play an important role in how retailers meet the needs of customers. Retailers must invest in technology to make their supply chain agile, deliver seamless omnichannel customer experiences, build customer loyalty and stay ahead of the competition. •

ERP: What it is and why IT still matters

By Doug Hunter, doug.hunter@za.syspro.com

All ideas are fueled by necessity, improved by efficiency and made sustainable by adaption and innovation – as with ERP and SYSPRO.

"Friends Romans, countrymen, lend me your ears
I come to bury Caesar not to praise him
The evil that men do lives after them,
The good is oft interred in their bones
So let it be with Caesar. The Nobel Brutus
Hath told you Caesar was ambitions
If it were true it was a grievous fault
And grievously hath Caesar answere'd it"

Enterprise resource planning (ERP) is like Caesar – everyone knows about it, it's powerful, few understand it, many fear it, it has many enemies and it sets standards for the future. ERP's enemies, like Brutus, want to be emperor, fear change, don't understand or wish to learn new ways or even good old ways, are protectionist and seek market share rather than general market beneficiation. But to reap the rewards from ERP, just like Caesar, ERP needs more than ERP.

Early days and manual ways

Some of you remember the days of reorder point (ROP), reorder quantity (ROQ) and rows of Kardex cabinets. Planning started with raw material. We pulled out the right drawer and looked at the Kardex card (marked with the product number), like an old library index system. We checked what the last planner had written – stock on hand, order quantity, order point. We calculated what our job needed, updating the card to reduce the stock and, if required, marking a new order and its need date. We or another planner created a purchase order on the supplier. It worked for decades because we understood why we were doing it, the chaos we caused if we got it wrong (which we did) and it was shared data, a team sport. These tasks became second nature as everything was manual and planning skill became invaluable to efficiency and cost management. This was the start of material requirements planning (MRP).

Another innovative planning idea was the bill of materials (BOM) to link finished goods to assemblies and/or raw materials in a structure of quantity and lead time relationships. This advanced thinking was only really used at the time by very large 'progressive' organisations.

The MRP innovators in the 1950s were Rolls-Royce and GE aero engine manufacturers who used MRP for the first time, followed by Polaris nuclear submarine manufacture. Quite fitting that the defence industry was first to use BOMs.

New technology innovation

Enter the IBM mainframe with 16kb (not gigabytes) of RAM, walls of mag tapes, two impressive industrial engineers, Joseph Orlicky and Oliver Wight, plus Toyota and Black & Decker as customers. In 1964, Orlicky innovated more for MRP to be computerised for Toyota, capturing the immense computer processing power. And, in 1975, he published the MRP bible – creatively titled *Material Requirements Planning* – to share with the world, and, by the end of 1975, over 700 manufacturing and distribution companies were using MRP.

Another milestone in 1978 was when SYSPRO was born to produce the first South African mini computer-based MRP system – one that is used globally today, 43 years and many versions later.

Business process enablement – MRP to ERP

Most companies start their process enablement journey with systems to control materials or stock, reducing working capital. But, in 1983, Oliver Wight documented manufacturing resource planning (MRP11), enabling production jobs and operations to be efficiently scheduled and have the right materials supplied to production at the right time.

Distribution requirements planning (DRP) came next – planning and scheduling finished goods through the supply chain from customer demand to purchase location back to manufacturer or DC (and vice versa).

Mix in just-in-time (JIT) to modernise the MRP crusade, initially in the automotive industry. Rather than MRP and BOMs to push materials to the factory for assembly, Kanban – a signal-based pull replenishment system – supplied just-in-time. Quality was the next crusade, Kaizen and Poka-Yoke and right first time, targeting maximum one defect per million, or Six Sigma, now Lean. Today, Six Sigma Black Belt equates to skilled business process Guru. Beware, like IT, this needs application of techniques and systems, not just knowledge of them. Check for signs of oily hands and callouses.

Let's not forget Drum Buffer Rope, the Theory of Constraints (TOC) developed by Eli Goldratt. Basically, if you're going to schedule a factory that is not balanced (or difficult to balance), find the bottlenecks (look for the long queues or chaotic areas in your factory), schedule this first then schedule all other workstations to keep the bottleneck working, releasing critical materials in time to feed it.

Then we get into finite vs infinite capacity scheduling – a great topic to Google with a cup of tea. Add some or all of these theories and you'll end up with the manufacturing and distribution planning content of a best practice, business process-enabling ERP system – SYSPRO ERP.

Engineers ok – what about the accountants?

Effective commercials achieved by integrating financials is what changes MRP, JIT, TOCs and the rest into a fully integrated business system – enterprise resource planning (ERP). Since the emergence of computers and software, the first business processes computerised were the already well-governed and understood financial and management accounting principles and processes. The trick was to move month-end accounting and periodic cost analysis using the transactional side of MRP to feed real-time or at least day-end financial and cash positions, creating auditable financial journals at the same time as material issues, returns or movements. Add to this pricing/discounts, credit agreements/checking and cost build-up to compare against pricing, and you get a real ERP system.

In summary, ERP enables and provides supply chain visibility to inbound processes like procurement and storage, outbound processes like sales issues and warehousing, dispatches and returns, and all the associated financial transactions at the same time. The one source of the truth myth is real.

A quick breath – some perspective

ERP emerged from the Second Industrial Revolution and from armaments manufacture supplying the 1939-45 World War. Budgets were not the issue as demand was either war critical or driven by the post-war demand bubble. Time to market was a competitive advantage and still is. US guys wanted to look cool with MGs, but unlike the UK guys, they didn't agree that waiting was part of the brand value.

Industries blossomed as did the consulting industry with the Big 7, then Big 5, or the guy one book ahead of the client on business process re-engineering (BPR). Remove non-value adding activity and optimise value add. This still applies and always will. The process review/modelling craze highlights that some processes are common to all, but others drive competitive advantage in different ways for different types of manufacture, markets and cultures.

In the last 10 years, focus has become customer first – that's certainly the goal of SYSPRO. Customer needs are broadening continuously. They increasingly seek environmentally conscious suppliers. Consumers are IT-literate, preferring to be in charge of delivery channel and date. They often know more about the product than your sales executive. In fact, they don't want the sales process with oversold promises and unmatched delivery. They have money to spend, but the value they seek is a deal priced right, described by the brand promise, delivered as expected or better – a good experience that isn't time wasting or inconvenient.

Industrial buyers simply expect quality built in – delivery as expected on time. They need collaboration between planners – if it's going to be late, tell me so I can plan around it. Keep me informed.

Marketing is still paramount and must set the appropriate market expectation and brand trust, but selling is morphing for many into a facilitation of buying process – make it easier, fair, respectable, a good experience.

ERP for industries and today's users

It is not unexpected then that all planning and execution IT is being further innovated to meet the new savvy or 'do it right or I drop you' customer. If you want to grow, you need IT that enables the relevant peculiarities of your business, including delivering all ERP basic benefits.

That's why SYSPRO ERP is focused on manufacturers and distributors in target industries like food and beverage, fabricated metals, industrial products, automotive components, packaged chemicals, electronics and more. The result is specific industry functionality that's built in and critically relevant for each industry – functionality that may not be used by the other industries – all in packaged software, not bespoke coded only for you.

In addition, SYSPRO ERP can be customised (no source code changes) and tailored to add other functions and preferences. Today, SYSRPO includes Internet access/ integration plus social ERP with a familiar 'like and favourite' interface and sentiment analysis.

Extending and innovating to future proof

Business analytics and business intelligence are fundamental to enabling companies not just to manage materials and production, but to optimise business service and performance leading to profitability.

ERP storing all the data makes business analysis/ business intelligence (BA/BI) and ERP perfect partners. ERP data is mined, analysed and presented to bring real business insights to executives and managers alike. Yes, you can BA/BI your spreadsheets – data sources that never lie, but don't be surprised when those insights prove to be unreliable.

Helping to enable the Fourth Industrial Revolution, BA/BI is further enhanced by artificial intelligence (AI) fueled by machine learning (ML). SYSPRO ERP contains static master data like customer details, product details, BOMs and more, but it also contains thousands of transactions, many collected automatically from machines and devices via the Internet of Things (IoT), where planned versus actual delivery, quantities, discounts and more can be analysed by product, company, channel or customer. This history of trends and changes held in ERP systems is used to find patterns and predict where you need to act. It helps you realise before it happens that a customer may be heading towards non-payment or a supplier lead time extending may indicate you need to chat, change the price or change supplier

In the end, ERP is a fundamental business need, but it still needs people to arm it and keep it honest, people who understand application of the concepts and impact. They need to keep up with the emerging technology that innovates ERP to continue to deliver value as it has for more than 50 years,

We did not come to bury ERP. It enables manufacturers and distributors in 2021 and into the future. Differentiating the various solution offerings today are the people who create, sell, implement, partner and support ERP, and the great customers who really use it – this has created the SYSPRO ecosystem. Together, let's start your new, or innovate your existing, ERP journey. •

Everyone's talking about it,
BUT WHAT IS ERP?

The Information Technology industry is renowned for acronyms which are often widely used but not fully understood.

ERP, for example, is an acronym for Enterprise Resource Planning. Broadly speaking, it refers to a category of business management software - typically a suite of integrated applications - that organizations use to collect, store, manage, and interpret data from its many business activities.

A good ERP system becomes the central nervous system of a company, continuously sending millions of messages to and from its various parts to ensure the whole is functioning at its peak. It does this by providing an ever updated view of core business processes by coordinating business resources - cash, raw materials, production capacity - with the status of business commitments - orders, purchase orders, and payroll. The applications that make up the system share data across the various departments such as manufacturing, purchasing, sales and accounting.

An ERP system has multiple benefits that help with overall business performance management for any organization - by providing intelligence, visibility, analytics and efficiency across every aspect of a business's supply chain, giving one source of truth, and enabling seamless digitalization as and when new technologies emerge.
There are countless reasons for businesses to adopt an ERP system. Here are the most important:

Reduce costs and save money in the long run. By reducing administrative and operational costs through automated processes, ERP allows users to proactively prevent delays, stoppages, wasted time, resources and expenditure.

Streamline business processes and operations. Because data is available in a centralised location with complete visibility across all functions, decision makers can track processes and accurately determine and maintain optimum inventory levels.

Improved consolidation. Without ERP, many businesses are forced to use different programs in different departments. By using common databases maintained by a database management system ERP eliminates this.

Supply chain visibility and optimisation. A robust ERP system provides a real-time picture of the entire supply chain and connected processes, making it easy to reduce planning cycles and control production scheduling.

Respond faster to market conditions. ERP provides data analysis and reporting that assists businesses to rapidly react to changing market requirements and unforeseen events, then make informed decisions and determine realistic forecasts.

Traceability. ERP has the capacity to track all stock – anywhere along the supply chain - including defects and hazards, down to the smallest levels of individual parts and ingredients to mitigate the risk of recalls.

Improve customer satisfaction, service and relationships. Implementing ERP enables you to keep your promises by producing enough of the right product, at the right price, at the right quality, at the right time.

Digitally transform your business with mobility and flexibility. As technology advances, your ERP system will seamlessly incorporate it and adapt it to your changing needs, whether on premise, in the cloud or even on a mobile App.

Increase your competitiveness with an industry-built system like SYSPRO's. Gain a competitive advantage by using an ERP solution built from over 4 decades of industry experience. One that comes from people who speak your language, understand your pain points, and have a vested interest in your success.

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Temperature control critical in vaccine rollout

Real-time temperature monitoring must play a critical role in securing SA's COVID-19 vaccination rollout. By Eckart Zollner, Head of Business Development, Ikhaya Automation Systems.

South Africa's COVID-19 vaccination rollout programme is finally underway despite a shaky start. Aiming to inoculate 67 percent of the population before the end of 2021, the government says sufficient doses for the target population of 40 million have been secured.

However, distributing those vaccinations to the intended population is going to be a challenging endeavour. Particularly because each vaccination has specific temperature-related transport storage requirements which must be strictly maintained

to ensure the safety and efficacy of the product. Logistically, it will be critical to monitor and manage the temperature conditions of these life-saving vaccinations in real time across continents, right from manufacture through to patient administration. This is where technology can assist.

Which vaccine is South Africa using?
South Africa has acquired the Johnson & Johnson vaccine, which is administered as a single dose. We have already received 80,000 doses of this vaccine, which has shown to be most effective against the prevalent

variant that was first identified in South Africa. These doses are currently being administered to health care and frontline workers across the country. While a total of nine million doses have been secured from Johnson & Johnson, delivery is due in the second quarter of this year. Furthermore, 12 million additional doses have been secured from the global COVID-19 Vaccines Global Access (COVAX) facility. Two million of this batch were due for delivery from March 2021, while Pfizer has committed to delivering a further 20 million vaccine doses from the second quarter.

In the first phase of the rollout, approximately 1.3 million health care and frontline workers will be vaccinated, while the second phase will focus on approximately 20 million people consisting of essential service workers, those living in congregate conditions (prisons and care homes), vulnerable individuals over the age of 18 with comorbidities and those over the age of 60. The remaining 22 million of South Africa's general population will receive the vaccination in the third phase. Specific delivery timelines are still unclear and there are concerns, particularly when it comes to reaching remote and rural areas in phase three, as all of the vaccinations require refrigeration. While the Johnson & Johnson vaccination can be stored at normal fridge temperature, the Pfizer vaccination must be stored at -70°C and requires two doses.

Technological advancements in temperature monitoring

Specialist teams will be required to transport the vaccines in newly acquired vehicles and World Health Organisation (WHO)-accredited cooler boxes to these communities and administer them. All vaccine sites will have adequate refrigeration to ensure the cold chain is maintained. Here, the Internet of Things (IoT) sensor-based temperature monitoring solutions will be critical in the physical rollout across the country. These secure, wireless vaccine storage unit monitoring and alert systems will allow medical facilities and pharmacies to remotely monitor COVID-19 vaccine storage temperatures through automated data logging,

reporting and proactive prompt alerting in the event of an equipment issue, human error or power failure.

Connectivity is a vital enabler of IoT devices and while the current state of infrastructure in rural and peri-urban regions is not always sufficient, Wi-Fi based systems are able to cover coverage gaps in automatically recording ongoing temperature and humidity, and transmitting readings to a control unit as soon as sensors come within Wi-Fi range. Each control unit communicates with a cloud-based platform and secure database, which simplifies and automates reporting and compliance, seamlessly closing the loop.

Important considerations

Those tasked with the planning and logistics of the vaccine rollout on the ground will have to examine the options carefully when it comes to choosing the right temperature and humidity monitoring systems to protect these life-saving vaccines. Given the instability of electricity supply, it is important to look at inherent system redundancy, which needs to provide a 99.9 percent uptime. Just as important as reliability is credibility and in order to mitigate risk, the supplier chosen needs to be endorsed by the relevant accreditation bodies in line with local and global standards. Service and support are also a critical consideration, which is evident in testimonials from blue-chip corporates in the medical or food sectors. The system will need to be capable of remote configuration and management, and due consideration must be given to ease of configuration, use and operation.

While the market offers an array of temperature monitoring systems, it is imperative not to choose based on the price tag, particularly when budgets are likely to be tight. Instead, rollout task forces must consider the cost of losing these vaccinations, and the resulting potential loss of life if storage conditions are compromised. This will make it undeniably clear that the right cloud-based temperature monitoring system is essential to ensure the safe, effective rollout of a vaccine that holds our hope for a return to some semblance of pre-pandemic normalcy in the not-so-distant future. •

5 ways RFID technology facilitates inventory and production visibility

By Emily Newton

Radio frequency identification (RFID) tags help manufacturers and suppliers maintain inventory oversight while reducing the potential for errors and time-consuming practices. Here are some real-world applications that show what the technology can do.

1. Improving automobile component tracking

Vehicle tyre brand Michelin intends to install RFID tags on all its tyres by 2023. The company plans to harness RFID tag usage in several ways. For example, tyre suppliers can use the data to identify which models they install most. That insight prevents out-of-stock incidents.

Moreover, since the technology identifies the exact tyres used, it could help Michelin become more aware of batches that wear down too quickly or have other faults. Michelin representatives even say drivers may eventually see an icon on their dashboard that details their automobiles' specific tyres.

In another instance, a collaboration between Mercedes-Benz and the Fraunhofer Institute for Factory Operation and Automation IFF involved using RFID tags to identify production scheduling blind spots. Project managers could quickly see where slowdowns occurred, making it easier to deal with them efficiently and have the necessary parts to keep production running smoothly.

Due to the high-value items on an automobile assembly line, any delays prove exceptionally costly. However, RFID tags could provide a relatively straightforward solution for avoiding misinformation and bottlenecks.

2. Maintaining visibility into medical supplies and production abnormalities

Ensuring product oversight is crucial for materials that people inject or ingest. That's why pharmaceutical companies commonly use real-time water usage data to avoid waste and prevent supply disruptions. Water is the main ingredient in vaccines. Many of these businesses are also investing in artificial intelligence (AI) to maintain the correct production environments and associated assets.

A 2019 pilot concerning pharmaceutical manufacturers used RFID to improve their existing tracking methods, most of which used 2D barcodes. A company called Kit Check got on board during the trial, too. RFID technology alerted pharmacy technicians to missing, expired or incorrect contents of medication trays. Verifying accuracy reportedly took only three minutes compared to the half-hour required without the technology.

Statistics indicate that more than 30 percent of drugs fail in Phase II of clinical trials. People understandably sighed with relief when Pfizer's COVID-19 vaccine candidate was the first approved for emergency use in the United States. It requires extremely cold temperatures, though, and cannot stay at room temperature for longer than a limited period.

3. Applying access controls to packaging machines

RFID technology can also help manufacturers ensure that unauthorised parties do not attempt to operate packaging machines or alter crucial parameters. One company offers a solution where people use fobs or cards to gain access to the equipment.

The technology creates an ongoing change log to confirm when people alter parameters and what they tweaked. Such information makes it easier and more efficient to troubleshoot issues, including those related to a degradation in supplied products.

For example, machine users may suddenly alter the dimension parameters on the packaging machine after getting a new shipment of corrugated cases. If so, that could indicate a quality issue to bring up with the supplier. It may also help manufacturers track how often packing supplies get used – and by whom.

4. Accelerating inventory assessments and maintaining transparency

An RFID tag can also help track a product's location within the supply chain and safeguard it against theft. Some companies even install permanent RFID tags. For example, such a tag associated with a freight truck could help manufacturing plant personnel prepare to receive incoming shipments of raw goods. It could show the real-time location of the items, plus their exact origin. It might confirm which field potatoes come from, for example, and it could automatically record and distribute confirmation of receipt for the grower.

A manufacturer or supplier could also connect RFID data to individual customers. In that case, it becomes easier to determine valuable specifics, such as whether some products sell more rapidly in certain parts of the world. Moreover, connecting RFID data to customers also makes information more accessible after manufacturers hear about possible defects or recalls.

Moving ahead with an RFID tag system also cuts down on manual tasks and paperwork. The US Social Security Administration participated in an RFID trial and estimated

US$60,000 was saved in managing an 86-vehicle fleet. RFID tags prevented the need to manually sign out each automobile someone used or track its mileage. Thus, RFID tagging facilitates inventory management by minimising the tasks prone to human error.

5. Enhancing product distribution accuracy

Getting supplies to the right places becomes more complicated as the overall number of destinations goes up. A South African retail group with a presence in dozens of countries and thousands of stores decided to use RFID technology to receive more up-to-date details about each supplier or retailer's needs.

In one example, products across the group's global supply chain feature labels encoded with RFID data. That information shows which suppliers receive shipments from particular manufacturers after production.

Counting stock after products arrive is much faster, too. Employees previously used a largely manual process that took days and required workers to put in overtime hours during store closures. However, with the help of RFID, people can get the job done in a matter of hours.

Facilitating the better usage of time

These five examples show that manufacturers can save substantial amounts of time by using an RFID tag system. As a result, they can cut costs and notice fewer mishaps due to data entry errors and other blunders that can cause productivity losses.

Additionally, RFID tags help create a verifiable information record. If a manufacturer wants proof that a supplier sent a shipment, they can show that without anyone at the company needing to pick up the phone or send an email. •

Improve slotting for greater warehouse efficiency

As part of our practical series for warehouse managers, Christo Pieterse looks at inventory slotting and how it can improve productivity.

Slotting is the process of organising inventory inside a warehouse. By arranging your warehouse more optimally, you can improve productivity and throughput.

Classify inventory into categories

Start by classifying your inventory into categories. Look at your sales history or product movement for the last three to six months to determine the activity rate. Two main methods to classify your inventory are:

• **ABCD classification.** If you have never organised your inventory and you want to reslot your entire inventory, the best way is probably the ABCD method. This involves classifying all your inventory into one of the four categories, and you choose how to apply the method based on your unique operation and the number of items you have in the warehouse.

A – Fast. Should be a small number of items that make up a big percentage of the movement.
B – Medium. Items that move often, but not as fast as the A movers.
C – Slow. The majority of items will be in this section.
D – Dead. Inventory that does not move. Store this at the top and back of the warehouse, far out of the way.

• **Pareto principle (80/20 rule).** If you do not have the time or resources to reslot your entire inventory, use the Pareto principle. It simply states that for many outcomes, roughly 80 percent of the consequences comes from 20 percent of the causes. This is often true when it comes to warehouse inventory. So, by identifying your 20 percent fastest-moving inventory and only reslotting them into the optimal locations, you will see a huge productivity improvement quickly.

Physically move the inventory

Identify which part of your physical location will hold the inventory by category. Fast-moving items should be right at the front of the pick area to improve the productivity of your pickers. Be careful not to have all fast movers in the same aisle, as that can cause congestion and bottlenecks.

You do not necessarily have to incur additional labour or other costs to reslot the warehouse. Most resources, like forklifts or reach trucks, have some downtime at some point during the day. For some warehouses, this may be early in the shift, and for others, later in the shift. Use that dead time to slowly reslot your inventory.

Review process

Once you have made the changes to your inventory, you need to measure to determine the effectiveness. Compare the productivity after the reslotting to the previous productivity.

Review your inventory movement periodically (normally once a quarter) and make changes based on product movement changes that may have occurred. Also be aware of seasonal demand for products and slot proactively for that. Certain items sell at different times of the year.

New items

To maintain your slotting management, put a process in place to slot new items as they arrive at receiving into your categories. Try to get the sales forecast for an item if possible. If you do not slot items you are receiving, it will deteriorate the slotting process over time and force you to do more moving of stock at a later stage.

Inventory slotting is a critical element of effective warehouse management and will have multiple benefits throughout your operation. Be creative and smart about how you slot your inventory and you will see the improvements almost immediately. •

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Carol Ptak and Dick Ling join 2021 SAPICS Conference line-up

Two of the biggest names in the global supply chain community, Carol Ptak and Richard (Dick) Ling, who is widely regarded as the 'father' of sales and operations planning (S&OP), will be sharing their deep experience with South African supply chain professionals at the 2021 SAPICS Conference.

"We are honoured to have two supply chain legends speaking at the 43rd SAPICS Conference," comments SAPICS President Keabetswe Mpane. She explains that Dick Ling is recognised as the creator of sales and operations planning and is a world-renowned educator, speaker and consultant. "He co-authored the first book on S&OP. He has helped businesses all over the world to maximise S&OP's potential to generate more cash and increase return on investment."

Carol Ptak is a partner with the Demand Driven Institute, a global organisation that was founded in 2011 to advance and proliferate demand driven strategies and practices. She has written and co-authored numerous articles and books on demand driven principles, finance and information and planning systems.

Ling is currently collaborating with the Demand Driven Institute to develop the next generation of sales and operations planning leveraging the Demand Driven Adaptive Enterprise (DDAE) model. "Demand driven material requirements planning (DDMRP) and S&OP make a perfect marriage," he contends. "Not only do DDMRP and S&OP fit together, they need to be implemented together. DDMRP requires a process to provide it with changes to the operating environment. S&OP, properly implemented, is what DDMRP needs. S&OP, as it matures, develops an integrated reconciliation process which provides the appropriate bi-directional linkage that improves S&OP's effectiveness. The integrated reconciliation process in S&OP is the perfect, bi-directional linkage that is needed by DDMRP for sustainability."

"When DDMRP and S&OP are properly linked with an integrated reconciliation team, the company will achieve effective communications and shared values in addition to sustained positive return on investment," Ling says. "I predict a promising future for these two operating processes working together," he asserts.

Carol Ptak.

Richard (Dick) Ling.

"This 2021 SAPICS presentation by Dick and Carol, which is entitled 'Adaptive S&OP – Surviving, Adapting and Thriving in the VUCA World', is one not to be missed by South African supply chain professionals who want to learn how the perfect marriage of DDMRP and S&OP can optimise their business processes," says Mpane. "VUCA is an acronym for volatility, uncertainty, complexity and ambiguity," she explains. "It describes the challenging and unpredictable business environment in which we now operate, which astute, skilled supply chain professionals and their businesses must navigate. This VUCA world means that it has never been more important for supply chain professionals to keep learning, growing and sharing knowledge. As the leading event in Africa for supply chain professionals, the annual SAPICS Conference offers unrivalled education, skills development and knowledge sharing opportunities," she concludes.

The 2021 virtual SAPICS Conference takes place from 24 to 26 August 2021. Visit https://conference.sapics.org for more information on the 2021 SAPICS Conference or to register. •

Life science supply chain in
need of digital transformation

Courtesy *SupplyChainBrain*

Life science research struggles with an antiquated supply chain.

What might well be the most important supply chain in the world today is also one of the most backward when it comes to automating key processes. The life science supply chain gave us the vaccines that are now rolling out on a global basis to combat COVID-19, not to mention any number of other drugs and cures for various diseases over the years. But the sector's success masks serious deficiencies in the link between manufacturers and scientists in the lab.

Relatively few members of the general public had paid much attention to the life science research industry before the coronavirus pandemic, says Florian Wegener, Co-founder and Chief Executive Officer of Zageno Inc., an online marketplace of life science products. That's despite the existence of a $130 billion market.

Also unknown to the public is a salient fact: "The supply chain in this industry is broken," declares Wegener. While responsible for countless medical and scientific breakthroughs, the business of life science research presents "a great façade," behind which is an antiquated system of ordering and fulfilment.

In North America today, says Wegener, 20 percent of all orders for lab supplies are still placed by phone, and another 20 percent by fax. Buyers must page through huge paper catalogues, and suppliers lag far behind in the development of e-commerce capabilities. Most don't even have a presence on the web.

"From the supplier perspective, it's very expensive to serve this market," Wegener says, noting that at least 30 cents out of every dollar of suppliers' revenue goes into the sales force, and another 5 cents into customer service. And that latter function isn't what an online retail shopper might envision. 'Customer service teams' are mostly call centres that take orders over the phone.

All of which adds up to big headaches for the scientists and lab bench researchers whose jobs rely on ready access to supplies. Thanks to the inefficiencies of the ordering process, they lose between four to six hours per week just setting up experiments, according to Wegener.

He sees the dilemma as presenting three big challenges for the lab scientist looking to purchase product. One is inadequate or even non-existent search capability. Two is the inability to access neutral information on product performance. And three is a lack of transparency in pricing.

The complexity of the industry is staggering. Zageno's automated marketplace offers access to more than 25 million SKUs, Wegener says. Moderna, Inc., which manufactures of one of the most successful COVID-19 vaccines, relies on more than 3,000 suppliers to build the one product.

Given the structure of the biotech industry, the fragmented nature of its supply chain is perhaps understandable. Most innovations come from smaller companies, of which there are thousands in North America alone, often backed by venture capital. They conduct the lion's share of research and development

on behalf of the pharmaceutical giants. "Very few big blockbusters have been invented within big pharma companies," says Wegener. "It all comes from these little labs."

So, think of countless small buyers trying to match their needs with countless suppliers, who still market, process and fulfil orders manually. And up to now, there's been little appetite for reform. The problem, says Wegener, is that researchers in the lab, who support a high-margin industry, give scant thought to product cost. In a survey of 3,600 scientists, that criterion didn't appear among their top 10 concerns.

With the arrival of COVID-19, such attitudes are ripe for change. The general public now has a far higher appreciation for the importance of life science research. (Given the historical inefficiencies that plague the industry, it's even more remarkable that the COVID-19 vaccines were brought to market so quickly.)

But even with the success of an automated ordering platform like Zageno, coupled with growing public awareness, there's still plenty of room for improvement. From an end-customer perspective, around 10 percent of the products needed for COVID-19 research are on back order, Wegener says. One of Zageno's customers, a lab based in the United Kingdom with a few hundred scientists, was on the verge of shutting down because of long wait times for receiving product. Zageno was able to prevent that catastrophe at the last moment by digitally relaying an urgent call for product to its thousands of suppliers, from which it sources directly.

One can only wonder how much faster a COVID-19 vaccine might have been developed had the life science supply chain been fully automated a year ago. But Wegener is hopeful about the sector's future prospects for streamlining the ordering process. "COVID-19 has shaken us like an earthquake," he says. "It has underlined the need for a digital transformation of the industry." •

LOGISTICS NEWS

Supply Chain Management
Best Practices, Third Edition

Build best-in-class supply chain capabilities in your organisation with this newly updated resource from David Blanchard, an industry leader.

In the newly revised Third Edition *of Supply Chain Management Best Practices*, noted journalist and supply chain expert David Blanchard delivers a compelling and comprehensive overview of the new technologies shaping the transportation and supply chain industries today and the processes that will transform them tomorrow.

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From drones and the Internet of Things to same-day delivery, omni-channel distribution, artificial intelligence, Uber-style freight transportation apps, blockchain and robotics, the book discusses how the transfer of computing power from central mainframes into smartphones and cloud-based services has enabled game-changing technologies to reach companies of all shapes and sizes.

Perfect for supply chain managers and professionals, chief financial officers, chief information officers and controllers, *Supply Chain Management Best Practices* will also earn a place in the libraries of manufacturing, warehouse and purchasing managers who seek a one-stop resource to help them understand the latest trends and the enduring foundations of the supply chain industry.

About the author

David Blanchard is an award-winning journalist and Senior Content Director and Editor-in-Chief of Endeavor Business Media's *Materials Handling & Logistics* and *EHS Today*. He is a sought-after speaker at major manufacturing events and has launched and edited several print and online publications covering supply chain, transportation, manufacturing and artificial intelligence.▪
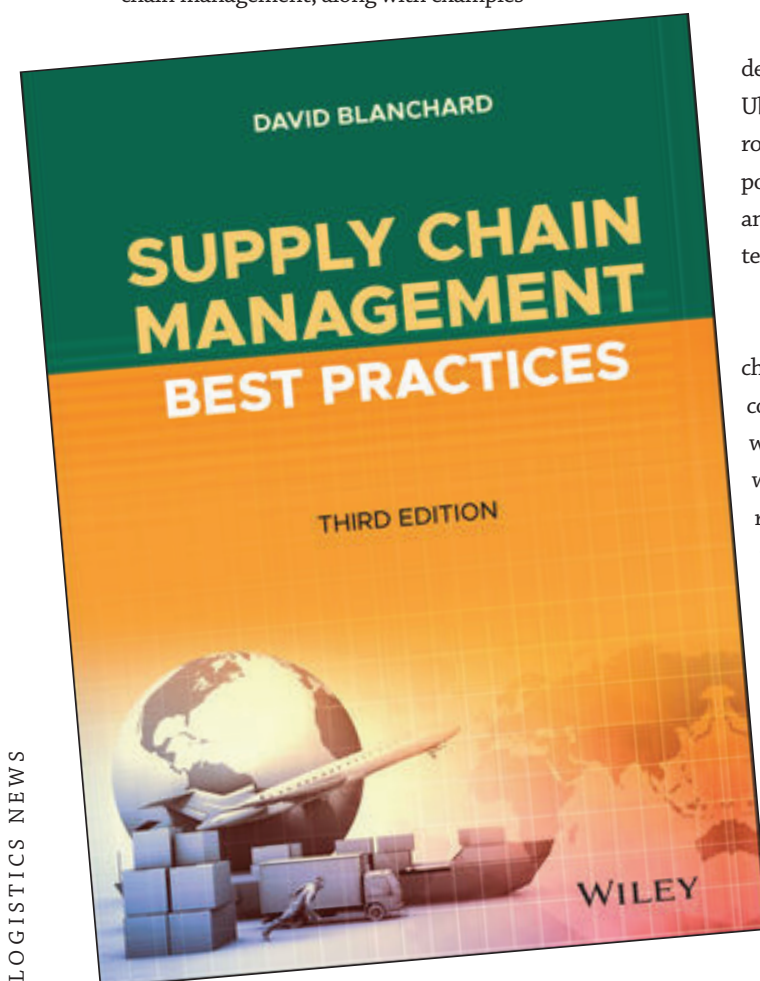
Warehouses are using location technology to meet surging e-commerce demand

By John Wirthlin, courtesy *SupplyChainBrain*

Real-time location systems (RTLS) give warehouse operators greater visibility into their assets, ranging from inventory and lift trucks to pick carts and even autonomous mobile robots (AMRs).

It's official: COVID-19 has changed consumer shopping habits forever. Last year, e-commerce grew 42 percent, with $813 billion reportedly being spent online. And in the first two months of 2021, consumers spent $121 billion online, resulting in year-over-year growth of 34 percent.

What does this mean for warehouse operators? For starters, it shows the urgent need for technology applications that can help them get products to consumers faster and more efficiently. In a survey of small- and medium-sized warehouse operators, conducted by BizTechInsights on behalf of Zebra, 55 percent of respondents said they were planning to transform their operations to gain real-time guidance, improve decision making and ensure that their performance was data-driven. One type of technology helping warehouse operators meet these new demands is real-time location systems (RTLS).

RTLS gives warehouse operators greater visibility into their assets, ranging from inventory and lift trucks to pick carts and even autonomous mobile robots (AMRs). The technology goes further than traditional barcodes, using sensors to collect data without requiring line of sight.

RTLS encompasses a wide range of location technologies, from Bluetooth beacons and passive radio frequency identification (RFID) to full-scale systems that support constant communications between tagged assets and back-end processes. Many warehouse operators are choosing to deploy a combination of location-based technologies to meet their needs in a cost-effective manner.

Tracking assets within warehouse walls, RTLS technology creates systems of reality that help operators determine where their assets are and how efficiently they're being managed. In picking operations, for example, arming workers with a combination of location-based and wearable technologies allows pickers to fulfil orders faster, pick multiple orders at once, replenish products in-between picks and prioritise urgent orders.

Wearable heads-up displays that integrate with the warehouse management system (WMS) allow workers to fulfil orders faster by giving them step-by-step visual picking instructions that point them directly to the right bin. When a picker is done picking an order in Bin A, the WMS can use the picker's location to find the next closest order.

If a nearby order isn't available, the system can direct the picker to do a quick cycle count in the next closest bin or begin replenishing items. The WMS could also send a collaborative robot, or cobot, to the picker's location to pick up a completed order or deliver returns for restocking in that aisle.

Given that up to 60 percent of a picker's time is spent walking, such time savings can quickly add up and result in a significant increase in the number of orders picked each day.

Passive RFID systems offer an affordable way to automate operations such as inbound and outbound processing. RFID systems eliminate the need for

LOGISTICS NEWS

manually scanning each product's barcode when a shipment arrives or leaves.

Instead, entire pallets containing dozens of tagged products can be automatically scanned in seconds as the pallet passes a fixed RFID reader installed near the dock door. Workers can also use mobile handheld readers to quickly scan an entire pallet versus individually scanning each item's barcode. The collected data is automatically uploaded to the WMS or enterprise resource planning (ERP) system and compared against advanced shipping notices or shipping logs to check accuracy.

Inventory accuracy

RTLS technology also helps improve inventory accuracy by delivering better visibility into the location of inventory as it enters the warehouse, is moved to a storage location or leaves the warehouse. Operators are finding that with greater accuracy, they can dramatically reduce out-of-stocks (OOS), which has long plagued the industry. According to NielsenIQ, OOS in just 10 product categories, ranging from toilet paper and cleaning supplies to dog food, cost US retailers more than $3 billion in lost sales from May 2020 to February 2021.

Across the globe, warehouses are adopting these real-world applications in ever-increasing numbers, thanks in large measure to changes in cost that are making them much more affordable. Now, companies of all sizes can gain much-needed efficiencies in their warehouse and supply chain operations.

When integrated with back-end systems, RTLS

technology helps warehouse operators improve internal operations and quickly react to supply-chain disruptions.

Integrated, intelligent RTLS solutions go beyond just data collection. They also help warehouse operators use that data to keep operations running smoothly. For instance, say a truck scheduled for a particular dock door is stuck and will arrive two hours late, but staging has already begun in anticipation of its arrival. The obvious question is: how quickly can the warehouse yard team pivot?

When RTLS technology is integrated with the transportation management system (TMS) and yard management system (YMS), the warehouse team is notified when a truck will arrive late, allowing employees to use analytics to adapt to the new reality. With prescriptive analytics, warehouse operators can immediately determine which truck should be directed to the scheduled dock door instead, so that the shipment can still get out on time.

Previously, warehouse managers had to deal with these situations manually. But today's RFID solutions do more than just tell them that something that might affect operations has changed. The RFID data is integrated with back-end systems and gives front-line workers specific directions on how to quickly adapt to those changes.

That's why 46 percent of the warehouse operators in the recent BizTechInsights survey say the most important feature of a modern warehouse system is the ability to integrate it with existing warehouse applications.

The days of printing out a paper pick list or relying on paper shipping logs are over. Nevertheless, implementing the right technology remains a struggle for warehouse operators. Fifty-seven percent of respondents to the BizTechInsights survey say their biggest challenge is ensuring their workers have the right tech tools to operate efficiently and accurately.

The good news is that RTLS technology, particularly when combined with back-end software systems and wearable solutions such as heads-up displays and ring scanners, helps workers do their jobs more efficiently. It also enables them to quickly identify and solve problems. So, it's no surprise that these tools are becoming increasingly popular with warehouse operators of all sizes. •

A history of barcodes
and looking ahead

By Gabe Grifoni, Founder and CEO of Rufus Labs

Barcodes have been completing transactions and making inventory organisation a breeze since the 1970s.

A little over 50 years ago (31 March, 1971), leaders from the biggest names in commerce came together and transformed the global economy forever by developing the Global Trade Item Number (GTIN). This numerical code uniquely identifies every single product and is the core of the barcode, the most important supply chain standard in history. Today, the barcode is scanned over six billion times every day and remains one of the most trusted symbols in the world.

History of the barcode

Before the barcode was introduced, managing inventory from label to self to checkout was time consuming and manual. Not only was this process inefficient, but there was also plenty of room for human error.

The origin story of the barcode starts in Philadelphia at a grocery store. Its manager had become so frustrated with the slow checkout process that he contacted a dean at Drexel Institute of Technology in Philadelphia, desperate for a solution. Bernard Silver, a graduate student at the time, had overheard the conversation and relayed the information to Joe Woodland, another Drexel grad student and established inventor, who was immediately captivated.

Woodland was so intrigued by solving this pervasive retail problem that he pressed pause on grad studies and relocated to Miami to work on a plan that would revolutionise the grocery store experience. The idea for the first barcode came as Woodland sat on the beach drawing lines in the sand, which reminded him of the dots and dashes that exist in Morse code.

Woodland applied the same general idea of Morse code to those sand drawings. Ultimately, he figured out that he could develop a vast number of codes by changing the line sizes through increasing or decreasing their width. He returned to Philadelphia and with the help of Silver the two developed a prototype system and filed a patent for the technology in 1949.

Unfortunately, the first prototype that would actually read the barcodes failed because the internal light, a 500-watt incandescent lightbulb, was not bright enough and

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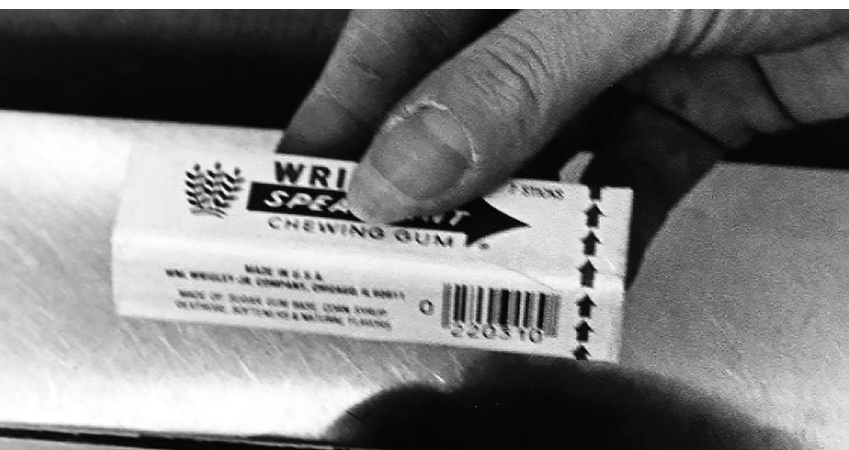
the machine lacked a minicomputer that could process information. Woodland stopped working on the barcode project after running into limitations and it wasn't picked up again until 1966 by Kroger. The chain knew it needed to become more technologically efficient in order to grow, so it began advertising for help in creating a new scanning system.

Kroger tapped the Radio Corporation of America, which used Woodland's original bullseye-styled barcode. Initially, there were concerns that the new tech would turn off customers who might view its laser technology through a popular culture lens as being akin to death rays, a la sci-fi movies and television shows. Still, testing went forward in 1973 at a Cincinnati Kroger, and it was a certified hit. While printing the bullseye barcodes proved difficult, the outcome was exactly what supermarket managers were expecting – higher sales and quicker shopping experiences.

The barcode gains popularity

The success with the supermarket barcode was just the beginning. Soon there was interest across other consumer industries. Some of the biggest success stories come from billion-dollar big box businesses like Walmart and Target. For those two, the barcode became essential, particularly as they grew into the behemoths they are now. The barcode allows these businesses to keep a better record of what's available on the floor, what items are in transit to their warehouses and even the delivery of products to consumers.

Now many restaurants feature a square-shaped, pixel-patterned QR code on your table for mobile scanning in place of a traditional menu to minimise contact. The introduction of QR codes proved that product information didn't need to be limited to straight lines as a traditional barcode, but it could also be embedded into various sizes and shapes on a label.

Different types of barcodes

Barcodes and QR codes really fall under two general classes: one-dimensional (1D or linear) and two-dimensional (2D). They are used in different types of applications and, in some cases, are scanned using different types of technology. The difference between 1D and 2D barcode scanning is in the layout and amount of data that can be stored in each, but both can be used effectively in a variety of automatic identification applications.

Linear or 1D barcodes, like UPC code on consumer goods, use a series of variable-width lines and spaces to encode data, which most consumers think of as 'barcode'. Scanners read 1D barcodes horizontally. 1D laser barcode scanners are the most common, typically handheld, wearable or fixed form factors.

2D barcodes, like Data Matrix, QR Code or PDF417, use patterns of squares, hexagons, dots and other shapes to encode data. Because of their structure, 2D barcodes can hold more data than 1D (up to 2,000 characters), while still appearing physically smaller. The data is encoded based on both the vertical and horizontal arrangement of the pattern, thus it is read in two dimensions. These codes can also contain images, website addresses, voice and other types of binary data.

The future of barcodes

While still highly prevalent, as scanner technology continues to evolve, there will be less need and demand for 1D barcodes over time, which can only hold up to 85 characters. In contrast, 2D barcodes can store over 7,000 characters, allowing you to transmit almost two paragraphs of information. With 2D barcodes, businesses can convey much more complex information, like expiration dates and serial numbers, all without additional scanning.

In the immediate future, you'll see both technologies utilised in conjunction with better scanning devices, like self-scanning tunnels that can scan an item's code regardless of how it passes through the device. The second phase will be in 'image barcodes', which will be able to scan an item based on its logo and appearance.

In the next few years, we'll continue to see a massive convergence of smartphone technology, radio tags or packages with unseen barcodes, all designed to give consumers an unprecedented level of product information and control, anytime, anywhere. •

Making data-driven decisions to
improve supply chain performance

By Calum Lewis, Founder and Principal Consultant of OP2MA

The supply chain for any business is not a simple, linear chain of activities; it is a dynamic network of integrated processes, technology and people.

With many CEOs not considering supply chains until something monumental goes wrong, organisations need to develop coherent strategies and make data-driven decisions to improve supply chain performance. Achieving excellence in supply chain management can deliver sustainable growth and superior financial results.

The essential starting point for a supply chain review is to confirm how current supply chain performance is driving financial outcomes. Taking a systematic, structured approach that aligns key operational performance measures to return on investment (ROI) is fundamental. It can show how the day-to-day operations of your business determine financial results.

With clear, fact-based insight and understanding, a tailored transformation programme can be developed that

targets the most beneficial actions. Supply chain is inarguably an untapped opportunity for many companies, with most companies not looking at their supply chains and reaping these benefits until something goes wrong. Understanding how operational performance can drive competitive advantage and disrupt markets in the face of uncertainty, turbulence and increasingly demanding customers is a challenge. But now, more than ever, is the time to optimise.

How can companies do this?

Businesses need to consider a three-stage process: a health check, diagnostics and transformation. The health check aligns operational performance to ROI to systematically qualify opportunities and define improvement priorities. It should scale the opportunity offered by supply chain transformation. Diagnostics then identify, in detail, the necessary changes to process, organisation, technology and infrastructure to reset

capabilities. A transformation programme should combine the data-driven analytics from the diagnostic phase with clear insight to the key drivers of financial performance to develop a targeted change programme.

Benchmarking using innovative analysis that sets current performance against market competitors can form a strategic 'call to action' for a business. Aligning a data-driven review of how the supply chain is working, and its potential, with the business strategy ensures the coherence of improvement actions; applying a 'joined up approach' to a 'joined up' situation.

The role of the customer

Customer expectations have increased considerably, and they expect retailers to have stock of what they want, when they want, or they will move onto competitors. If customers order items online, they expect prompt, on-time delivery and easy return processes for unwanted purchases. Many manufacturers are dependent on just-in-time manufacturing strategies that require delivery of components not only on time, but also not before time, and in exactly the required quantity. Good customer experience is crucial as well as understanding what they value the most and how they measure your business is key to any redesign of the supply chain operation as well as highlighting opportunities and risks.

The ability to capture and apply information from across the supply chain network has been greatly enhanced by technology. However, information, not just data, really flows when based on trust. Actions will not become synchronised across the supply network unless data is shared on a timely basis and transparency to levels several steps forward and backword in the network is offered. Building collaborative relationships is fundamental and is more about mindset than technology and involves identifying and sharing opportunities to create mutual benefits and recognising that costs inevitably flow and circulate in the network.

How to optimise your businesses costs

People are at the centre of any successful supply chain design and strategy. Even if someone does not work directly in supply chain, there is a need for them to understand that their commercial and financial decisions will still impact supply chain. Through using advanced analytics and by putting people and design at the core of the supply

chain, companies can reduce costs while simultaneously improving supply chain performance. Companies that develop coherent strategies and make data-driven decisions to improve supply chain performance can, in doing so, improve organisational profitability.

This is why effective supply chain optimisation is a crucially important aspect of operational performance. Design has a critical role in shaping product costs (and supply chain management costs) as well as ensuring material and component costs are truly value aligned; value being determined by the customer and their willingness to recognise this in the price paid.

Understanding your supply chain costs

The process-related costs of planning, sourcing and logistics operations are often overlooked. In many instances, simply identifying and analysing these 'indirect' costs will reveal significant opportunities for improvement. Understanding total cost to serve allows your business to make the most informed decisions and seek cost reductions that are sustainable. Simply passing cost around the supply network will not ultimately deliver savings and may hamper collaboration and limit the ability of a network to compete with others.

Driving working capital efficiency

Few aspects of a business will operate in isolation; delivering customer orders and getting paid certainly do not. Assessing trends in the cash-to-cash cycle can indicate issues in supply chain operations, and an in-depth review by channel, customer and supplier will bring the transparency needed to target improvements. Inventory management is fundamentally dependent on cross-functional processes; decisions on core parameters and ways of working have strategic implications.

Focusing the business for supply chain excellence

Management KPIs and incentives need to be aligned to support coherent supply chain management. The quality of customer relationships has an impact on the information flow in the supply chain with more timely and accurate demand plans requiring less inventory in the form of safety stock to meet customer requirements. Taking a systematic, structured approach to understanding how supply chain operations drive financial results will allow your business to manage trade-offs, identify opportunities and prioritise actions. •

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CHEP unveils global 2025
Sustainability Goals

CHEP

A Brambles Company

CHEP, one of the world's most sustainable logistics businesses and a pioneer of circular economy principles, has unveiled its 2025 global Sustainability Goals, a roadmap for building regenerative supply chains that help repair damage to the planet. "We believe the time has come to transform how the world moves products to people," says Hermann Haupt, Vice-president of CHEP sub-Saharan Africa. "We'll be the company delivering the supply chains the world needs for the future."

Hermann Haupt, Vice-president of CHEP sub-Saharan Africa.

Haupt said that pioneering regenerative supply chains meant breaking the link between consumption and harm to the environment and society in order to restore, replenish and create more value for society and the environment than businesses take out. "To make this change, we need to evolve our sustainability model. In the past, we have focused on reducing the negative impacts of supply chains to make them 'better'. Going forward, we want

to build regenerative supply chains that do more good than harm and become 'positive'."

The new 2025 global sustainability targets set by CHEP parent company Brambles aim to restore nature, tackle climate change and create shared social value. The company has committed to replenishing the resources it uses and creating more positive impacts beyond its communities for the benefit of future generations. The CHEP sustainability strategy consists of Planet Positive, Business Positive and Communities Positive targets.

Among global Planet Positive targets are undertakings not only to ensure 100 percent sustainable sourcing of CHEP timber indefinitely, which the company achieved as part of its 2020 goals, but to go beyond that and allow two trees to grow for every one used for pallets – adding millions of new trees by 2030.

CHEP also has committed to using renewable electricity across its global operations and to becoming carbon neutral by 2025. Another of the company's international goals is to ensure no product materials are sent to landfills and to introduce closed-loop products using 30 percent recycled or upcycled plastic waste.

Worldwide Business Positive targets include doubling customer collaborations from 250 to 500, having at least 40 percent women in management roles and reducing business injury frequency rates by 25 percent.

The CHEP Communities Positive targets across the global operation include collaborating with food banks to serve rescued food to 10 million people and impacting one million people to become circular economy change makers.

"These are global targets and the transformation won't be easy. It will only be made possible by all of us joining in and working together," says Haupt. "However, we have a long track record of achieving the unlikely when it comes to sustainability and we're confident we can do it again." •
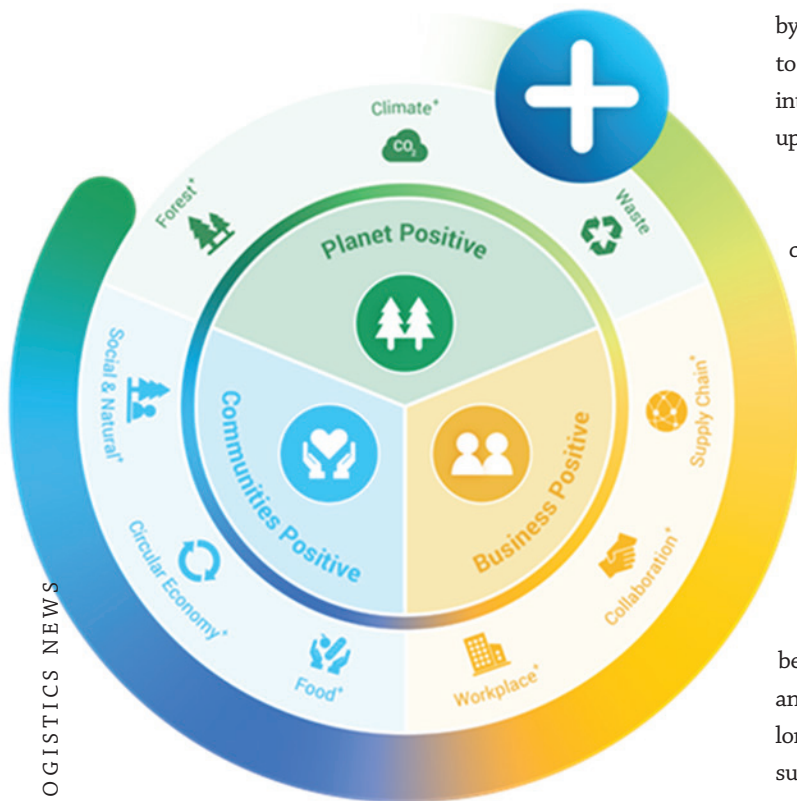
Defy opens world-class warehousing and DC in Danskraal

South Africa's largest manufacturer and distributor of major domestic appliances, Defy, announced the official opening of its new world-class distribution and warehousing centre in Danskrall, Ladysmith on 19 May. The new facility represents a R170-million investment into the Ladysmith area and will create over 130 jobs within surrounding communities.

The Defy Danskraal warehouse can process the loading and unloading of more than 200 trucks per day and has a storage capacity of 100,000m³ of product. The strategic location of the DC creates the opportunity to move product by rail from the Ezakheni manufacturing facility to the Durban port 250km away. This drastically improves the export supply of Defy and sister brand Beko appliances into Africa and supports the company's vision of being in the top three appliance brands in all sub-Saharan markets by 2025.

According to Defy's CEO, Evren Albas, the new Danskraal DC represents the company's unwavering dedication to the people of South Africa and the community of Ladysmith to see another century of prosperous growth.

Distribution and warehousing are key competencies in the Defy supply chain and underline the customer centric ethos of the company. Ladysmith is a prime location to achieve a win-win result due to its strategic proximity to major transport nodes and Defy's Ezakheni manufacturing facility which already operates out of the region.

Since 2012, Defy has invested approximately R642 million in the Ladysmith economy. Danskraal has been designated as a logistics development zone and is strategically located in terms of Defy's planned network. "With a R170 million investment and significant job creation opportunities, the new Defy Danskraal warehouse promises to further contribute to the economic and social stability of the Ladysmith community," says Albas. •

LOGISTICS NEWS

7,000th unit assembled at FAW Trucks' Coega plant

FAW Trucks ended April on a high note when the 7,000th locally assembled vehicle rolled out of its Coega manufacturing plant. This marked a significant milestone for the Chinese brand that took the top spot in the Heavy Commercial Vehicle (HCV) segment of the local market for the first time in the first quarter of this year. The unit in question was a JH6 28.500FT model, which has since been delivered to a well-established strategic fleet customer.

The largest of the truck tractors from FAW Trucks, the JH6 28.500FT, features a full floating extended-roof cab with an innovative flat floor design for optimal comfort and interior space. Its 13-litre, six-cylinder common-rail turbocharged and intercooled diesel powerplant produces 370kW at 1,800r/min, has 2,300Nm of peak torque on tap at 1,400r/min and is commonly referred to as China's most efficient engine. It is mated to a ZF 12-speed TraXon AMT transmission, with parabolic spring suspension front and rear to address vehicle weight requirements. A full air dual circuit WABCO braking system with ABS enhances the long hauler's safety features.

Jianyu Hao, CEO of FAW South Africa, says, "This is an understandably proud moment for us. It reaffirms our commitment to the local market and is just reward for what is one of the largest investments made by a Chinese entity in this country. Funded by the China FAW Group Corporation and the China-Africa Development Fund, the first vehicle rolled off the Coega assembly line in July 2014. The facility was built at a cost of R600 million and spans some 30,000m²."

Currently the Coega facility has a production capacity of 3,000 units per annum, but this is scalable to 5,000 in order to be able to meet growing demand for FAW Trucks models. "The reason for our continued growth in South Africa is the fact that we cater to virtually every need within the highly competitive commercial vehicle market," explains Hao. In addition, all models are assembled to exacting standards in order to be able to withstand the harsh conditions of the African continent. •

FedEx extends support to India

FedEx Express, a subsidiary of FedEx Corp, donated a second dedicated charter flight carrying critical medical aid to India. This is part of the company's continuous relief efforts to support India's fight against the recent COVID-19 surge. Thousands of oxygen concentrators and converters and over two million masks are among the medical supplies airlifted to India through charitable shipping.

On 16 May, more than 780 oxygen concentrators, over 1.8 million KN95 masks, medicines and pharmaceutical supplies were unloaded from a charter flight in New Delhi, India by Direct Relief to be delivered to health care facilities across the country. This is in addition to the first FedEx donated charter flight that arrived on 9 May, which transported more than 3,400 oxygen concentrators, converters and nearly 265,000 KN95 masks for Direct Relief to Mumbai, India. Both charters originated in Newark, New Jersey.

FedEx is also supporting the transportation of over 25,000 oxygen concentrators and converters through an initiative with the US-India Strategic Partnership Forum and other multinational companies.

Oxygen concentrators, masks and critical medical supplies are unloaded from a FedEx charter flight for delivery at New Delhi, India. Photo source: FedEx.

Panasonic acquires Blue Yonder

Courtesy *SupplyChainBrain*

Panasonic Corporation recently acquired Blue Yonder, an end-to-end, digital fulfilment platform provider. Panasonic will purchase the remaining 80 percent of shares of Blue Yonder, adding to the 20 percent it acquired in July 2020.

This acquisition aligns with Panasonic's Autonomous Supply Chain mission, encouraging customers to optimise their supply chains using the combined power of AI/ML and IoT and edge devices. By unifying supply, demand and commerce solutions with IoT and edge technologies, companies can utilise predictive business insights to pivot their operation in real-time. Combining Panasonic's experience in industrial engineering, IoT and edge technologies with Blue Yonder's AI/ML-driven supply chain and commerce solutions will enhance Blue Yonder's digital fulfilment platform.

"I'm extremely happy to welcome Blue Yonder and its associates to the Panasonic Group," says Yuki Kusumi, CEO of Panasonic. "By merging the two companies, we would like to realise a world where waste is autonomously eliminated from all supply chain operations and the cycle of sustainable improvement continues." •

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