

INNOVATING THE SUPPLY CHAIN

03 IS END-TO-END
AUTONOMY DESIRABLE?

06 INFOGRAPHIC: THE
DEMANDS OF DELIVERY

10 PEOPLE: SUPPLY
CHAIN'S MISSING LINK



Delivering a Zero Emission Future



DPD sets out
its vision >



INNOVATING THE SUPPLY CHAIN

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AUTOMATION

Hype and reality of total supply chain autonomy

Digital technology could create supply chains that fix problems and make decisions without human intervention, but end-to-end autonomy may not always be desirable

Alexandra Leonards

Digital technology is widely accepted as a necessary part of driving improved supply chain efficiency and effectiveness. But some business leaders think it could go a step further, suggesting the technology could propel not only greater productivity, but help craft an autonomous supply chain able to identify, forecast and fix problems on its own.

A combination of technologies, from artificial intelligence (AI) and machine-learning to digital twins and cloud computing, have made it increasingly possible for end-to-end supply chains to make decisions without the need for human intervention. These technologies, which appear to have all the right ingredients for the formation of an autonomous supply chain, are slowly permeating the market.

Ocado is using advanced autonomous supply chain processes to help make accurate predictions. The online supermarket uses forecasting based on machine-learning to predict outbound demand for more than 50,000 different products.

"This means we can generate exceptionally accurate projections with which we place orders with suppliers," says James Gralton, engineering director of logistics and supply chain at Ocado Technology.

"We currently generate over 20 million forecasts each day. This helps us to react rapidly to a multitude of common and exceptional supply issues."

Autonomy is not just a handy tool for improving supply chain efficiency and effectiveness. It's a logical and necessary next step for an industry that continues to grow in complexity. Without a certain level of autonomy, traditional supply chains would struggle to handle growing inventories and fail to keep up with the equally challenging shift of consumer demand.

"As global inventories look set to double between 2015 and 2020,

logistics companies and customers need to leverage these technologies to reduce costs and increase throughput traditional warehouses are not able to handle," explains Marcus Würker, chief information officer, UK and Ireland, at DHL Supply Chain.

An autonomous supply chain can identify patterns the naked eye would never spot. This gives businesses the best chance of responding to these pressures with accuracy and decisiveness.

Self-governing supply chains also have the capacity to help tackle one of the industry's biggest concerns: sustainability.

32%

of supply chain professionals say they are actively using robotics and automation



79%

believe that AI will become a core competency within three years

88%

say it will allow organisations to manage risk and improve predictability

Deloitte 2019



Abstract Aerial Art/Getty Images



The key is deciding in which areas of the supply chain to develop autonomy to create the most economic value

greater degree of personalisation of services will be possible, resulting in a far superior customer and end-user experience.”

He anticipates advancements in AI will magnify the capabilities of robots and allow for important developments in computer vision for dimensioning and object identification, while machine-learning will improve prediction and planning.

Antony Lovell, vice president of applications at Vuealta, says: “While the technologies on offer are developing at a rapid pace, we are quite a long way from seeing autonomy in the supply chain.

“Supply chain and demand planners are trying to predict product demand based on old, unstructured data which can take weeks to collect. They often work in cumbersome and error-prone manual spreadsheets or outdated systems, sometimes multiple versions of each.”

But according to Wayne Snyder, head of retail strategy at JDA, although achieving an autonomous supply chain can appear an impossible task at first, the good news is even if a business has to navigate a change-resistant culture, or uses technologies that lack the right processing capabilities to collect data, with the right tools and strategy it is within grasp.

“Total autonomy is unlikely,” he says. “There will always be times when the computer needs human oversight, for example when the data identifies a scenario it has never experienced. However, a near-autonomous supply chain will have been achieved when businesses are able to trust technology to identify disruption and take actions.”

Mr Snyder says these actions will regularly be reviewed to understand their success, both by computer and by humans, to improve performance and ensure the supply chain acts optimally with immediacy and decisiveness. Results could be completely transformational, as alongside short-term problem-solving, autonomous supply chains could provide longer-term learnt recommendations to enable businesses to stay ahead of the curve.

“Total autonomy may not be possible, nor desirable, but as long as there is value to be had for retailers and consumers, there is more to be done,” Mr Gralton at Ocado Technology concludes. “The key is deciding in which areas of the supply chain to develop autonomy to create the most economic value.”

Supply chain autonomy could transform the industry. Technology is available; it just needs to be harnessed. ●

“There’s an increasing demand for less plastic and preservatives to enter the supply chain, which ultimately causes challenges when it comes to making sure goods are delivered in a good state,” says Phil Skipper, head of business development at Vodafone Business.

“This is where automation can have a big impact, helping ensure goods move through the chain to reach their destination efficiently and in top condition. For example, the internet of things can be used to measure factors like the temperature and humidity of perishable goods, allowing businesses handling them to quickly step in if there is a risk to the condition of the items.”

However, while end-to-end autonomy is in theory feasible and businesses are beginning to implement autonomous processes, the industry is still in the early stages of deployment. Whether or not the industry can integrate digital technologies and establish self-governing systems throughout the supply chain is still up for debate.

“We’re still at the beginning of our journey towards an automated supply chain, but it’s clear robotics and AI will shift paradigms over the next few decades,” says Mr Würker. “Operations will become predictive, more processes and transport will become automated, and a

Transforming order fulfilment and returns processing with robotic solutions

Robotic order fulfilment can provide a vital competitive edge as ecommerce changes the way we shop and how retailers sell

Rapid development of ecommerce has fundamentally changed how consumers around the world shop, with innovative shopping events, enhanced user experiences and the influence of social media all transforming how this industry operates. Yet businesses working in all sectors and of all sizes are facing challenges when trying to achieve efficient e-fulfilment operations.

From labour shortages and rising staff costs to utilising space effectively and ensuring returns are processed efficiently, there is a growing opportunity for new technologies and approaches in ecommerce distribution to meet pressing challenges.

Thanks to mobile robot solutions, operators are now able to work two or three times more effectively than normal methods of order fulfilment as these tools remove the need to walk around the warehouse. The stock picker can efficiently work on a larger batch of orders simultaneously without needing to move their IT equipment and in-progress work around the building.

“By keeping the picker in a single position, the work area can be better organised and the information displayed on larger, easier-to-use displays, which speed up the operation and reduce the training requirements,” says Tim Wright, managing director at Invar Systems, leading warehouse and order fulfilment solutions experts that offer world-class engineering, consulting, project integration and software.

Unlike manual options, robot solutions can store products in a higher



density as there is no need to provide access aisles for pickers, with robots automatically moving products according to their demand to optimise the availability of stock and improve the responsiveness of the system.

When order fulfilment and returns processing are improved, companies are able to reduce physical storage space and rent, as well as enabling staff to complete tasks more quickly. According to the Reverse Logistics Association, the return rate for online shopping is at least 25 per cent, indicating the huge amounts of returns retailers are dealing with on a daily basis.

Traditional automated solutions clearly have an important role to play in ecommerce distribution, but robot solutions are available at a lower initial investment and the incremental costs, timescales and impact of scaling are lower. The robot solutions offered by Invar Systems have a track record of providing organisations tangible benefits. These flexible, modular robotic solutions provide a notable challenge to the large capital-expenditure projects designed around future volumes.

“Companies that want to have a higher level of physical flexibility with their automated systems can benefit from robots being easy to move from one location to another, whereas other options need a large investment in equipment, which take a long time to manufacture, install and are not easily adapted,” adds Mr Wright.

At a time when business agility is increasingly important for companies

in all industries, robot solutions can provide a vital competitive edge as they require minimal physical installation and are easily expanded in different ways to adapt to changes in demand and storage requirements.

Moreover, robots can easily manage random storage without any significant degradation in picker performance, allowing them to store unsorted stock, such as returned items, effectively.

Invar Systems have worked with innovative companies, such as Superdry, to deliver solutions to cope with immediate demand and then scale up as demand changes. Their experts can create custom-tailored ecommerce fulfilment system solutions that are responsive, efficient and dynamic.

By partnering with Invar Systems, businesses can establish a flexible automation system for e-fulfilment operations no matter their size. Such solutions can increase profitability per order, accelerate order fulfilment at lower costs, and expedite reverse logistics and returns. “We offer steadfast and proven solutions, but aren’t afraid to apply emerging technologies when appropriate for the application,” Mr Wright concludes.



By partnering with Invar Systems, businesses can establish a flexible automation system for e-fulfilment operations no matter their size

For more information please visit www.invarsystems.com



SUSTAINABILITY

Traceability, transparency and sustainability

Five forward-thinking examples are changing the game when it comes to supply chain sustainability

Oliver Balch

Businesses are coming under increasing pressure to demonstrate their social and environmental credentials, with sustainable supply chains now a key criterion of a responsible company.

In the globalised world of commerce, creating a sustainable supply chain is not easy. Large suppliers have their own suppliers that in turn have suppliers and so on. Checking

every last tier for unethical working conditions or dodgy business practices is a daunting task even for the most conscientious buyers.

Large companies have tended to adopt one of two tactics. Option one: set an explicit code of conduct and work with top-tier suppliers to enforce it. Option two: cut out the middlemen by identifying verified sustainable sources and trading direct.

While social and environmental standards in supply chain operations are progressively improving, neither strategy is providing the cast-iron guarantee consumers want.

Step forward a new generation of innovators seeking to drive forward supply chain transparency and sustainability. From rethinking plastics to redesigning fashion, these change-makers are pushing forward change at every link of complex supply chains.



Eutah Mizushima/Unsplash

Radical transparency

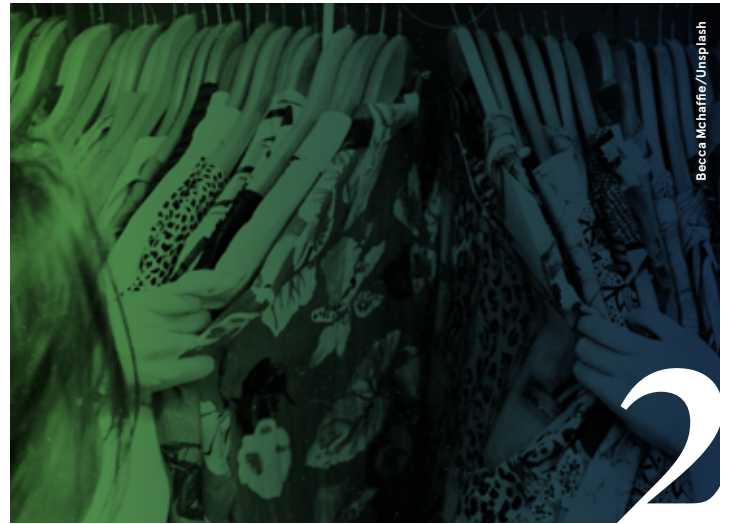
Supply chain transparency has emerged as a critical watchword for supply chain sustainability. Leading the way is Trase (Transparency for Sustainable Economies). Brainchild of London-based sustainability specialist Global Canopy, Trase provides access to previously untapped trade data for high-risk commodities such as palm oil and soya. Buyers can draw on the information to track social and environmental issues of concern.

Toby Gardner, director at Global Canopy, cites the example of Brazilian beef. Using Trase, it is now possible to calculate the level of deforestation caused by the country's \$6-billion-a-year beef industry. Answer: a staggering 5,800sqkm between 2015 and 2017. Better still, the tool can pinpoint alleged culprits, with giant Brazilian meat conglomerate JBS accused of being a top offender.

"With this traceability, we can for the first time link companies and consumers to the places

of production and to the risk of being connected to impacts on the ground," says Dr Gardner.

Performing a similar function is Global Forest Watch, which uses satellite data to increase supply chain transparency for high-impact commodities in real time. Describing it as a "breakthrough in supply chain monitoring", Crystal Davis of the World Resources Institute, which operates the tool, credits it with helping hold suppliers with bad business practices to account.



Becca McHaffie/Unsplash

Redesigning fast fashion

Egged on by rock-bottom prices, UK shoppers now purchase more clothes than any other European country. But one million tonnes of textiles end up in landfill every year. Step up fashion tech startup Unmade. The London-based firm works with leading fashion brands to help shoppers customise their clothes. The idea is consumers will bin less if they have a hand in designing what they buy.

Unmade's sustainability efforts centre on a software program that enables shoppers to tinker with the designs of their favourite brands ahead of production. The latest big brand to get on board is US

sneaker manufacturer New Balance. Existing partners include Opening Ceremony, Christopher Raeburn and Rapha Custom. Using Unmade's software, shoppers can now go online and choose their own colour, text and graphics for New Balance's first customisable shoe.

Retailing at £100, the price makes the shoes an unlikely impulse buy. That's no bad thing if today's "broken" and "disconnected" fashion supply chain is to be fixed, says Unmade's chief executive Hal Watts. Only by connecting demand directly to supply can the guesswork be taken out of fashion production, he argues.



Johannes Plenio/Unsplash

Concentrating on sustainability

Liquid isn't light, which makes it difficult and expensive to transport. Enter product concentrates. The idea is simple: rather than make it up as a liquid at source, consumers buy their products in powder form and then just add water. A shining light in this burgeoning market is Splosh, a Wales-based startup that sells everything from laundry detergents to fabric conditioners in powder form.

Several additional innovations add an extra notch to its already impressive sustainability performance. Firstly, all its ready-to-use products are packaged so they

can be slipped through a standard letterbox, saving on gas-guzzling trips to the shops. Second, it offers a free take-back service for all its plastic refill containers, which it then upcycles into new products, such as ice scrapers.

It's a stellar example of a sustainable supply chain, says Splosh founder Angus Grahame, who credits his solution for two major breakthroughs. "First, it has allowed us to sell direct and so cut out the supermarkets. Second, because all our products are refillable, we've eliminated plastic waste," he says.



Fuel of the future

Transportation represents a significant chunk of the environmental impacts of most supply chain operations. But hydrogen is a sustainable alternative fuel. When burned with oxygen, hydrogen only releases water. Its flexible too and can replace petrol in cars and natural gas in domestic boilers.

Although hydrogen has yet to attract the investment it needs to reach serious scale, early innovators are not waiting around. In Leeds, for example, feasibility studies are underway to switch the city's entire pipeline network to hydrogen. In Germany, meanwhile, plans are in

train to build hundreds of hydrogen filling stations across the country.

One of the most exciting innovations is happening at sea. Currently touring the world's oceans is a 30-metre-long catamaran fuelled on nothing but hydrogen extracted from sea water. The multi-hull Energy Observer is on a six-year voyage to demonstrate the viability of hydrogen for global shipping, which is responsible for 13 per cent of all Europe's transport emissions. So far the crew has clocked up 18,000km and ticked off half the 50 countries on the boat's itinerary. Total emissions are zero.



Smart plastics

With plastic waste top of consumer concerns, the packaging industry is investing heavily in a slew of sustainability programmes. Many focus on alternatives to petroleum-based formulations, with potential substitutes encompassing everything from milk and sugarcane to starch and lignin from plants and wood.

Other potential breakthroughs are occurring at the design stage, with experts such as UK recycler Vanden advising packaging manufacturers on how to remove obstacles to recycling, such as barrier layers and mixed polymers.

Smart tech innovators are also experimenting with nanotechnology to make packing as efficient as possible. Nanotechnology alters matter on a molecular level, which means food packaging can potentially change colour if food starts going off, explains Dominic Watkins, of law firm DWF.

Confusion over best-before labels often leads to perfectly edible food being thrown away. Mr Watkins posits: "Wouldn't it be much easier if your milk bottle changed colour as it was nearing the end of its life?" ●



New route to the Continent

A new Portsmouth to Antwerp shipping route offers an alternative to anyone worried about a chaotic Brexit. **Ben Harraway**, commercial manager at Portico, explains why the route is so attractive

What will Brexit bring to the UK's ports? As a commercial manager at one of Britain's busiest ports let me tell you this: no one knows. We don't know what the export rules will be. And we don't know what paperwork will be involved.

This is worrying. Recent papers leaked from the Department for Transport say there is "clear and present danger" to UK supply chains. For this reason, businesses should take a fresh look at how they move freight to and from Europe.

So what can be done? At Portico we have a solution. Companies looking to secure their supply chain in the event of a disruptive Brexit can make use of a potential new service to central Europe.

We want to open a new short-sea container route from Portsmouth to Antwerp. The route is a fantastic alternative for exporters and a phenomenal addition to UK supply chains in its own right. It avoids existing routes that are congested enough already and complements Portsmouth's extensive list of existing roll-on, roll-off services to western France and Spain.

The journey from Portsmouth to Antwerp takes just 14 to 16 hours and has a long list of advantages.

For starters, the destination is Antwerp, one of Europe's major ports. Antwerp offers multi-modal links; containers can be moved on by rail, road or river. The location is terrific. You get your cargo closer to where it's going.

The speed of processing at Portico is rapid. We eliminate waiting. Our automatic gates will welcome lorries the moment they arrive. Come in, drop your

cargo and leave. All the paperwork can be precleared, so there's nothing to do on-site. The concept of hauliers sitting in their cabs waiting in queues is eliminated.

Portsmouth is convenient for much of the UK. The M275 goes to our door. The A3 goes direct to London and the M3 connects the Midlands. This location means the nightmare of circumnavigating London to get your freight where it needs to go using the M25 is gone. No more "road to hell".

The service will be Brexit ready. Our customs team is highly experienced, with years of dealing with documentation for non-European Union destinations. For example, half of all the bananas in the UK arrive at Portsmouth, coming from Africa, South America and the Caribbean.

Plus, we are an officially Authorised Economic Operator. This means we are approved by HM Revenue & Customs to handle customs paperwork and approve documents ourselves. This saves a lot of time for customers.

3.9m

tonnes of goods handled at the port last year

£389m

the port's contribution to the national economy, which supports 5,590 jobs

Our message to logistics professionals is to take another look at Portsmouth. With or without Brexit, we offer a real alternative.

At Portico, we manage the international cargo terminal at Portsmouth Port. We are friendly and approachable. It's much easier to get hold of who you want here directly. And we are expanding. Our latest £15-million expansion is just the latest in a long list of upgrades to keep us at the cutting edge.

By 2030, the port will be carbon neutral, which is important for companies that track their carbon footprint. New ships for western routes are being introduced by Brittany Ferries in the coming years, which are powered by liquefied natural gas, and we've already switched to a fleet of electric forklifts at Portico.

The new route itself is eco friendly. The journey to Antwerp cuts out an awful lot of road miles. For example, if a vessel takes 200 containers to Antwerp, that's 200 vehicle journeys off the road.

The service to Antwerp is something the supply chain industry is crying out for. It's fast, convenient, eco friendly and ideal for companies looking for an alternative. We are ready. If you are too, get in touch. We'd love to talk.

To learn more about the new Portsmouth to Antwerp route, please contact Ben Harraway and his team by calling 023 9289 0600 or by emailing commercial.enquiries@porticoshipping.com

PORTICO

CURRENT AND FUTURE TECHNOLOGIES USED TO MANAGE LAST-MILE ACTIVITIES

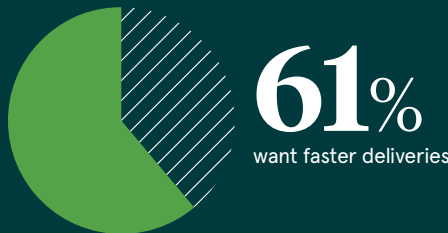
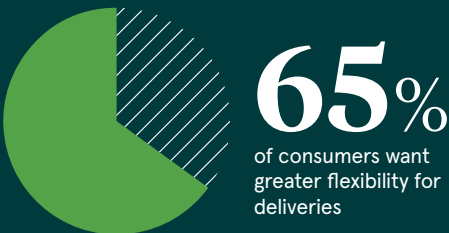
Survey of retail executives

- Use now
- Plan to adopt within 18 months
- No plans to adopt



FAST & FREE

Consumers are increasingly demanding free deliveries when it comes to online shopping. But when last-mile deliveries account for such a large portion of supply chain costs, retailers and logistics companies must innovate to be able to offer this service without sacrificing profits. So how can technology make the whole process more seamless, efficient and most importantly within budget?

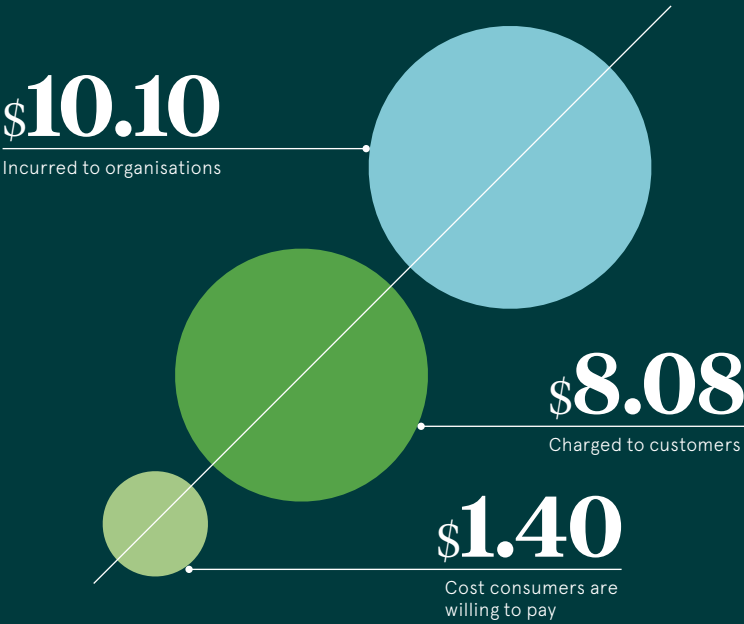


Retail TouchPoints/Oracle 2018

Retail TouchPoints/Oracle 2018

RETAILERS ABSORB A SIGNIFICANT PORTION OF LAST-MILE COSTS

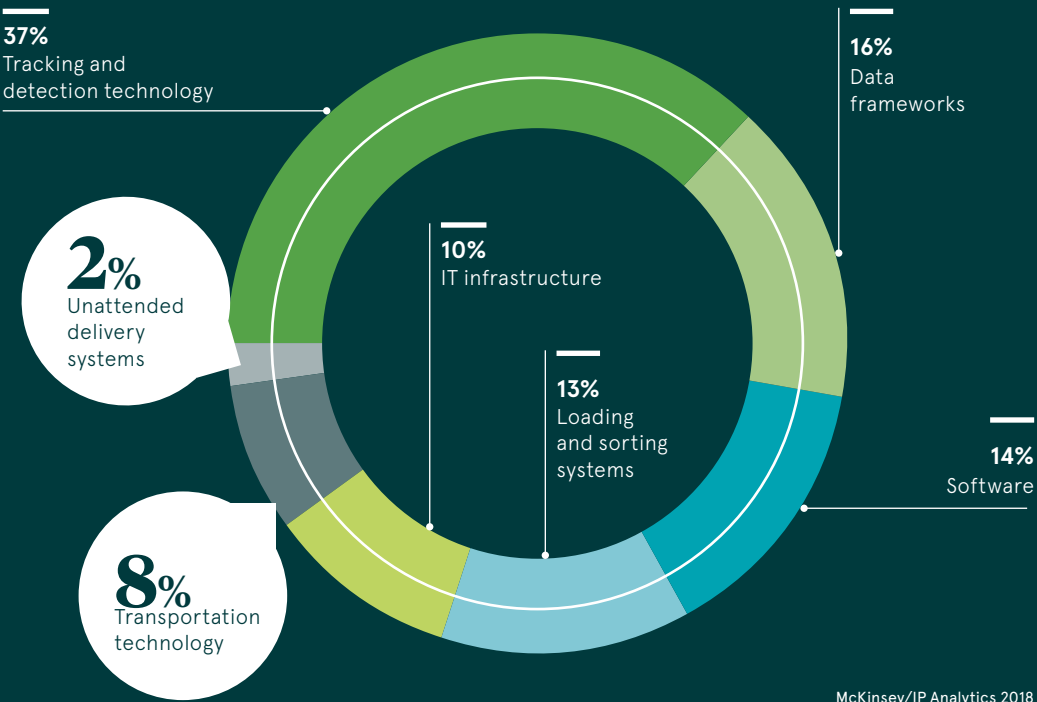
Average cost incurred to different parties in last-mile deliveries



Capgemini 2018

ARE LOGISTICS COMPANIES NEGLECTING LAST-MILE TECHNOLOGY?

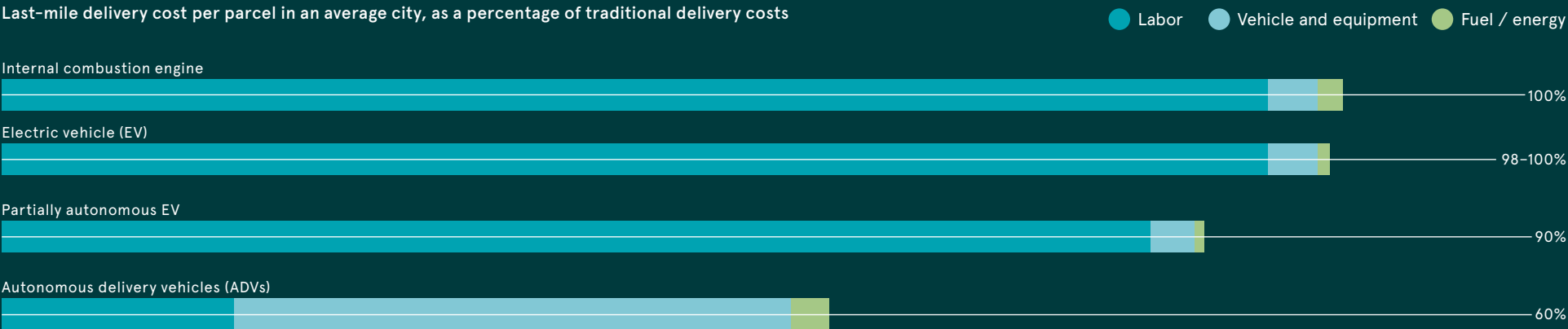
Analysis of patents filed by the 20 largest parcel companies after 2014



McKinsey/IP Analytics 2018

AUTONOMOUS TECH PROMISES MASSIVE COST SAVINGS

Last-mile delivery cost per parcel in an average city, as a percentage of traditional delivery costs

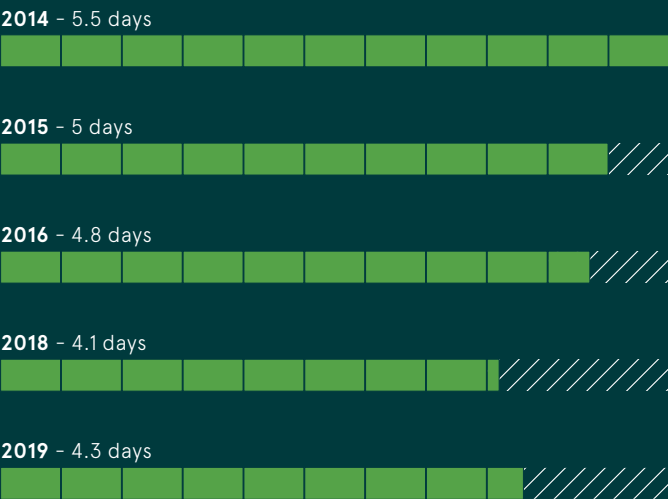


*Analysis assumes labour costs of €20 an hour, average city-network density, and energy consumption of 0.3kWh/km for electric vehicles and 12 l/km for internal-combustion-engine vehicles

McKinsey 2018

CONSUMERS ARE BECOMING LESS PATIENT

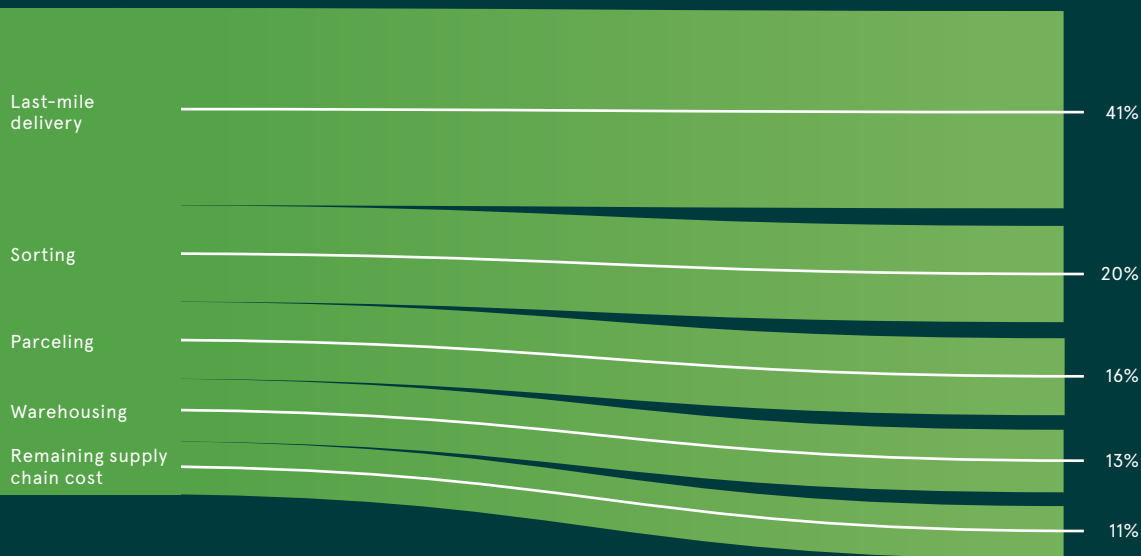
Maximum acceptable time consumers are willing to wait for free delivery; survey of consumers across the United States



Alix Partners 2019

LAST-MILE DELIVERY IS THE BIGGEST COST BY SOME WAY

Average cost breakdown of delivery supply chains



Capgemini 2018

Percentages do not equal 100 due to rounding



VISIBILITY

Map your supply chain from first tier to last

Companies have a woeful lack of visibility over their supply chains, despite the increasing availability of technology that can help

Tim Cooper

As globalisation increases, supply chains of large companies have proliferated and scattered across the globe. Many large firms now have up to 20 tiers contributing to their end products. This increases the risk that one weak link in the chain can disrupt supply with major consequences.

But research by Deloitte has shown that two in three procurement leaders have limited or no visibility beyond tier one of their supply chain and several other studies show similar results or worse.

According to the 2018 Business Continuity Institute (BCI) Supply Chain Resilience Report, 14 per cent of disruptions cost companies more than \$1 million. Lack of visibility into the supply chain also often impacts reputation, logistics and can cause costly over or understocking.

Visibility of sub-tiers brings opportunities too. For example, technology that tracks suppliers in real time can help retailers

supply products to customers more quickly, and improve their corporate and social responsibility credentials.

Jolyon Austin, partner at EY, says: "Visibility is no longer a nice to have, but a foundational capability to remain competitive. Visualisation and mapping help companies see new strategic opportunities and ways to improve performance in the supply chain."

Mr Austin says one reason for poor visibility is that knowledge about supply chain tiers often sits with individuals and is not institutionalised. But burgeoning pressures on service, cost and inventory, and the accelerating pace of operations, increase the need for companies to visualise supply chains at strategic, tactical and operational levels.

"This is enabled by increasingly capable technology," he says. "Blockchain [digital ledger technology] is hyped and will find its place. But we also see an increasing prevalence of so-called control towers [central hubs that provide a global view of the supply chain] in global freight, logistics and planning."

According to the BCI report, 52 per cent of reported supply chain disruptions were in tier one, 23 per cent in tier two, 11 per cent in tier three or lower, while an alarming 30 per cent of respondents did not identify the disruption source. This means that anything between 34 per cent and 64 per cent of disruptions could be in tier two or lower.

So far, the three main types of software that companies use to track supply chain incidents are spreadsheets, business continuity software and financial solvency models. But a plethora of new software solutions, including control towers and blockchain platforms,

“

Visibility is no longer a nice to have, but a foundational capability to remain competitive

are launching to help them map, visualise and track their supply chains across tiers globally.

These solutions enable companies to map their supply chains in more detail and foster relationships with

each tier. How many tiers they map depends on the risk at each level, but the technology means they can theoretically go all the way to tier 20 if necessary.

Companies that are more successful in this area combine this information with analytics solutions to profile suppliers in each tier, including resilience and areas of risk. They can address any areas of weakness by helping suppliers build resilience and/or diversifying supply sources.

Another solution, already in use with some major manufacturers, improves visibility by identifying risk events such as typhoons or

terrorist attacks every hour. It then classifies and geo-positions the event, superimposes it on their subscriber's global supply chain map and alerts them.

Another big challenge is companies have limited resources to achieve all this across large, complex chains, especially given that external risks are much harder to manage than internal ones.

Douglas Johnson-Poensgen, chief executive of Circular, a supply chain platform that uses blockchain to help manufacturers track components from mine to finished product, says: "The technology can reach every tier. The difficulty is engaging each tier with all the challenges of due diligence, audit and monitoring of suppliers."

"Most large organisations have close relationships with tier-one suppliers, but until recently a chain of custody from source, which could be tier six or seven, to consumption has been anathema."

"However, business conduct has become a mainstream issue. For example, car manufacturers want to demonstrate 100 per cent certainty over provenance of the cobalt in their batteries. Mapping technology can also do things like measure carbon intensity, which is essential for showing carbon neutrality."

Showing the blockchain data in a user-friendly dashboard enables users to spot supply chain anomalies quickly, adds Mr Johnson-Poensgen.

"Blockchain has found its niche in supply chains," he says. "It lends itself to a system that can exchange digital representations of commodities, in our case. Another example is tracking containers and linking that information to trade finance."

"[Systems like this] will become the way supply chains work. If you want a route to car manufacturers, you will have to play by those rules. It's relatively new technology, but manufacturers have been surprisingly engaged in the process. It bodes well." ●

DROPSHIPPING CAN ALLEVIATE MANY WAREHOUSING CHALLENGES

Biggest issues for warehouse/distribution centre professionals

● 2017 ● 2018

Inability to attract and retain a qualified hourly workforce

Insufficient space for inventory and/or operations

Outdated storage, picking or material-handling equipment

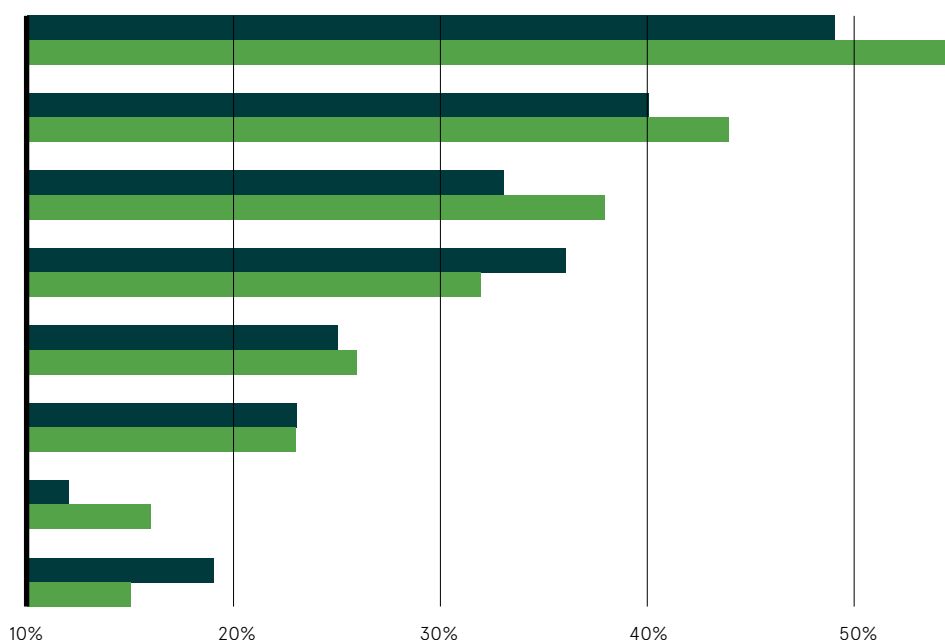
Inadequate information systems support

Inability to attract and retain qualified supervision

Obsolete layout

Lack of SKU weight and DIM information in system

Lack of higher management support



Peerless Research/Logistics Management 2019

Delivering a zero emission future

DPD sets out its Smart Urban Delivery Strategy

The Department for Transport launched its Road to Zero Strategy in July 2018 outlining how the government will support the transition to zero-emission road transport.

As the UK's number-one domestic parcels carrier, DPD entirely supports the objectives of the Road to Zero and has been embarking on its own journey to reduce carbon emissions for many years, against a backdrop of ever-growing demand for its services, as a result of the boom in online shopping.

Since 2012, the number of parcels DPD delivers each year has increased by 136 per cent. Its 13,000-strong team now delivers 250 million parcels a year for thousands of customers, including many of the UK's leading brands, such as ASOS, John Lewis and Nike.

In 2017, DPD launched its Smart Urban Delivery Strategy with the aim of becoming the UK's most responsible city centre delivery company. Today DPD has a fleet of 139 electric vehicles (EVs), set to increase to 500 in 2020, which will be the largest EV parcel fleet in the UK and close to 10 per cent of its total van fleet.

“Change isn't happening fast enough, so we must now start to tackle the barriers that are slowing the Road to Zero

The centre piece of the strategy will be a network of all-electric micro-depots in central London, the first of which opened last year in the heart of Westminster. The 5,000sqft micro-site acts as a satellite for DPD's London City depot in Southwark. Before the new site opened, 3.5-tonne diesel vehicles were travelling into central London every day from Southwark, averaging 614 miles.

The diesel vehicles have been replaced by two electric 7.5-tonne FUSO eCanter, running daily trunk routes between London City and the DPD Westminster depot where the parcels are then sorted on to final-mile electric vehicles. The result is a total saving of 45 tonnes of CO₂ a year and a 49 per cent reduction in the number of miles per parcel.

While the operation has won awards and been lauded as a future model for city centre logistics, DPD has been frank about the challenges it has faced. In October, DPD issued a white paper with an eight-point action plan calling on vehicle manufacturers, energy providers, national and local government to start working together to create an infrastructure that makes large-scale EV deployment feasible.

Three main challenges: Fleet deployment

While the number of ultra-low emission vehicles on UK roads is growing rapidly, there remains a significant issue around the availability of all-electric 3.5-tonne commercial vans, the workhorse of the parcel delivery sector. If the government's ambition for all new vans to be zero emission by 2040 is to be achieved, these vehicles must come to market sooner.

Manufacturers have focused much of their early, and therefore expensive, research and development on the larger European left-hand drive market, which means UK companies are struggling to get hold of the vehicles they need.

While historically the commercial vehicle market has been dominated by a small number of traditional manufacturers, the new technology inherent in EVs has meant there has been a recent shift towards startup companies developing small and micro-vehicles for final-mile delivery.

For example, DPD has partnered with Oxford-based manufacturer EAV to create a British-built e-cargo bike, the P1. The bio-mechanical hybrid electric-assisted pedal bikes have a range of 60 miles and with a 120kg payload can cover 100 parcel stops in a day and then be recharged using a normal 13amp, 240v plug socket.

Regulators often find it difficult to keep up with innovation and these new vehicle types challenge the norm.



As such they present issues for regulators and government agencies. The registration of the DPD Paxsters, innovative mini-EVs from Norway, was an incredibly arduous process. If the government is going to achieve its Road to Zero ambition, it must find a way to speed up the registration process of small-batch vehicles for use in the UK.

Working together

The Transport for London (TfL) Freight and Servicing Action Plan, launched in March, contains a number of high-level objectives and actions, but these require fleshing out and further detail to be added to understand how they can be delivered.

TfL now needs to engage with London boroughs that play a role in delivering the plan, in conjunction with localised transport and planning initiatives.

DPD's award winning, all-electric Westminster micro-depot

Warehouse and distribution space

All too often we see warehouse and distribution property being pushed out of city centres, affecting productivity and increasing van mileage. This is because longer stem mileage decreases the number of parcels a van and driver can deliver each day, therefore increasing the number of vans required.

Property prices continue to increase, vacancy rates remain low and residential housing demand continues to grow. This contributes to the erosion of warehousing stock and puts pressure on property developers' yields.

As the price of land increases, multilevel floor warehousing is becoming the only solution for industrial property developers to make feasible cases for redevelopment of city centre

locations. The planning process needs to consider these demands and smooth the planning process where possible for these complex sites.

Decarbonisation of transport fleets is challenging, both operationally and financially. It isn't just about switching to EVs, it is about designing totally different business models and processes. But it also about having the right infrastructure and environment in which to thrive.

There are a number of companies like DPD who have already made large financial commitments to purchase commercial electric vehicles and change the way they work to help reduce emissions and congestion for the benefit of society. But change isn't happening fast enough, so we must now start to tackle the barriers that are slowing the Road to Zero.

DPD's eight calls to action

National government

1 There needs to be a cohesive industry discussion with the Department for Transport to establish appropriate regulation and best-practice guidance to ensure the safe and responsible operation of e-cargo bikes.

2 The government needs to streamline and remove bureaucracy from the registration process of alternative fuel, new-to-market vehicles to improve fleet uptake.

3 OLEV (Office for Low Emission Vehicles) should open up the plug-in grant schemes to a wider range of vehicles.

4 Policymakers must ensure policy reflects the current technology available and does not regulate in a way that is undeliverable because of the speed of manufacturer vehicle development.

Local government

5 Local authorities, London boroughs, Transport for London and other key stakeholders should engage final-mile operators to help establish micro-depots.

6 Policymakers must make clean air, ultra-low emission vehicle and zero-emission zone standards consistent and not create local policies that create uncertainty and unnecessary challenges for operators.

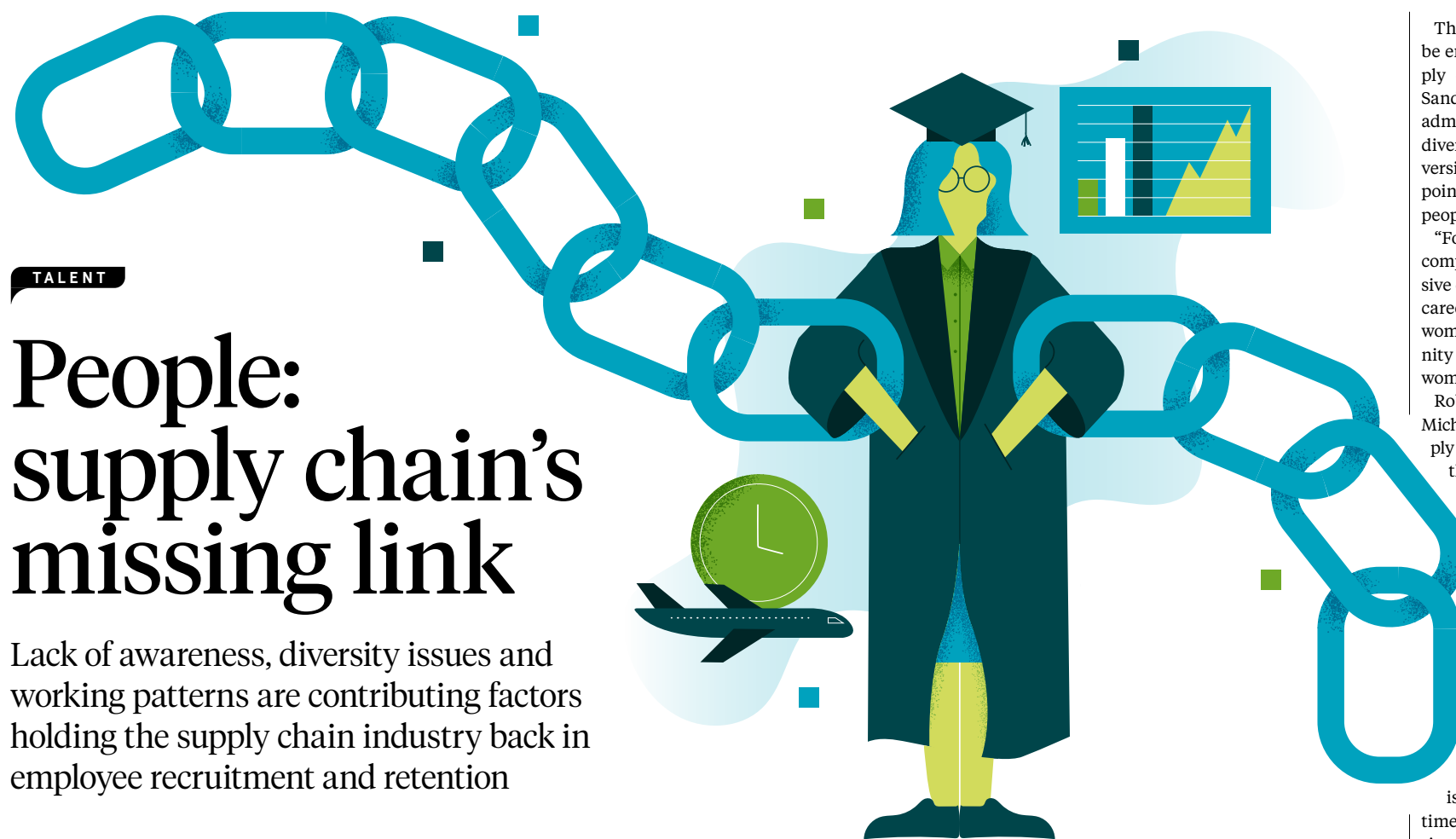
Manufacturers

7 Manufacturers need to increase the supply of economically viable right-hand drive 3.5-tonne electric vehicles to the UK market.

8 Vehicle-makers must continue to support innovations that will help enable the government's Road to Zero vision.

For more information please visit www.dpd.co.uk





TALENT

People: supply chain's missing link

Lack of awareness, diversity issues and working patterns are contributing factors holding the supply chain industry back in employee recruitment and retention

Nick Martindale

One of the biggest issues facing the supply chain sector, which threatens innovation, is lack of talent. According to recruitment firm Michael Page, the number of adverts targeting procurement and supply chain professionals is 219 per cent higher than the UK average, but these roles attract far fewer candidates.

Supply chain talent shortage is being compounded by an ageing workforce. A UK Commission for Employment and Skills study found just 9 per cent of those working in supply chain and logistics are aged 25

or under, while 45 per cent are over 45.

Brexit is also likely to have an impact, says Lewis Richards, director of WR Logistics, both by reducing the supply of European Union professionals in the sector and increasing demand for workers. "Our own company data has shown a 183 per cent rise in demand year on year," he says.

It's no surprise then that a separate study by law firm Weightmans found 25 per cent of managers in supply chain, shipping, receiving and transportation roles, across multiple sectors, highlight the supply chain talent shortage as a key future issue.

There are a number of reasons behind the supply chain talent shortage, but a recurring concern is lack of awareness of the profession among younger people.

"School curriculums do not include anything around the supply chain at either GCSE level or A level," says John Perry, managing director of supply chain and logistics consultancy SCALA. "The result of this is few school-leavers have ambitions to become supply chain professionals and only a limited number will move on to college or university to study the subject."

Lindsay Bridges, senior vice president of human resources, UK and Ireland, at DHL Supply Chain, concedes that the sector has an image problem. "There is a perception that supply chain is just packing in warehouses," she says.

"But there are so many more aspects to supply chain management than that. We employ light-vehicle maintenance technicians, HR and finance specialists, engineers and we have recently taken on our first robotics apprentice. The industry is changing and it's creating new and varied opportunities."

But Andrew Forrest, principal

associate at law firm Weightmans, believes more needs to be done to sell the sector to younger workers. "Working in a stimulating, fast-paced environment and being involved in every phase of a product's life cycle, from acquisition to distribution, allocation to delivery, can be marketed as an attractive environment to form a launchpad into the industry," says Mr Forrest.

Employers also need to engage early with young people through either apprenticeships or graduate recruitment programmes, he adds, to help them land the best talent.

Organisations need to do more to attract staff on a personal level, says Beth Morgan, founder and chief executive of boom!, a global community which aims to help women into the supply chain industry, arguing businesses need to go beyond offering a good salary and benefits to stress the potential for a dynamic career path.

"Companies that can offer flexible working conditions are also more likely to appeal to younger generations turned off by the more traditional nine to five, especially men and women with young families," she adds.

There are other groups that can be engaged to help address the supply chain talent shortage. Gudrun Sander, adjunct professor of business administration, with an emphasis on diversity management, at the University of St. Gallen in Switzerland, points out that the vast majority of people working in logistics are men.

"For the more qualified logistic jobs, companies should work on an inclusive culture, equal opportunities and career development programmes for women to use the window of opportunity to fill the pipeline with qualified women for future positions," he says.

Rob Bales, operating director at Michael Page Procurement and Supply Chain, highlights other groups that can be overlooked. "Returning mothers have traditionally been a group of professionals that many businesses lose and are never able to bring back into their teams, meaning that they will miss out on a wealth of experience," says Mr Bales. "These professionals represent a huge opportunity to access untapped talent."

Similarly, those returning from career breaks, perhaps as a result of mental health issues or simply wanting to take time out, can offer firms highly experienced professionals who can return to work reinvigorated.

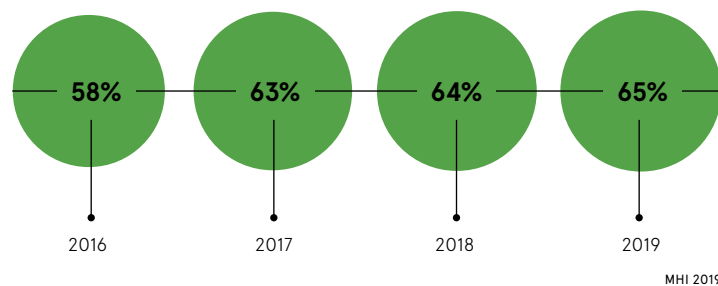
The situation is being compounded by the need for new skills in areas such as artificial intelligence (AI), automation and digital. "With technology now capable of analysing what has happened and advising on how to react in response, the most important thing for a business is putting supply chain managers in place who are able to analyse and understand the exponential datapoints that are now available," says Wayne Snyder, head of retail strategy at JDA.

But this, and other emerging areas, can also be useful in attracting people to the sector, which can help overcome the supply chain talent shortage, says Claire Hickling, head of HR at Advanced Supply Chain Group. "Topics such as sustainability, Britain's EU membership and trading agreements, social media, technology like 5G, the internet of things and AI are all covered by supply chain management and require people with talent in these areas," she says.

"Supply chains are about much more than just moving items from A to B and we need to tell this to the talent of today and tomorrow. This will help overcome common perceptions that working in the sector isn't interesting or rewarding and attract future generations of talent." ●

THE TALENT CRUNCH HAS INCREASED

Percentage of supply chain professionals who view hiring skilled workers as a top challenge



MHI 2019

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OPINION

‘Be swift of foot, constantly question and challenge the way things have always been done’

With so many challenges and uncertainties facing business right now, innovation can often become the poor relative, lacking attention and flung to the bottom of the pile. These days it seems there is never a quiet time to pause and reflect, to find space to understand the bigger picture.

But companies risk falling behind their competitors if they don't, so this wider view should always be switched on, embedded in the day to day, because this is where true innovation comes from.

According to the recent global survey *Elevating Supply Chain Digital Consciousness*, by US supply chain trade association MHI and Deloitte, a digital mindset is on the rise and 95 per cent of companies surveyed said they are upping their digital investment.

These changes are taking on a force of their own as transformation feels faster, more dynamic and more impactful. Blockchain and artificial intelligence, for example, are no longer the future, but are technologies that are being implemented, right here, right now and are fast becoming the norm.

Innovation is not just about new, shiny technology, however; it's much more than that. In our *2019 CIPS/Hays Procurement Salary Guide and Insights* report, relationship management was one of the key skills identified as being important when hiring senior employees. These highly experienced professionals have the ability to develop sophisticated networks, source new ideas and, of course, advance innovative solutions to business problems.

Add collaboration to the mix and businesses cannot be run efficiently without cross-departmental working, gaining the perspectives of key decision-makers, and without external collaboration whether with key advisers or suppliers. Having closer relationships with suppliers can be powerful and motivating, whether a supplier is bigger than your company or is just starting out.

In the hustle and bustle of a working day, it is not always

TOP PROCUREMENT SKILLS IN DEMAND

Survey of employers looking for senior professional-level roles within procurement and supply chains, such as procurement managers, purchasing managers and heads of logistics



CIPS/Hays 2019

easy to see things from a different stance, but your suppliers can often zone into new ways of working, so regular, open and transparent meetings are valuable. You need to enable your suppliers to bring forward the best innovations with a focus on achieving the outcome you are seeking, and avoiding the traditional rigid approach of specifying the inputs, and how you will achieve these.

Agile small and medium-sized enterprises (SMEs) are one thing, but having an agile mindset in business means innovative solutions can be brought to the table, agreed and implemented more quickly, without committees and reams of process to get through first. Agility offers a competitive advantage in the marketplace and, as the general speed of business gathers pace, companies need to keep up.

Being innovative also means challenging the status quo and to keep challenging it. If your business only deals with larger suppliers, because they are perceived to have the appropriate access to resources and large-scale operations, look again.

There are many ways of bringing SMEs into the fold and creativity to the table. Open innovation platforms or contract-finder websites have enabled SMEs to not only bid for work, but contribute more effectively to these creative discussions. Look for supplier

diversity guides, such as the collaborative work CIPS completed with MSDUK, to demonstrate how supply chains can be transformed by inclusive approaches and increased diversity.

The *State of Innovation* report from Unilever Foundry predicted that within a few years a significant number of large corporations will be collaborating with SMEs on a regular basis. This signals a big shift in business thinking and offers a blueprint for the future of commerce we must take notice of.

The key to innovation is to be swift of foot, constantly question and challenge the way things have always been done. Only then will businesses unlock the value of agility and innovation in their supply chains, encouraging growth and success. ●



Malcolm Harrison

Chief executive
Chartered Institute of
Procurement and Supply (CIPS)

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