

MEGATRENDS

LOGISTICS

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**LOGISTICS
REAL ESTATE:
AT THE HEART
OF MODERN LIFE**



Will regulators allow commercial use of drones in urban environments?

How will trends in modern life and technology impact logistics real estate?

2007: The year Apple launched the iPhone and ushered in the age of the smartphone along with 10 years of technological growth and change that has impacted all walks of life. In many respects a perfect storm was created as the millennial generation reached adulthood, high-speed data networks proliferated across the globe, active social media users increased drastically, and the rate of urbanisation continued at a pace. Indeed, by 2050, 66% of the global population will live in urban environments, up from 54% today. This will mean another 2.5 billion people globally residing in cities.

Combined, these factors have created the conditions for disruption in many sectors and markets across the world. Brands like Amazon, Uber, Deliveroo, Wayfair, ASOS, Zalando, Ocado, Spotify, Netflix and AO.com are creating new markets, increasing their sales and market share whilst “traditional” brands are playing catch-up. Service and choice are the key factors in this new world, a world which logistics real estate facilitates in many different ways.

The supply chains of today are the result of what has been done in the past; tomorrow’s supply chain will be the result of what we’re doing today.

In our fourth issue of Megatrends in European Real Estate we examine how trends in the retail and service sector, demographics, technology and regulation are all conspiring to ensure that in the short to medium term the outlook for logistics real estate is bright.

Technology will change supply chain

But will regulators allow changes to occur as quickly as industry wants?

Since the age of containerisation, global supply chains have revolved around production in China, shipping to Europe and America, an onward movement to national distribution centres, then onto retailers distribution centres and on to the consumer, either via a store or another means of delivery.

This labour intensive process has huge potential to be disrupted by advances in technology, particularly in the last mile and also in the location of traditional national, and regional distribution centres. By way of context, in 2014 the most common form of employment in 28 US states was driving a truck of some description.

In 2016, almost 6% of Amazon’s costs were related to shipping, accounting

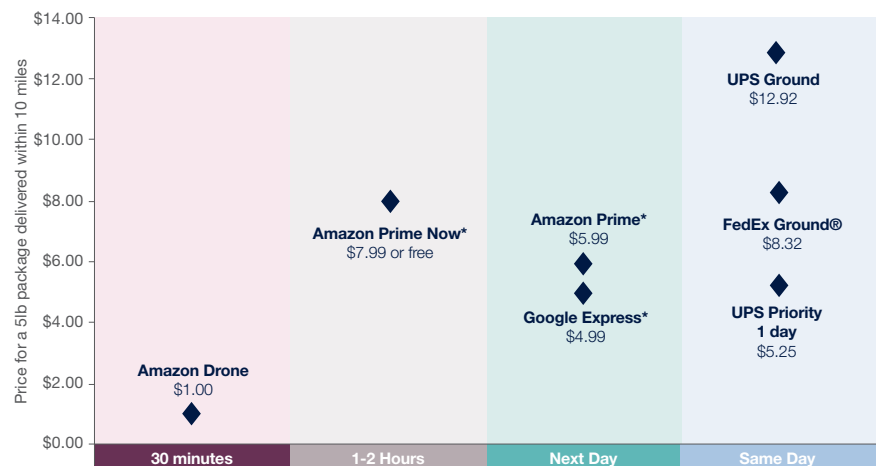
for \$16.2bn, and whilst figures are unavailable, a large proportion of this cost will be for labour.

Already retailers are tackling this in innovative ways. Amazon Flex, launched in the UK and the US, allows anyone to act as a Amazon delivery driver. According to the company “All you need is a vehicle, an Android phone, and some free time”.

In a similar fashion, UberRUSH (The Uber platform for making courier deliveries) allows for Uber drivers to make deliveries and collections on behalf of businesses and consumers alike.

Given the density of Uber vehicles in many urban locations, this will prove to be a source of great disruption to established players in the express parcel market.

FIG 1: Amazon Drones vs Current Delivery Options – Costs to the consumer



Source: ARK
 *Prices given are for members with a subscription. An Amazon Prime subscription is \$99 per year and Google Express is \$95 per year. One-hour delivery is \$8.99 and two-hour delivery is free.



Whilst this has the potential to cause disruption in employment markets in the short to medium term, the tipping point will come when technology and regulation allow for autonomous vehicles to operate, whether airborne in the form of drones or on land in the form of driverless vehicles and trucks.

Already trials have taken place in America and Europe where articulated lorries have completed journeys autonomously. These have either taken the form of a single vehicle driving autonomously on a highway with a driver taking over for “the last mile” or have been for vehicle platooning. The latter involves a fleet of vehicles driving in convoy where the speed and direction are controlled by the lead vehicle.

Initially the benefits are pitched at reducing emissions and improving safety, however, over time the benefits to the logistics industry will be huge in terms of labour and time savings. Lorries will be able to move more products using less drivers, who in turn will be unconstrained by drivers’ hours working restrictions.

In time, this may mean retailers and manufacturers shift the location of their distribution hubs to take advantage of cheaper labour, land, or to benefit from cheaper local taxes or other regionalised incentives.

Longer term technology has the potential to impact the last mile in a variety of ways. In 2016 Amazon spent \$14.2bn on R&D, making it only second to Volkswagen in R&D spend. Whilst there are no figures available, a proportion of this spend will be aimed at its much publicised Prime Air concept, which aims to deliver products by drone.

“ If we can get you a car in five minutes, we can get you anything in five minutes ”

**Travis Kalanick,
Uber Founder and CEO**

Currently, the economics of drone delivery do not stack up when compared to traditional delivery operations. However, the retail world is becoming accustomed to same-day delivery of small items, indeed Amazon have stated that 86% of their deliveries weigh less than 5lb, meaning they could be carried by drone. Analysis from ARK suggests that drone deliveries could be made for \$1 and still be profitable.

Further advancements in autonomous delivery robots aim to tackle the problem of last mile delivery in another way, by deploying technology to make deliveries from a local consolidation centre to the home. Again, the economics of removing human labour make for a compelling economic case.

All of these solutions require authorities to legislate and regulate the market, with research from Morgan Stanley suggesting by 2030 all regulatory and technological hurdles will have been surpassed. However, the possibility exists that concerns about safety, and also protection of existing industries, will override any other perceived benefits.

In the shorter term, the evolution of battery technology and the proliferation of electric vehicles will mean night time

delivery restrictions, currently in place due to noise, will be lifted.

Key to the evolution of this sector is sophisticated data analysis. “Big Data” will allow companies to know more and more about how we live, work, shop, eat and enjoy ourselves. This will in turn lead to the evolution of “anticipatory logistics”, where retailers and manufacturers can predict what we want before we want it and move products closer to the end user in anticipation.

Lastly, we may be entering an era that sees more barriers to trade in the form of tariffs or border checks. This will not only increase transit times for manufacturing, retail and food supply chains but also add further nodes into those supply chains which will require real estate. ■



86% - Amount of Amazon deliveries that weigh less than 5lb. Meaning drone deliver is technically possible.



75% - Amount of European freight currently delivered by road.

Logistics winners will be retail winners

As greater emphasis is placed on choice and speed of service, new growth areas will emerge

Given the column inches afforded to the real estate implications of online retail over recent years, you could conclude that the retail sector as we know it has been decimated, warehouses and data centres have been constructed all over Europe, consumers never visit the high street and autonomous delivery robots are about to replace workers across European supply chains.

However, according to E-Commerce Europe, just 8% of all European retail was conducted online in 2016. This is therefore reassuring, but also presents an area of huge disruption if the proportion of online retail increases to anywhere near the 25% of total retail in Europe as forecast by some commentators.

Choice, availability, speed of delivery and the ability to have products delivered to the home, office, click-and-collect point, delivery locker or even the boot of your car, as recently trialled by DHL in Germany, are the new battle grounds for retailers. In choice alone Amazon leads the way, as

of December 2016, they sold 405 million separate products compared to Walmart, for example, which sells 16.2 million products. Whilst many of the products Amazon sell are by third parties using their platform, there is a clear correlation to the amount of warehouse space required to store the product.

In order to offer choice, availability, speed and flexibility in delivery, many extra nodes in the supply chain are required. Indeed, 2015 research from Prologis demonstrated that for every additional €1 billion spent online, an additional 72,000 sq m of warehouse space is required.

This in turns creates the need that some form of real estate is required to store and then distribute products. Traditional retailers, with historic retail footprints, are aiming to funnel their customers to purchase online and then collect in store, thereby making use of existing infrastructure and the hope to gain more store sales. Pure play retailers, as greater emphasis is placed on choice and speed

of service, new growth areas will emerge, however, do not have this legacy issue and are designing their networks around cheaper industrial and logistics real estate and locating near population centres.

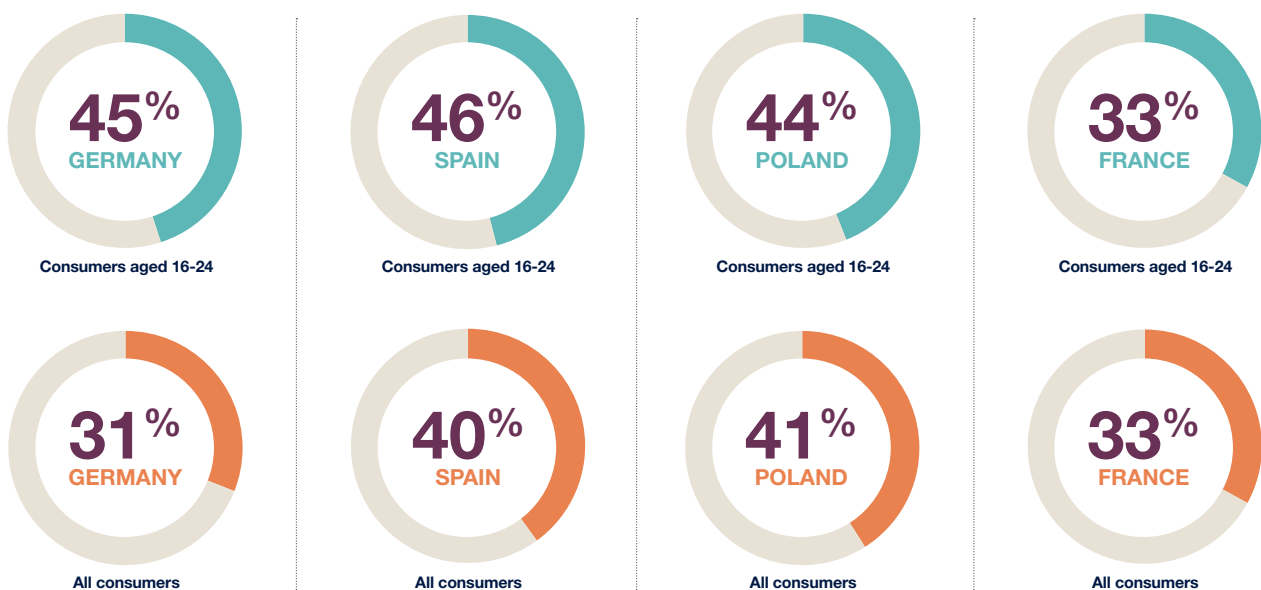
Within Europe, the UK leads in terms of online retail penetration, currently standing at 19%, however, many other markets are catching up and the lessons learned in the UK will soon start to apply to other European markets.

For example, studies carried out across Europe demonstrate differing current attitudes to delivery speed. Research from Twenga, an online marketing company, suggests that one in four Spanish online customers are prepared to wait four to six days for their online purchases, whereas a separate study from strategy consultants OC & C suggests that in the UK, 60% of abandoned online orders are due to delivery issues and that same-day delivery is becoming a new normal.

Traditional retailers are starting to address this in a variety of ways, but one trend has emerged that we anticipate will spread across Europe with increased M&A activity. In the UK, grocery retailer Sainsbury's has merged with mass market retailer Argos, and Tesco has purchased cash and carry operator Booker. The purchase of Argos gives Sainsbury's an additional 700 stores, or delivery staging posts, and the purchase of Booker gives Tesco customers access to 8000 additional click and collect points.

The "Amazonification" of other retail verticals will start to take place across Europe as millennials grow older and

FIG 2: Frequency of online grocery shopping in Europe: Share of consumers who have shopped online for groceries in the six months to May 2016



Source: Mintel

Base: 1002 German, 1001 Spanish, 1000 Polish and 1000 French internet users aged 16+

expect service and choice levels to apply in other parts of their life.

Nowhere will this be felt more keenly than in the grocery sector. The UK leads the way with 4.4% of the total grocery market being online, compared to just 0.8% in Germany.

Across Europe, almost half of the population aged between 16 and 24 had purchased groceries online within the last six months according to a recent survey, and whilst responses vary across Europe, avoiding stress and saving time are the key drivers for doing so.

Further areas of growth will come at different ends of the e-commerce scale; notably cross border e-commerce and localised delivery networks.

With currency fluctuations and regionalised stock availability issues, savvy customers will choose to purchase from a trusted retailer in another country when premium and cost effective delivery options are available. DHL estimate the size of the cross border e-commerce market to be \$300m and growing by 25% a year. Other growth markets will be where e-commerce retail start-ups are concentrated, as shown by the amount of venture capital raised by country in Figure 3.

Innovative local authorities across Europe, keen to stimulate local high streets, have staged interventions in local markets which could, if successful, impact local real estate markets, see case studies. Each of these have potential to impact logistics real estate in different ways.

Lastly, an increasingly ageing population will start to demand the same delivery services they have become used to in earlier life. "Grey power logistics" will entail the delivery of medicines and other services, as by 2050 a third of European populations will be aged above 60. ■

“It's impossible to imagine a future 10 years from now where a customer comes up and says, 'Jeff, I love Amazon; I just wish the prices were a little higher,' or, 'I love Amazon; I just wish you'd deliver a little more slowly.' Impossible.”

Jeff Bezos,
Amazon Founder and CEO.

CASE
STUDY
2

THE EBAY MÖNCHENGLADBACH PROJECT

In this pilot study between eBay and the Business Development corporation of Mönchengladbach, local store owners were able to offer their range of products for distribution via the eBay platform. Products could either be collected at store or delivered to a specific location.

Initial results suggested that 65,000 items were sold and shipped to 79 separate countries delivering an additional €90,000 revenue to the participating merchant.

Should schemes like this become more common place, it would suggest parcel delivery companies would be the net beneficiaries, requiring further warehouse space.

CASE
STUDY
1

WALTHAM FOREST CARGO BIKES

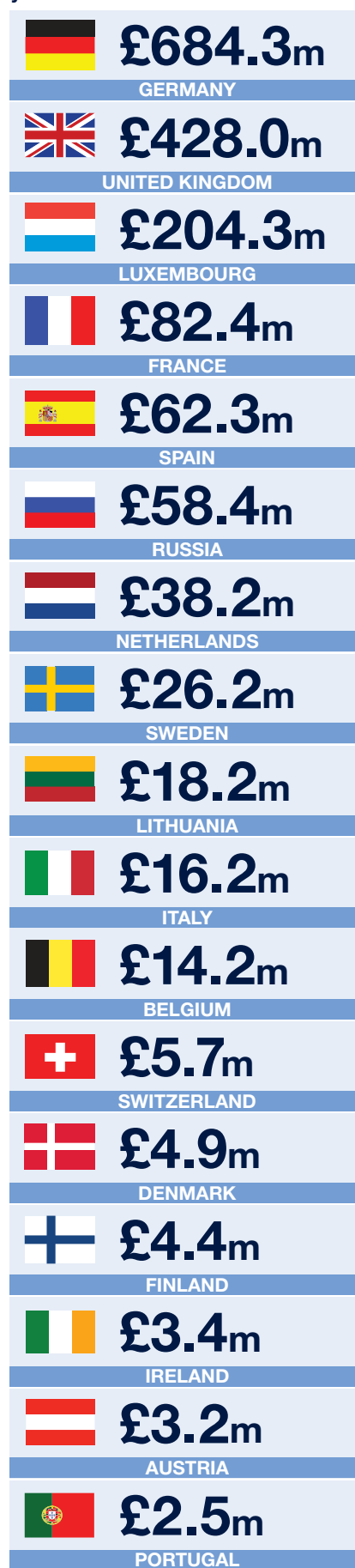
The London Borough of Waltham Forest launched the world's first local authority run cargo bike delivery service in time for Christmas 2016.

Local retailers signed up to the service, which then allowed purchases to be delivered to local residents for free, the purchases could be made in store or online. In the first three days of the scheme, 300 deliveries were made from 19 separate businesses.

Whilst the key driver of this scheme is to reduce emissions in the locality, the service plays into the convenience offered by other mainstream online retailers.

Does this Deliveroo style model reduce the need for urban warehouse space in the medium to long term? Or will a local consolidation centre model emerge, similar to the Roo-box style kitchens that are starting to emerge?

FIG 3: Average venture capital raised for e-commerce companies by country per year 2014 – 2016



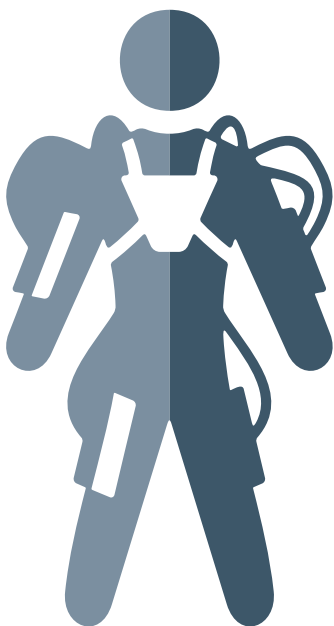
Source: Company data, Savills Research

The rise of the robots...

Technology is also set to have a massive impact inside the warehouse, as well as out

“ Research shows 76 companies that implemented industrial or factory/warehouse robots actually increased the number of employees by 294,000 over the last 3 years ”

Colin Lewis,
RobotEnomics



Whilst technology will impact the supply chain outside the warehouse it also has huge potential to impact what happens inside the warehouse as robotics, machinery and connectivity change work processes and increase efficiencies. The International Federation of Robotics states that the supply of industrial robots will reach 400,000 units by 2018 and grow by a rate of 15% a year. If this rate of growth were to continue then the global supply of robots would have increased fivefold.

Whilst the use of robotics in manufacturing processes is common place, mainstream use within the warehouse has not yet proliferated. Yet again Amazon is at the bleeding edge of deployment having purchased Kiva robotics in 2012, with estimates that there are now 45,000 being utilised within Amazon's fulfilment centres.

Research from the DHL Innovation Centre foresees robots working in all aspects of the supply chain from national distribution centres to mail sortation centres and local last mile delivery hubs. Key to their deployment will be decreases in investment required as production increases across the world.

The technology isn't limited to stand alone robots however. Wearable technology will become commonplace in the next 15 years and will complement the existing human workforce. This technology will take a number of forms such as smart glasses, which can display information

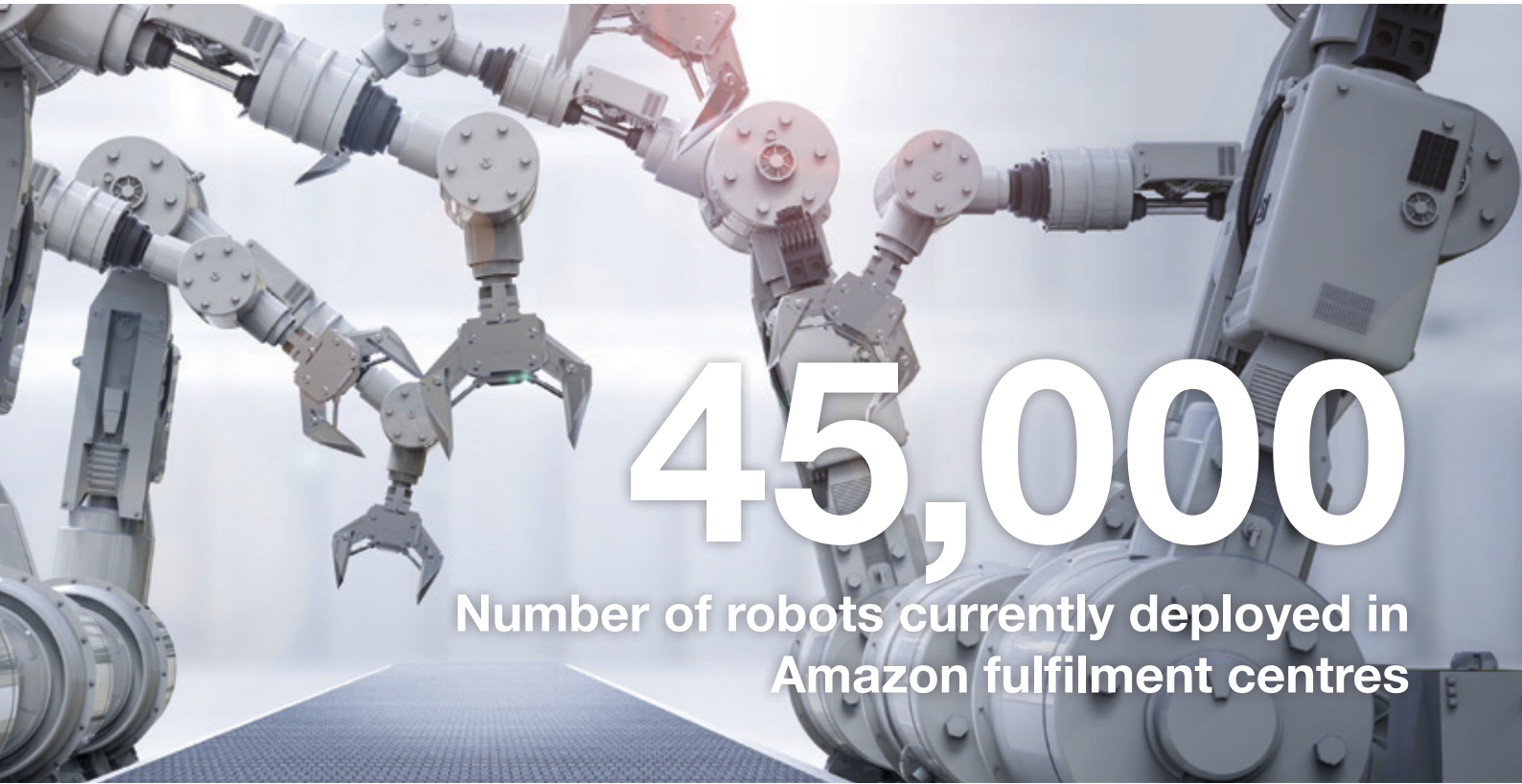
to the user or robotic exoskeletons that assist the user in manual tasks.

Whilst smart glasses remain niche, for the consumer their capabilities will be put to good use within a supply chain. A recent pilot study by DHL saw productivity increase by 25% in a picking environment and the error rate reduced to zero.

Wearable technology on the wrist, similar to current smart watches and fitness trackers will become common place within the supply chain as companies aim to improve efficiencies but also improve wellbeing of staff. Data from wearable technology will reduce the distances warehouse workers travel as the methods of navigation through a warehouse improve.

In turn, this will have implications for how warehouses are laid out internally. Increased racking automation will create a need for taller warehouse units as occupiers utilise the cube more efficiently. However, as many new build warehouses are on edge or urban areas local planners will be mindful of increasing building heights as not to damage countryside views. Therefore, innovative solutions will have to be created such as racking solutions, which store product under ground and retrieve it when required.

All of this is made possible by the increased use of wireless data transmission and the connectivity of devices. The Internet of Things will see 50 billion previously idle devices connected to the internet by 2020.



45,000

Number of robots currently deployed in Amazon fulfilment centres

Whilst in the home environment this will improve users quality of life, by allowing us to control temperature or lighting, it is in the supply chain that the implications will be drastic.

The clearest implication in the supply chain will be in stock visibility. Devices, sensors and radio-frequency identification (RFID) tags can enable logisticians to

know the exact location and progress of any product at any time. Stock visibility will therefore become the next battle ground for retailers to make savings.

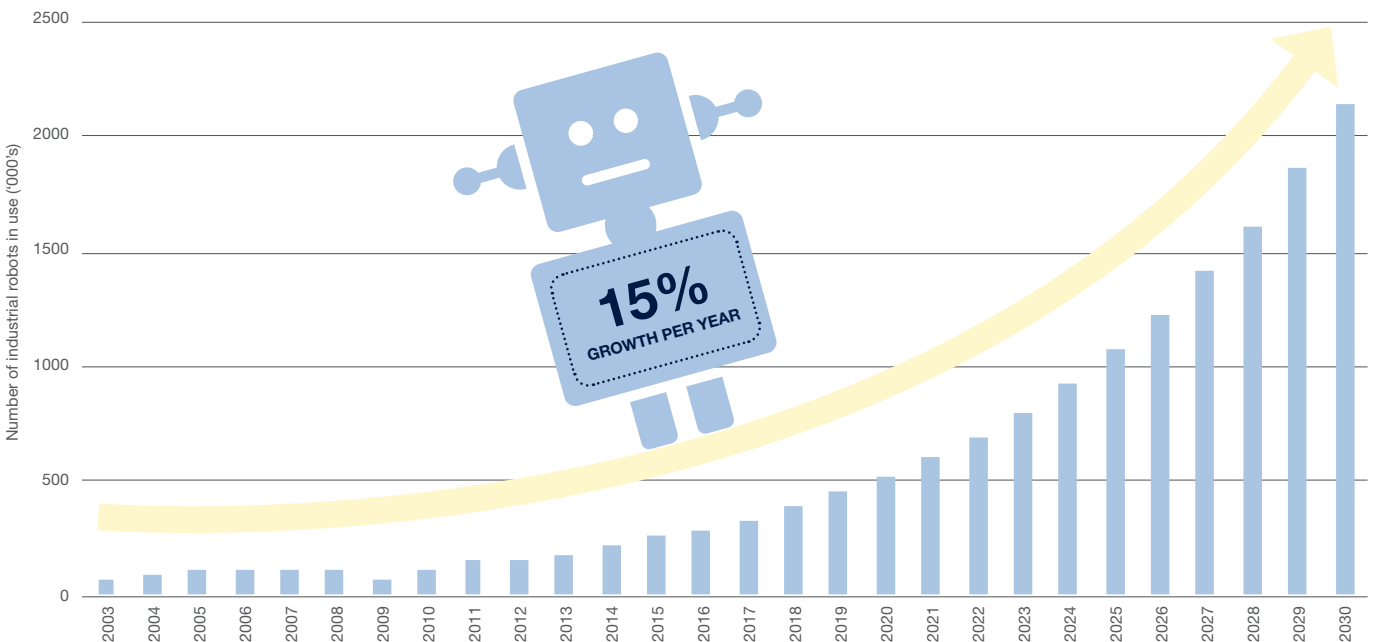
Why service a click and collect order from a central warehouse if there is a sufficient stock pool already in store?

This will also become a key aspect of the

last mile as in transit visibility becomes another area of competition for retailers. If products are labelled with a RFID chip the data associated can be combined with other data such as location, traffic conditions and other information, which can then be queried by the end user.

This technology will blur further the lines between retail and logistics. ■

FIG 4: Industrial Robot Supply



Source: International Federation of Robotics & Savills Research estimates

MEGATRENDS

in logistics

How will structural changes in retail and technology impact warehouse property requirements and investor decisions?

The impact of technology combined with changing consumer habits means that increasing amounts of warehouse space is required across the continent. However, different retail business models, legacy supply chains, differing approaches to technology and penetration of online retail by country means that there is no “one size fits all” model that can be applied to warehouse design or location.

The three pillars of modern retail; choice, availability and speed of delivery will mean that more storage space will be required close to population centres. In the medium term, this will mean more warehouse space in the way that we currently understand the asset class. However, in urban environments a balance will have to be struck by developers, local authorities and residents. Increased political will to build more residential units will have to be tempered by the realisation that increased populations need a supply chain, which

in turn will require increased logistics real estate. We expect to see more and more examples of logistics led mixed-use in urban environments.

Technology, however, will impact in a number of ways. Increased stock visibility will mean that orders could be serviced from an existing retail footprint, but the rents associated with retail real estate will mean that huge stock levels must still be sorted in a warehouse.

Countries where e-commerce is set to rise dramatically, combined with an urbanised population, will see the greatest potential for change. However, countries in Eastern Europe such as Poland, Hungary and the Czech Republic, where labour is cheaper and land is in greater supply could be the net beneficiaries should the supply chain centre of gravity shift east, driven in the most part by the increase in autonomous vehicles and truck platooning. ■

▼ Autonomous truck convoy – could this technology see European supply chain hotspots shift east?



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