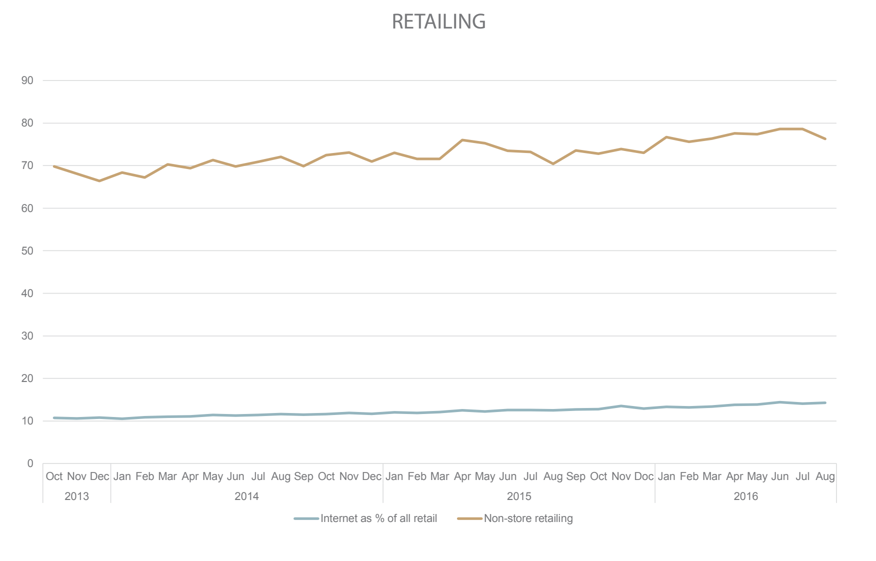
EXECUTIVE SUMMARY

The e-commerce revolution

Everything on demand

E-commerce has changed our world. We can sit in our armchairs and buy furniture, order our groceries or purchase a gift from the other side of the world and have them all delivered to our doorsteps in a matter of hours (or days in the case of the exotic gift). To allow this to happen, the logistics world - the warehouses that exist to store and process our orders and the network of transport, delivery or collection points that exist to get them to us - has seen dramatic and rapid changes.



E-commerce has seen a steady increase in uptake in recent years, increasing by just over 1 percent as a proportion of all retail each year since 2013. DATA: ONS

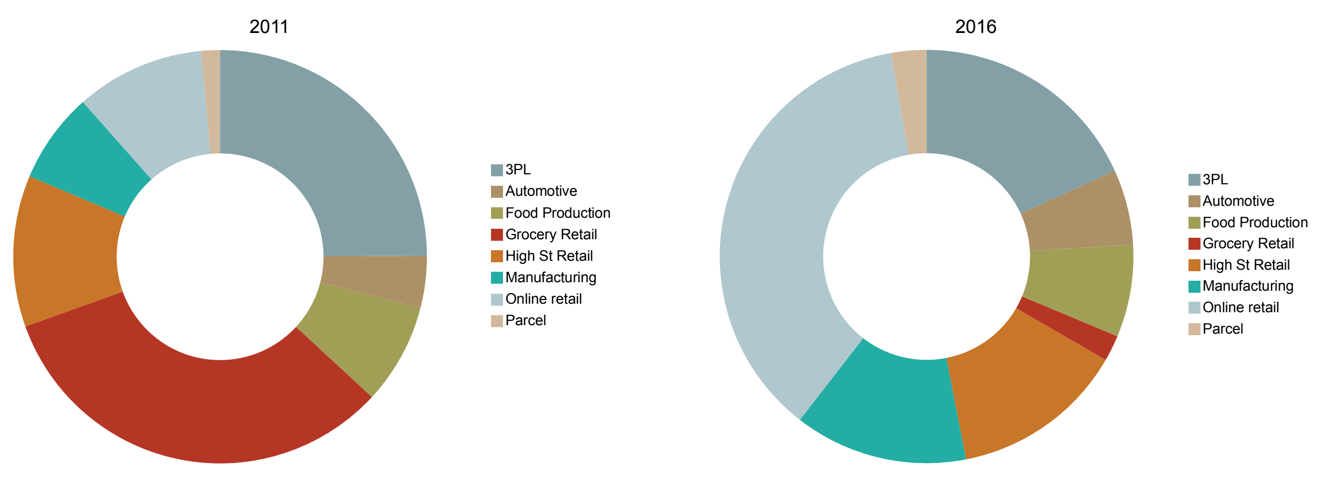
This report examines the scale of those changes and the implications for consumers, logistics providers and the investors who build and own the warehouses that allow the growing internet retail sector to fulfil its customers' increasingly immediate needs. We also look to the future, and the technology and developments that will shape the retail and logistics sectors over the coming years.

Challenge for retailers

The UK has become a crucible for the fast-growing trend towards instant delivery. Living in a small, dense nation, with an online retail penetration rate far higher than in other European countries, helped along by widespread Smartphone, 4G and Wi-Fi access, British consumers are more likely to be online and within easy reach for delivery.

As of August 2016, according to the Office of National Statistics, online sales constituted 14.3 percent of UK retail, and are projected by the Centre for Retail Research's Retail Futures 2018 report to grow to a 21.5 percent share of retail sales by the end of the decade. That is good news for retailers with an online capability, but it will continue to place competitive pressure on the nation's high streets, shopping centres and retail parks.

There is increasing competition between online retailers, with the likes of Amazon and Argos emphasising the speed of their delivery to win custom. This speed comes with considerable extra cost for additional warehousing and delivery fleets (as we will see below) which is a cost that only the biggest companies can absorb.



The data on the share of space leased by occupier type shows the pronounced shift towards online retail over the last five years. DATA: Savills

Opportunity for shed providers

The growth in internet shopping has benefited those property companies and institutional investors that develop and own warehouses and logistics centres. More facilities are needed in easily accessible locations and differing sizes - from big box floorspace measured in football pitches, to small local delivery centres for the last mile of the journey. For the biggest retailers, their demands for their big boxes are precise. They want advanced 'four-dimensional' automation that can pre-pack complex online deliveries in the most efficient order possible, customised to work with state of the art robotics, and typically with multiple mezzanine levels to double or even triple the floorspace available inside the building.

These demands have created an asset class of individually tailored and expensively kitted-out sheds, with commensurately sized rents, almost unrecognisable from the simple warehouses with racking and hangers that were standard for the industry just 20 years ago.

From a cost to a profit centre

For retailers with the wherewithal to own their own buildings, sheds have evolved from assets that used to be a necessary cost, to ones that are now a vital source of their company's profits. Moving more of their operations to industrial property for online sale fulfilment allows retailers to cut overheads such as labour costs and expensive retail rents - although the transfer of delivery costs from the consumer to the retailer means that "location, location, location" and accessibility to the consumer is fundamental to delivering these costs savings.

The impact on industrial property

Growth in demand

The move towards online retail has brought with it an increased demand for industrial property. According to research by Prologis and Aberdeen Asset Management, three times as much warehousing space is required for online fulfilment compared with store-based fulfilment, and for every €1bn spent online, an additional 775,000 sq ft of warehousing space is required.

This fits with Savills' data showing that take-up for online retailers for UK sheds space in 2016 so far is almost equivalent to take-up for the rest of the decade: 8.5m sq ft of space has been provided in the year up to June 2016, compared with 9m sq ft of space between 2010 and 2015.

Growth in size

There has been a sea change in occupier preferences, with four times as much take-up in 2015 being built bespoke to the occupier's requirements, rather than speculative development. Occupiers are increasingly looking for bigger sheds, both to future proof their operations and drive economies of scale. The first half of 2016 saw five deals made for sheds over 500,000 sq ft, compared with a long-term average of seven 500,000+ sq ft deals per year.

Growing in appeal

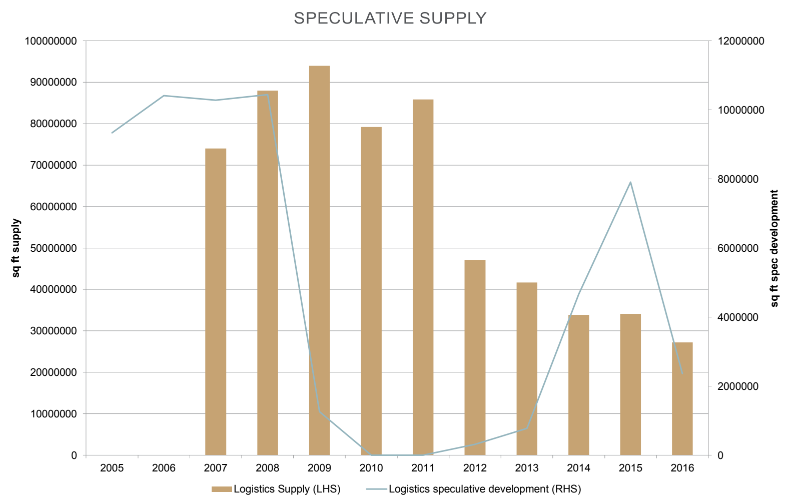
But just as you cannot have a conversation about industrial property without mentioning Amazon or Tritax Big Box, so too do smaller, cheaper multi let industrial properties have an increasing appeal. With low capital values relative to floor space which are mostly below rebuild costs; low refurbishment costs given their simple build and a broad base of potential occupiers, they are often view as lower risk that other asset classes.

Just as international occupiers demand huge spaces for national or regional distribution centres, so locally-based businesses require more modest amounts of industrial space. While higher yields often reflect the lower covenant strength of tenants, many multi let occupiers will potentially be major businesses.

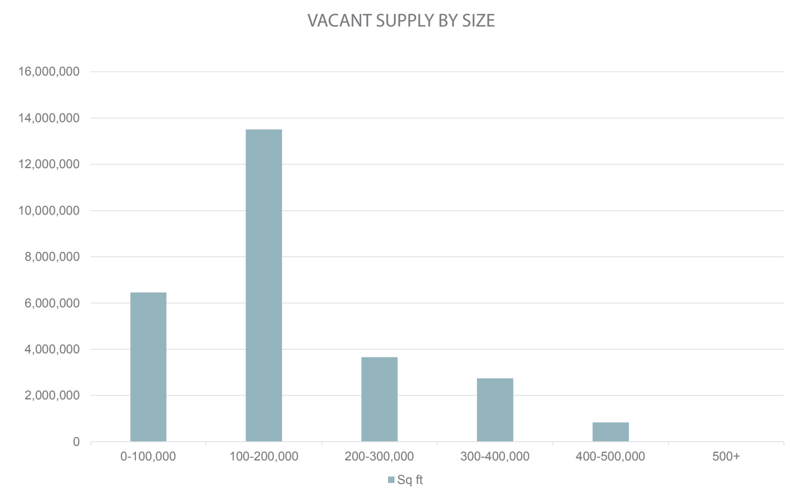
Of course the bulk of multi let, by volume, will be small properties which are nevertheless attractive to income investors who would be unlikely to get a 8-9 percent return anywhere else. Larger investors are continually on the hunt for large portfolios which enable substantial capital to be deployed.

As our report shows, increased appetite from 3PL business, parcel delivery firms and those manufacturers re-shoring work closer to home will all drive demand for multi lets. And as technology such as 3D printing makes local manufacturing cheaper and more workable, there is a huge amount of potential for hubs of activity to spring up.

The online retail boom is a partial reflection of Amazon's highly aggressive purchasing policy. DATA: Savills

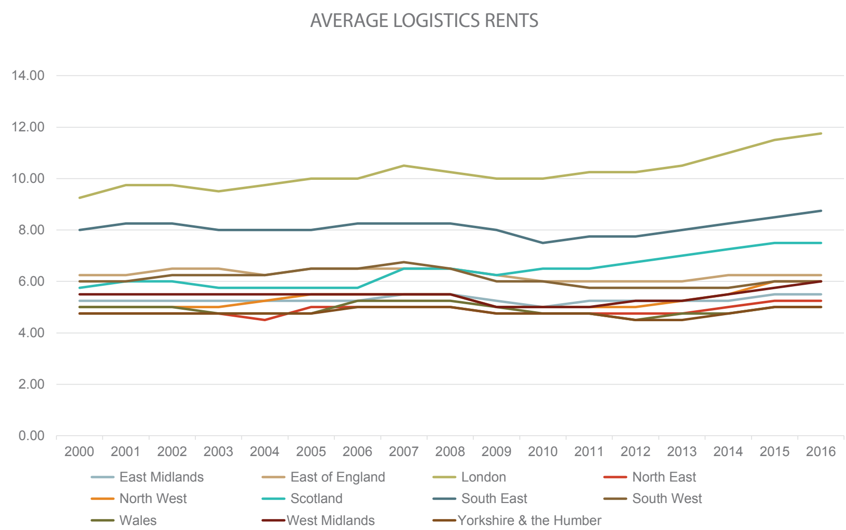


The strong growth of the logistics sector this decade has fed off the glut of space built speculatively before the crash. DATA: Savills



The remaining space is typically in smaller size brackets, focused in the Midlands. DATA: Savills

Growth in rental value



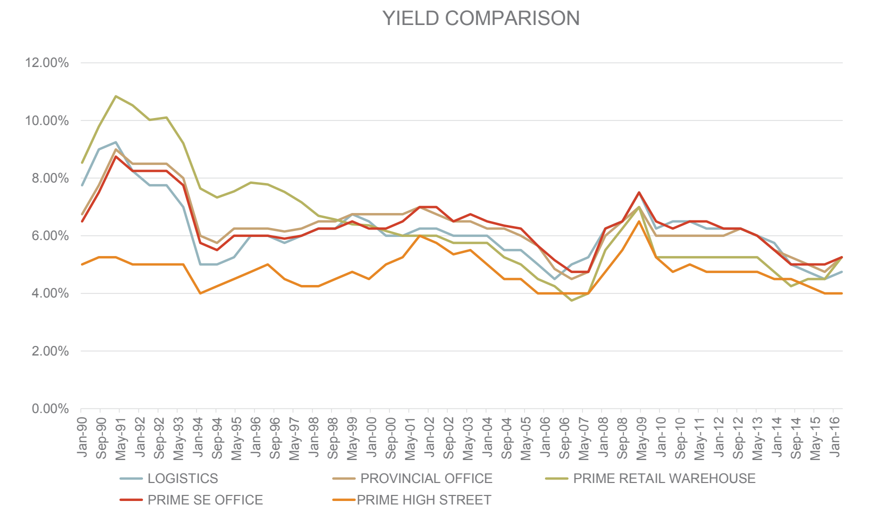
The rental surge is particularly pronounced in London, the South East and the Midlands. DATA: Savills

As the economy recovered following the recession, the demand for warehousing space began to eat into the massive cache of oversupply generated during the speculative boom leading up to the financial crash. UK supply has fallen from its 2009 peak of 94m sq ft of space to 27m sq ft (mostly lower quality, smaller units), and vacancy rates for units over 100,000 sq ft are currently less than four percent in all of the core distribution markets in the UK.

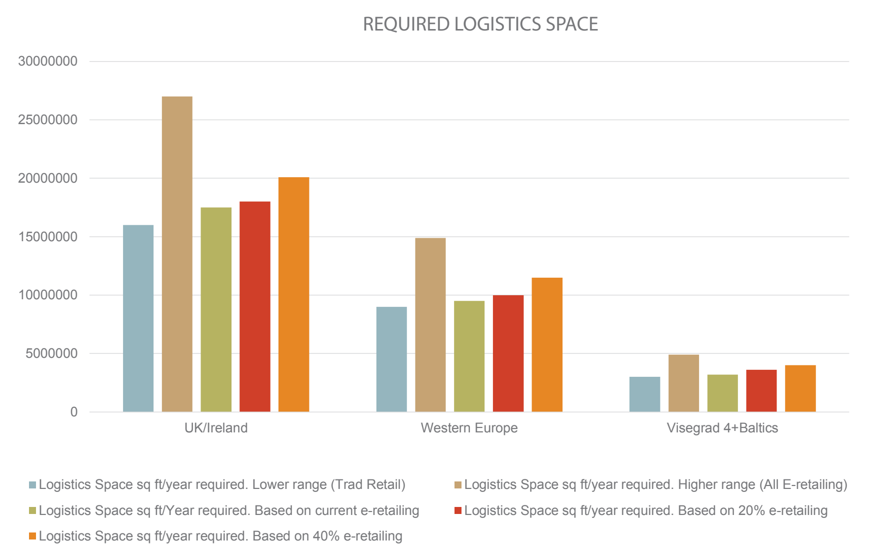
The shortage of space is not the only thing pushing up property and rental values. Online retailers will pay a premium for well-located sites with advanced fit-outs that allow them to get an edge on their competitors' fulfilment times, particularly 'last mile' sites located near urban conurbations. Prime smaller sheds in areas such as Enfield now command average prices of £11/sq ft, compared with £8.50/sq ft just four years ago. Furthermore, occupiers are now much more willing to sign up to longer leases of 20 or more years, to spread the expensive investment in technology over a longer-term period.

Growth in investment appeal

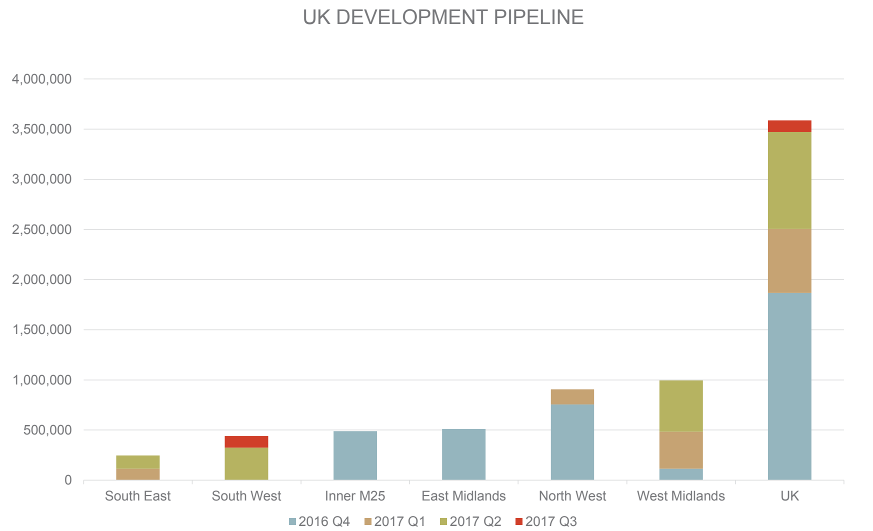
The result of all these trends has been to turn warehouses into a bond-like asset. With long leases being taken by reputable companies, and the opportunity to invest large amounts of funds in shed construction - over £100m for some of the biggest buildings - the asset class is now highly attractive to institutions such as pensions funds, which are on the lookout for reliable long-term income returns. With UK Government bonds trading at near-zero yields, and many companies offering negative yielding corporate bonds, the five percent on offer from prime logistics provides especially advantageous returns for risk levels similar to bonds.



Logistics and prime retail warehouse yields have been roughly comparable to office and high street yields in recent years, despite arguably being less likely to see tenant default. DATA: Savills



With over 18m sq ft of new warehousing space required annually to meet 20 percent e-commerce retail requirements, the current development pipeline falls far short of requirements for the UK. DATA: Colliers.



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Urban logistics

Shortage of suitable land for logistics

With the UK having 424m sq ft of existing warehousing space, most prime locations for logistics have long since been developed. Developers face a conundrum: many of the sites remaining that are conveniently located by motorways suffer from other problems, such as high remediation costs for brownfield, or poor utility connections, which both pose a threat to scheme viability at the development stage. Compounding the issue is the UK's notoriously restrictive planning system, which restricts development on the green belt, as well as the typically limited popularity of proposed greenfield industrial developments for logistics with locals.

According to Colliers' estimates, to keep pace with an e-commerce sector making up 20 percent of UK retail, the UK/Ireland market will require 18m sq ft of logistics space to be built annually - far ahead of the 3.5m sq ft projected to be built over the next 12 months by Savills. Therefore, measures to unlock viable land are of vital importance, with proposals including the streamlining of local planning systems to empower the fast-tracking of uncontroversial applications, as well as the establishment of funding similar to that provided by the Homes and Communities Agency, to assist industrial developers with the remediation of land.

Pressures in urban areas

While sheds are an essential component of e-commerce, deliveries depend on the 'last mile' fulfilment. Finding suitable sites in cities for such local distribution centres can be very difficult because of high land values, the general availability of suitable sites, and the acceptability of having transport-heavy occupiers located in, or near, residential areas. However, urban hubs will become even more essential as e-commerce continues to grow and delivery times shorten, so solutions must be found. Last mile solutions may be included in mixed-use developments featuring residential, but their acceptability will largely be a matter of sensitive design and limitations on the size of vehicles that can be accommodated.

Whether the surge in investor interest in the prime logistics end of the sector will also be experienced in the growing ‘urban logistics’ sector is yet to be seen, but there is little doubt that the smaller boxes serving this need will come into their own as a subsector of the asset class.

Re-use of trade and retail parks

One potential source of urban logistics space could be the re-use of vacant units on multi-unit trade parks - some around the M25 are now worth more than nearby retail parks, with the devaluation of retail land. Retail parks could also be used, taking advantage of their large sites, 24/7 operations, massive car parks and the fact they look like sheds. The investment case cannot be made quite yet, because of how land for retail parks has been priced. There has to be a certain rental level to compensate for high use value, and industrial rents have not reached that level. The current temptation for asset holders will be to convert underperforming retail to residential or office space (if possible), given the much higher rents on offer. However, if parcel distribution growth continues at 20 percent per annum, things could certainly change in the next two or three years, particularly in advantageous locations.

Transport

The dominance of roads

Transport is a pivotal consideration in logistics. Road freight makes up nearly 90 percent of total UK inland freight transport by distance, but the network is increasingly congested, leading to a 2mph fall in average UK vehicle speeds in the five years leading up to 2015. Additionally, the Road Haulage Association has announced an unmet need for 60,000 HGV drivers. Late deliveries increase costs for third party logistics firms (3PLs), an incredibly competitive sector with notoriously tight profit margins.

England’s road network will see £15.2bn of investment in over 100 schemes to add 400 extra lane miles of capacity by 2021. However, road widening schemes are notoriously susceptible to ‘induced demand’ (where people take journeys they would not have taken otherwise because the extra capacity now exists) filling in any capacity gains fairly quickly, particularly as the number of road users continues to grow.

The case for, and against, rail

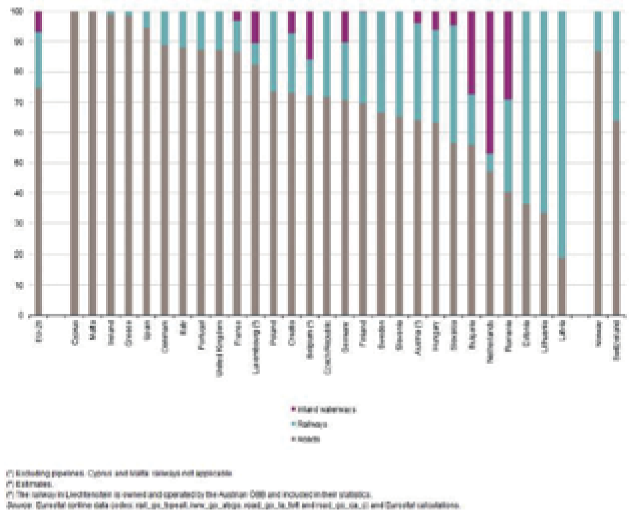
Some are looking to the European logistics sector’s greater use of rail as a potential inspiration. Rail freight costs are competitive over longer distances where they begin or end at a rail terminal, but are more expensive than pure road freight if goods have to be transported by road to the rail terminal at one, or both, ends of the journey.

However, the rail network has its own congestion and capacity issues, and infrastructure investment is sorely needed. The growth of the Central and Eastern European logistics market, after extensive EU investment in road, rail and sea connections, shows the potential such investment can unlock. Poland, for example, now has a direct 11-day rail freight connection with China, dubbed ‘the new Silk Road’.

Network Rail is investing more than £25bn into the UK rail network by 2019 in order to ease congestion issues. Although rail freight is in direct competition with passenger rail for any additional capacity, the completion of HS2 and Crossrail should free lines enough on the West Coast and East Anglia Main Lines to allow more freight to be delivered through Felixstowe and London Gateway ports to the Midlands.

However, scepticism remains as to the extent rail can be a popular option for UK logistics. It currently constitutes around 12 percent of UK freight by distance, and, given the density of the UK delivery network, many consider it unlikely that rail will be able to present a simpler and cheaper option than delivering by road for distances of less than 100 miles.

EUROSTAT MODAL SPLIT

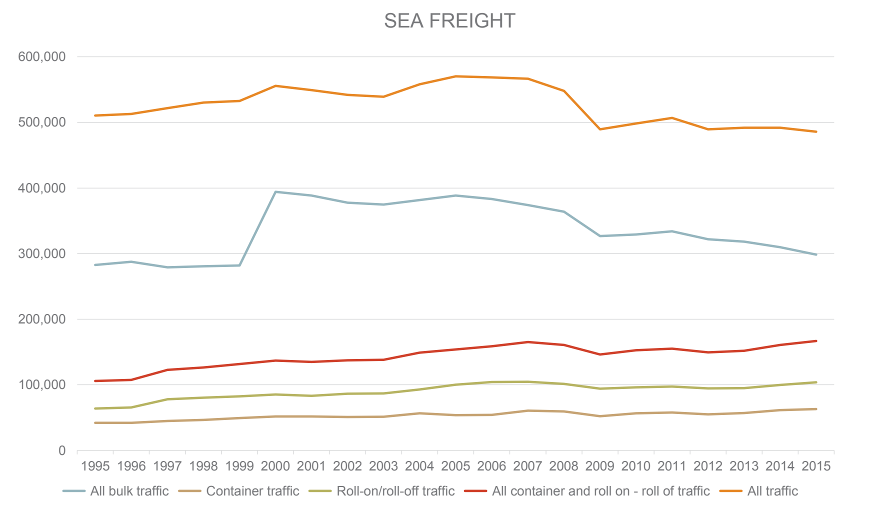


Rail/road freight split across Europe by distance, as of 2013. The UK’s use of rail freight lags far behind other nations. DATA: Eurostat

Ports and multimodal hubs

One way of reducing the costs of rail is by delivering hubs that allow direct rail delivery. As a result, some developers are building multimodal logistics parks with dedicated rail termini, such the iPort in Doncaster.

Sea freight has grown steadily over the last 20 years, with container traffic to the UK standing at an all-time high figure of 63.2m tonnes in 2015, compared with 42m tonnes in 1995, the earliest available data point. This expansion - which has accompanied a 40m tonne increase in roll-on-roll-off freight for vehicular transport - has been enabled in part due to the decline in liquid and



Sea freight has consistently declined by thousand tonnes delivered over the last twenty years, though container traffic and roll-on-roll-off freight has increased substantially as a proportion of all freight
DATA: ONS

dry bulk traffic, primarily for fuel. However, port capacity has been limited by rail capacity out of the ports - a phenomenon which spurred the development of larger sheds in the North during the ‘00s to take advantage of spare capacity at ports such as Grimsby, compared with Southampton.

As such, rail capacity improvements for ports such as Felixstowe have been prioritised, and new port developments such as London Gateway have made the installation of extensive logistics parks and multiple railheads pivotal to their schemes.

Future trends

Rental growth and lack of supply

The short-term future for the logistics market looks fairly predictable. Continued rental growth in the UK seems to be a given for the foreseeable, with rents remaining stable in Europe without the pressure of land constraints. The flood of speculative development before the financial crash, which has steadily been taken up over the last eight years, is unlikely to be repeated, particularly as the trend towards bespoke pre-lets is decreasing the appeal of riskier investment in building generic sheds without a tenant. The Investment Property Forum’s forecasting across commercial real estate has projected that industrial logistics property will be the only sector to see rental growth next year.

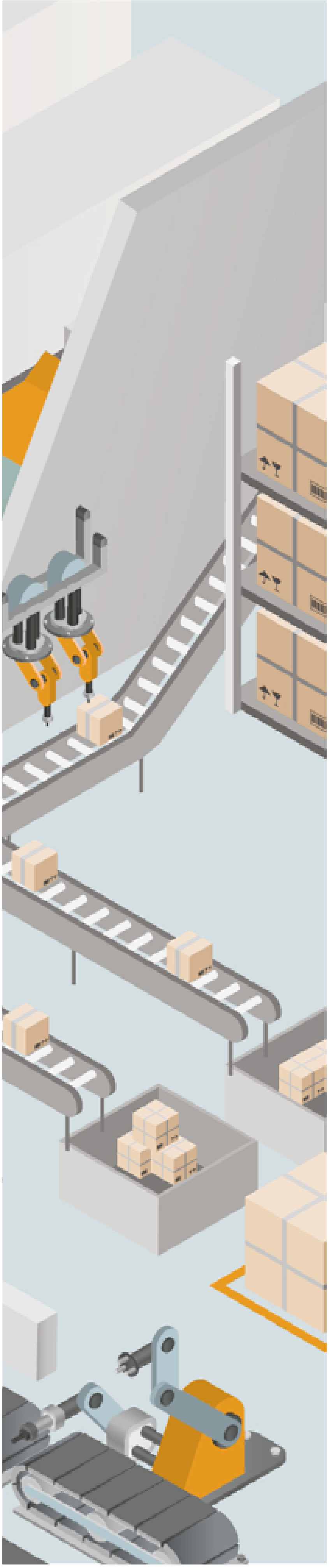
Competition from Europe

The UK market is particularly influenced by its land constraints, which is good news for land and rent values, and vacancy rates, which are some of the lowest in Europe. However, it limits the opportunities for investors. Some are increasingly looking over the Channel. Western European sheds, particularly in Benelux, offer occupiers a stable base in often comparatively favourable tax regimes, with access to skilled labour. The Central and Eastern European market has seen a boom in recent years in the wake of extensive European Union infrastructure investment, with occupiers attracted by a mix of low labour costs and good connectivity with Germany and the rest of the continent.

Skyscraper sheds

Up until now, the prevailing view among UK-based investors is that multi-storey facilities are difficult to fund and even harder to build. The X2 facility near Heathrow - which has four, 6 metre high units on each of its two levels - was built by now-defunct Brixton. While it was the UK’s first ramped warehouse, few have sought to replicate it.

However, the combination of technology, increased rents, a lack of available land and changes



in occupier demand could be able to change all that. Across Asia, 20-storey high warehouses are commonplace. While we are unlikely to see anything of that scale right away, the advent of modular construction and artificial intelligence could fascilitate both the build and operation of more complex facilities.

Amazon is already having a multi-storey warehouse built for it in Tilbury, and with automation and use of robotics growing quickly, the potential for retail and logistics occupiers to make better use of space is huge. Parcel delivery firms and others whose business requires being close to urban areas will be the main drivers.

Although the cost and construction risks with such facilities will be far too high for any speculative development, multi-storey sheds will come to represent the ultimate "build to suit" facility.

Some of Asia's tallest warehouses

Kowloon Bay	Sunshine Kln Bay Cargo Ctr
Tsuen Wan	Global Gateway (Ramp access)
Tsuen Wan	Kerry Cargo Centre
Kwai Chung	ATL Logistics Centre
Kwai Chung	HK International Distribution Centre (HIDC)
Kwai Chung	Modern Terminal Building (MTL) (Ramp access portion)
Kwai Chung	NWS Kwai Chung Logistics Centre
Tung Chung	Airport Freight Forwarding Centre
Shatin	Evergain Centre
Shatin	Grandtech Centre
SS/ Fanling	Kerry Sheung Shui Godown
Tsing Yi	Interlink
Tsing Yi	Asia Lo

Sharing economies of scale

While multi-tenanted developments are commonplace, shared facilities - where two tenants or more share a single big box - are less popular. In a climate where investors see strong demand for large-scale pre-lets, a more complex approach to obtaining the same income stream is unlikely to be preferable. But as the market evolves, we may well see more occupiers sharing.

Facing the strain of costly technology upgrades and staff costs, the potential to reduce these risks and move manpower around to deal with peaks and troughs in demand makes sense. It's already something occupiers do and is more commonplace in Europe. And while figure regulations and other historic red tape are cited as barriers to it happening more in Britain, we believe such problems will fall away.

Environmental concerns

As a sector so dependent on road transport, the logistics sector inevitably emits a substantial amount of emissions. The sector is estimated by the Freight Transport Association to be responsible for 30 percent of all transport emissions, and approximately seven percent of UK carbon emissions all in all.

From a real estate perspective, the Minimum Energy Efficiency Standards due to come into effect from April 2018 are a potential concern, with re-letting of assets with an Energy Performance Certificate rating of less than E forbidden from that point. All existing leases for properties rated at less than E will be terminated in April 2023. However, developers and investors are moving towards building greener sheds, as well as incorporating clean energy generation methods such as solar panels or waste processing schemes into their assets.

Market disruption - known knowns in transport and data

Some infrastructure proposals seen in recent years would at first seem more suited to a sci-fi movie than as long-term solutions for running containers to sheds. Nevertheless, should any of the proposals prove viable (both technically and in cost), they would undoubtedly transform logistics as we know it.

1. Google is famously testing a prototype for the driverless car, which it predicts could be road-ready by 2020, but from a logistics angle, operators may be more interested in the trials for 'HGV platoons' currently being funded by the UK Government. These platoons would involve driverless convoys of up to 10 trucks closely following one truck with a human driver.

2. Prohibitively high development costs and disagreement even within China on their viability as a rail solution mean that we are probably unlikely to see transcontinental 270mph magnetic-levitation train lines connecting East with West any time soon.

3. More creatively, Switzerland has seen proposals for subterranean sheds connected by Elon Musk's much hyped 760mph 'Hyperloop' concept - something which would certainly be one interesting answer to the UK's land constraints crisis, if it comes to fruition.

However, as much as it is easy to get excited by the transport technologies of the future as logistics solutions, it is worth recalling that the UK's HS2 project is not forecast for completion until 2033. Given the substantial development times involved, infrastructure investment may be better focused on delivering capacity improvements using technology we already have in hand, before considering investing in unproven technologies still under development.

From a data perspective, network upgrades such as 5G will doubtless encourage further penetration for online retail. Efficiencies could be driven further by co-ordinated logistics technology platforms, which would increase the viability of existing sheds customised to bespoke technological fit-outs. In addition to this, a standardised platform which saw widespread use would open the possibility of the big data generated by the platform being used to identify further efficiencies in supply chains, both within automation and within national and regional logistics networks.

From a market disruption perspective, manufacturers and wholesalers - particularly of generic goods less likely to receive substantial mark-up from branding - could emulate the Asian market and start selling directly to consumers. By cutting out the retail middle man, this would generate substantial increased demand for sheds as fulfilment centres, particularly near ports delivered to by international manufacturers.

Disruption - known unknowns

Brexit is the clear standout known unknown. However, the general assessment of the sector is that e-commerce will continue to grow, even if the retail sector as a whole sees a downturn from the outcome of exit negotiations.

Third party logistics firms are already making use of the Internet of Things (the widespread networking and monitoring of a firm's physical assets, such as vehicles or pallets) as a way of improving the efficiencies of their supply chains by reducing empty capacity in their delivery, or calculating how delivery routes could be made more efficient to reduce distances between dropping off for one customer and picking up from another. How the Internet of Things can develop further to generate even more efficiency for the sector is not known; what is considered inevitable is that it will do so.

Of course, there is the ultimate disruptor that is the free market: for every Blackberry, there is an Uber. Plenty of unknown unknowns will no doubt emerge from the constant tumult of start-up innovators.

Conclusion

The fundamentals for industrial real estate are strong and at the prime end, the asset class has become almost economically countercyclical - seeing growth when other sectors of the market are faring less well. Technology will undoubtedly put more power into the hands of both consumers and occupiers, changing the way people buy goods and how companies manufacture and move them around. No one can yet predict the full impact of emerging innovations - be they driverless vehicles, robotics or big data. But if the last few years have taught us anything it is that anything can change. Sheds are evolving to meet the demands of their own customers - be they manufacturers, delivery firms or e-commerce giants. With the right political support, the sector can play an increased role in driving our economy and become an ongoing driver of returns for investors.