

Occupational Drivers of Investment Performance in the Logistics Sector

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MAJOR REPORT

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Report

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Occupational Drivers of Investment Performance in the Logistics Sector

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EXECUTIVE SUMMARY

- The success of e-commerce retailers and discount grocers has led to a rapid growth in the construction of Distribution Centres (DCs). These businesses tend to choose to occupy brand new, large units. Further new logistics space is expected to be developed in the coming years, **providing significant opportunities for developers** that are able to meet this demand and a source of **long income streams** for investors seeking income.
- The short construction periods and high proportion of development that is pre-let are significant contributing factors to the **low rental volatility in the sector**. If this model of stock delivery continues, future rental cycles are expected to remain less pronounced than office rents.
- The success of online retailers is at the expense of traditional high street retailers. Owners of older DCs let to these occupiers have an **elevated risk of tenant insolvency or CVA**. The loss of income from such defaults will have only a small effect on the performance of the total market but as units tend to be single let and relatively large, **the effect on a small portfolio will be more significant**.
- There is no meaningful difference in the spatial requirements of e-commerce Distribution Centres compared to their traditional high street equivalents in the UK. The overall impact of a switch from high street to internet-based retailing is not per se, therefore, expected to lead to an increase in the total stock of DCs and **the long-term trend of rental values on held stock growing in nominal but not real terms is expected to continue**.
- Existing units tend to be too small to meet the needs of new e-commerce retailers and too large to meet the reduced need from high street retailers downsizing their operations. Flexibility in design, allowing the occupier to **add space**, perhaps using temporary mobile facilities, and/or the **ability to sub-divide units** will **maximise the likelihood of tenant retention**.
- The demand for next/same-day delivery has **raised the importance of proximity to parcel sortation hubs**. This favours the Midlands' so-called 'Golden Triangle' and along the M62 corridor, either for smaller businesses or as independent sites for larger operations.
- Increasing penetration of automation and robotics is leading to **larger units**, with increased eaves heights (c. 15m is the current norm), increased floor loading capacities and higher levels of power (2 to 6 MVA). Planning permission is not guaranteed for very tall units in some regions where labour is scarce.
- **Labour shortages** are having a significant impact on operating productivities and capacities, especially in DCs clusters. Competition for labour will deter logistics occupiers from locating in areas of very low unemployment whilst placing a premium on (24-hour) public transport services, parking spaces and an attractive working environment.
- The introduction of Ultra-Low Emission Zones (ULEZ) and congestion charging will place a premium on well-located sites on the periphery of large urban areas for consolidation centres. Facilities with **multi-level vehicle access** would maximise the potential from such sites.

EXECUTIVE SUMMARY

From the investment perspective:

- The sector is **attractively priced** relative to long-dated bonds to deliver strong risk-adjusted returns to investors.
- Little **regional differential** in performance is expected, as stronger rental value growth in London is already priced into market prices.
- Given the relatively large size and single-let nature of units, a **portfolio approach** is required to diversify specific risk.
- Variation in stock/individual asset performance is expected to be driven by:
 - Access to labour;
 - Facilities to aid staff retention;
 - Opportunities for intensification;
 - Flexibility for division/expansion;
 - Sustainability features;
 - Proximity to hubs;
 - Proximity to Ultra-Low Emission Zones; and
 - Height, to accommodate automation.

1. INTRODUCTION

An examination of the available data¹ on DC construction in the UK suggests that the market for large distribution centres (over 100,000 sqft) seems to be in rude health, in stark contrast to a decade ago, when less than three million sqft of DC space was built as a consequence of the financial crisis. Over 30 million sqft of logistical property is being added to the stock every year, with over 100 sites being built in 2016 alone.

This unprecedented level of growth is primarily the outcome of the rapid expansion of online business, for both retailer distribution facilities and bigger, more sophisticated parcel sortation hubs; in recent years, over 30% of all large DC construction has been related to the e-commerce sector. Discount retailers have also played a significant part in increased market demand, especially for facilities at the larger end of the spectrum.

For high street retailers, however, the picture is rather more parlous; in the last three years, 117 retailers have entered into administration, affecting almost 5,500 shops². These recent business failures point towards a continuing, and perhaps intensifying, period of flux in the fabric of the high street, with far-reaching implications for the supply chain infrastructures supporting them and, hence, the underlying real estate. Over 20% of existing large DC space services high street or grocery retailers, suggesting the ramifications of restructuring will be significant for logistics providers, landlords and financial institutions alike.

Superficially successful and growing, the reality of the retail logistics DC market is far more complex and volatile. If e-commerce and the rise of giant global corporations with ostensibly limitless capital, abundant technology, and a disregard for orthodox approaches were not enough of a problem for traditional retailers, legislation, changing consumer tastes, exchange rates, access to skilled labour, and a lack of clarity over membership of a certain trade bloc create a formidably challenging trading environment.

This research analyses the forces acting on the retail logistics sector, detailing the characteristics of each one and the likely implications for investors, owners and occupiers. The report first provides a description of supply chain types and gives a market overview by sector and geography, detailing the main changes over the last decade. It then reviews each of the main transformational themes, considering the consequences of each one on the logistics sector. The implications for investment strategies are then addressed in the latter sections of the document.

¹ As there is no single database of UK logistical property, this report has utilised amalgamated data collated from many sources.

² Source: Centre for Retail Research.

2. TYPES OF SUPPLY CHAIN AND DISTRIBUTION CENTRES

2.1 Supply Chain Models

Although each retail business could claim to have a unique supply chain, in structural terms there are two main types as defined by the way in which inventory is managed: stocked and flowthrough. Each model is described briefly below, with supporting detailed information in Appendix 1.

2.1.1 Stocked/Pick-by-Store

The first type of supply chain, featuring physical stockholding points at all stages along the chain, is typically found in ambient or frozen environments where an extensive product life is apparent. Orders for retail outlets or customers are supplied from warehouses, which are in turn restocked from suppliers; crucially, customer orders can be fulfilled from stock independently of supplier deliveries. The supply chain is said to be decoupled, and thus replenishment or fulfilment lead times can be measured in hours or a few days at maximum.

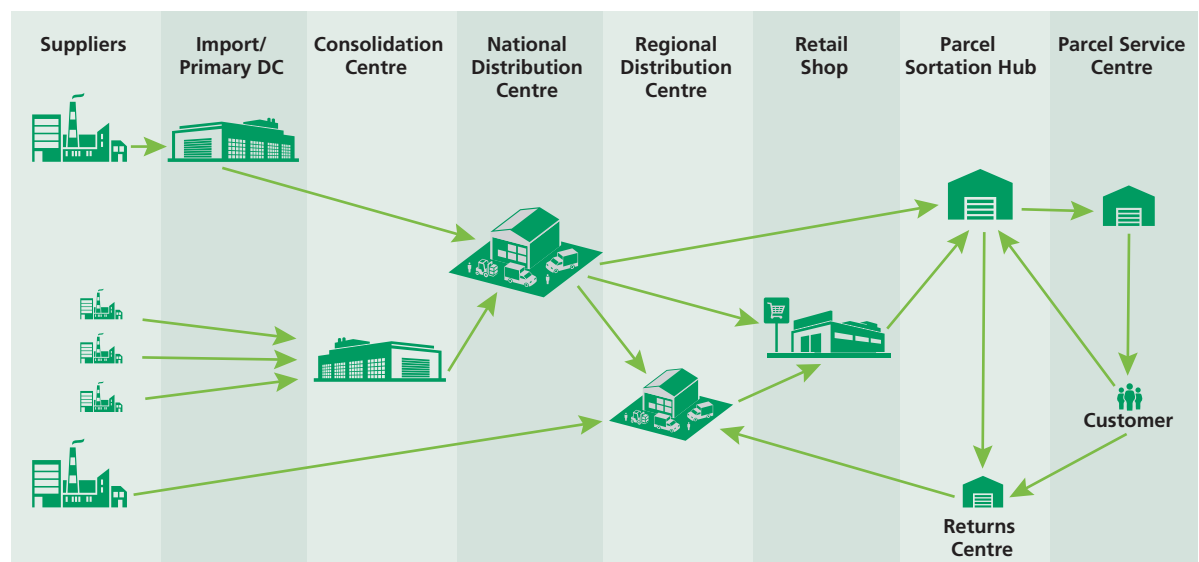
2.1.2 Flowthrough/Pick-by-Line

The second type, where inventory flows across the chain with a relatively short dwell time at each stage, is found in chill supply chains. In this operating regime, product life is measured in hours or days, so there is no possibility to store product for protracted periods. Grocery retail store orders are sent directly to suppliers, which produce, pick and deliver to distribution centres, which in turn pick stock for delivery to stores. This entire supply chain process, known as pick-by-line, can take 12 to 48 hours.

2.2 Types of Distribution Centre

There are many different classes of warehouse, based on their position within the supply chain and their function; some of the main types that exist in the UK are summarised in Figure 2.1. Detailed descriptions of different types of warehouse appear in Appendix 2.

Figure 2.1: Supply Chain Network



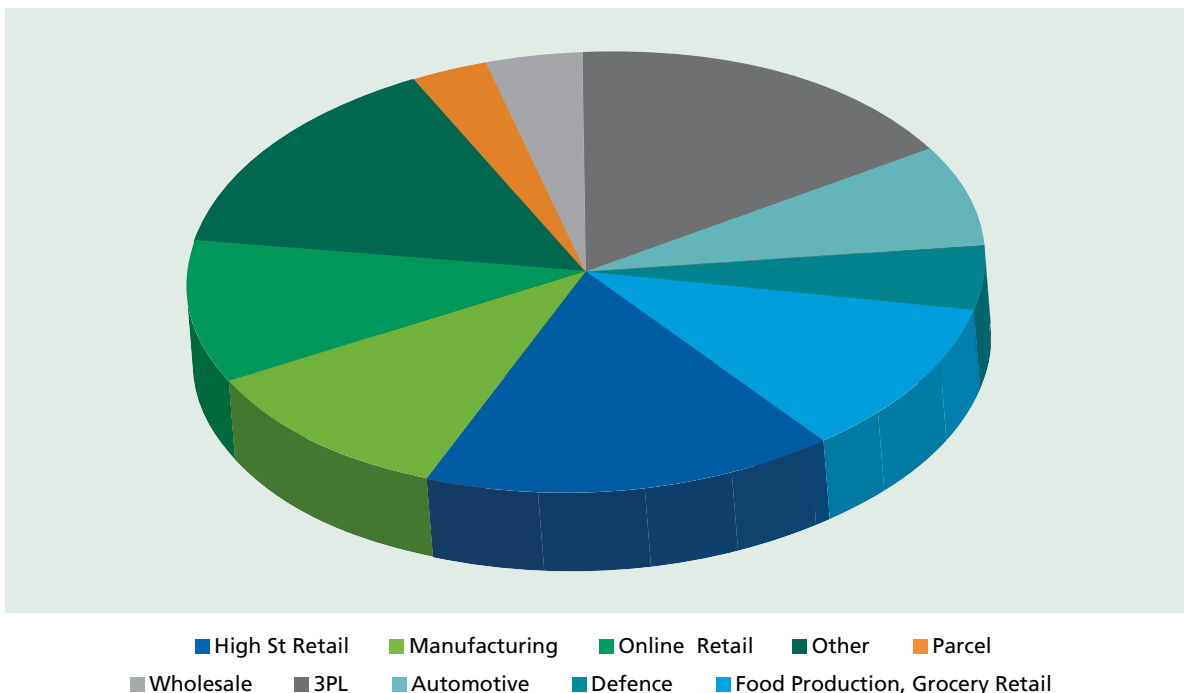
2. TYPES OF SUPPLY CHAIN AND DISTRIBUTION CENTRES

2.3 Market Overview

2.3.1 Sectoral Breakdown of Stock and Growth Trends

The UK commercial/industrial property market³ features over 400 million sqft of logistics facilities exceeding 100,000 sqft. The sectoral participation in this market is given in Figure 2.2, which shows most notably that the total DC space taken by the online retail sector now extends to 32 million sqft, almost as much as the grocery retail sector and two thirds of the entirety of the high street sector.

Figure 2.2: Sectoral Breakdown of Stock (DCs in excess of 100,000 sqft)



Source: Savills

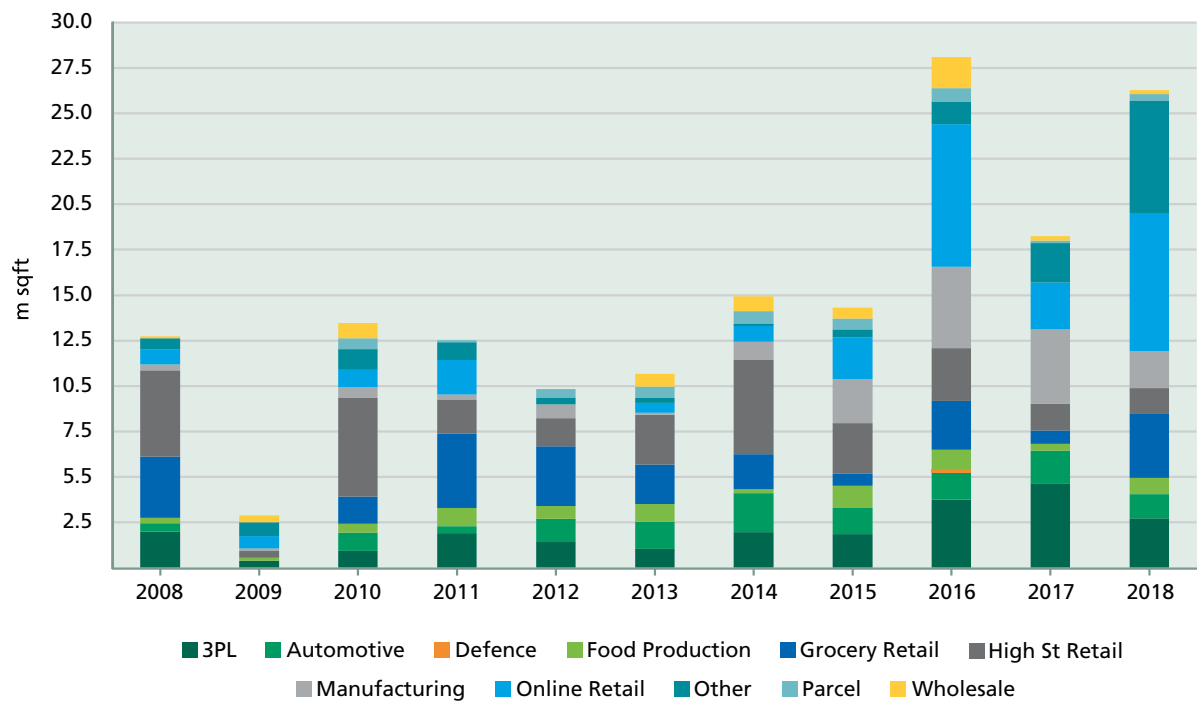
Recent growth in logistics space is strongly associated with the dramatic rise of e-commerce activity⁴ (see Figure 2.3). In the last three years, online activity has accounted for one third of new assets, including user-occupiers, parcel sortation hubs and third-party logistics (3PL) businesses. The parcel carrier sector, which of course services e-commerce retail, stands at almost 10 million sqft and is expanding by up to 500,000 sqft per annum with super-hubs being set up in response to increasing online demand.

³ The total size of the market is 2.4 billion sqft.

⁴ Click and Collect activity is included in the e-commerce sector.

2. TYPES OF SUPPLY CHAIN AND DISTRIBUTION CENTRES

Figure 2.3: DC Growth by Sector, 2008-2018

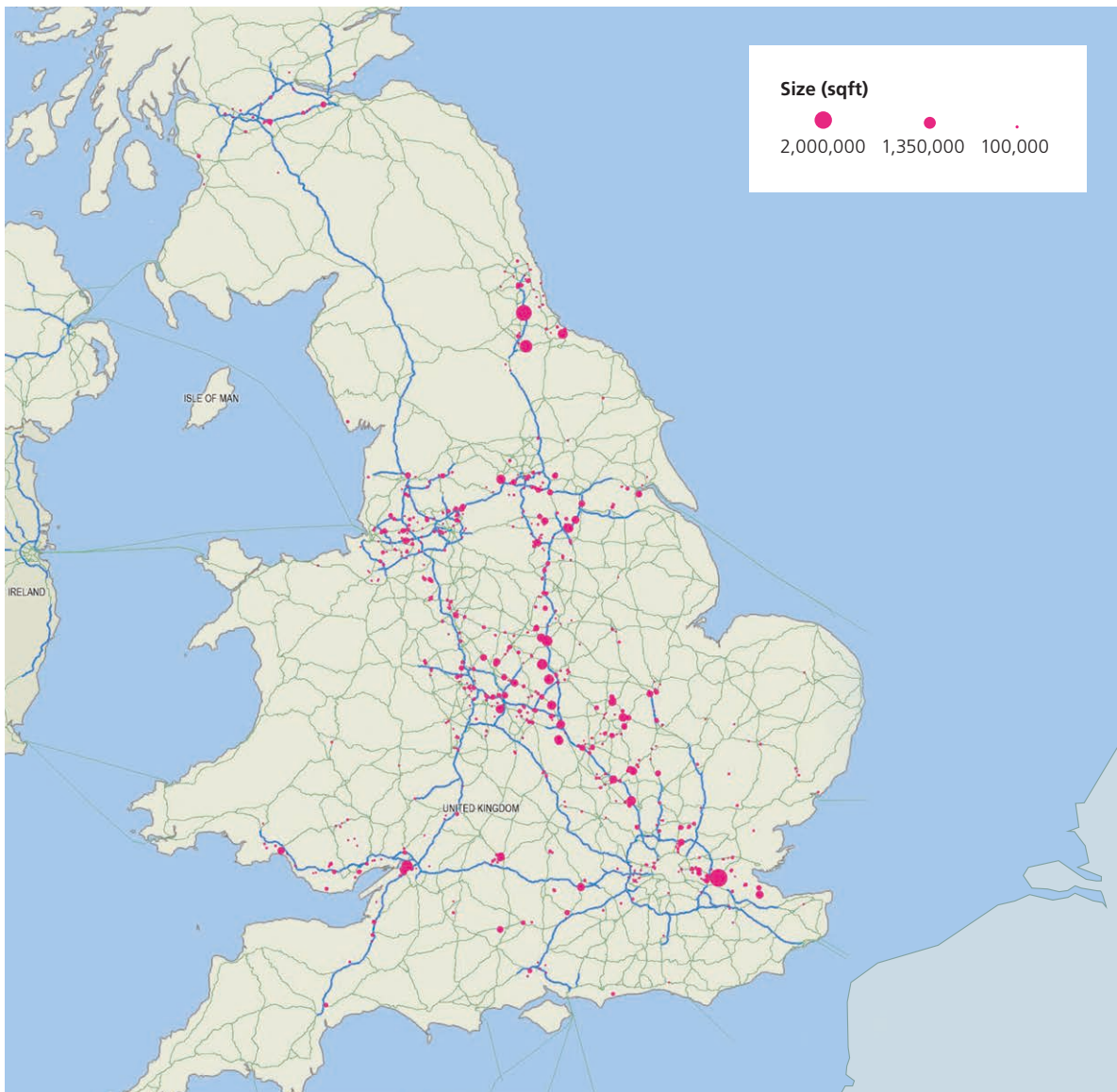


Source: Savills

E-commerce is dominated by Amazon; the USA giant has a total of 22.4 million sqft across 47 sites in the UK, 16.5 million sqft of which was added between 2016-2018, with the result that it now occupies 70% of the UK total logistical space in online retailing. Figure 2.4 shows the extent to which the retailer now has a presence not just in the heartlands of UK distribution areas but also in the peripheral regions, in pursuit of its strategy to be within 30 minutes of every consumer in the UK.

2. TYPES OF SUPPLY CHAIN AND DISTRIBUTION CENTRES

Figure 2.4: Amazon UK Network, 2019



Source: Savills

Discount retail, in the grocery and general merchandise fields, has also driven significant growth in the logistics market. Lidl, with a stated intention to build at least one new DC every year⁵, now has assets totalling 6.5 million sqft, having developed over 4.8 million sqft of facilities since 2015. Apart from the pace at which developments for discounters are proceeding, these DCs are also notable for their size – Aldi, B&M Retail and Lidl are all nearing completion of facilities of between 830,000 sqft and one million sqft, requiring up to 1,500 employees per site.

Discount retailers tend to buy land for specific design and build activity, with the result that they own the freehold of their buildings, so do not create investable product in the short to medium term. Over a strategic timeframe, these assets may be sold outright or be subject to a sale-and-leaseback arrangement to generate cash.

⁵ Source: <https://careers.lidl.co.uk/en/x-1676.htm>

2. TYPES OF SUPPLY CHAIN AND DISTRIBUTION CENTRES

It is hugely significant for current vacant warehousing that these businesses are choosing to build new facilities rather than to occupy existing vacant stock. Existing available facilities do not possess the combination of size, height and doors to appeal to this section of the market.

The high street retail sector, occupying some 51 million sqft in total, still has the biggest portion of the DC market. This sector used to account for 50% of the annual growth in distribution centres a decade ago but is now responsible for less than 10% of recent annual expansion.

Many high street brands are under severe financial pressure and are implementing extensive cost cutting measures that have far-reaching implications for shops, staff and distribution centres alike. Company voluntary arrangements (CVAs)⁶ have become a popular financial instrument to reduce property costs and retailers may attempt to deploy them to reduce their DC liabilities in the future.

There will be considerable market flux in the distribution facilities of high street retailers for several years to come. In financially healthier times, an additional level of risk on the part of the tenant would typically be accompanied by a premium in rent or stricter covenants at the end of a leasing period but these measures are likely to further imperil the occupier in question and to create a self-fulfilling prophecy of failure, which may not be in the landlord's interest.

In the current economic climate, landlords must consider the relative merits of (i) a business failure without dilapidations and a period of no income, against (ii) a stable or lower rent with continuity of revenue. Unless a landlord has another tenant waiting to occupy, it may be better to reduce rental rates to maintain income stream.

3PLs, in occupying 52 million sqft of warehousing space, represent the single biggest category of tenant but, as 3PLs provide services to other sectors, the classification is somewhat misleading.

2.3.2 Geography of DCs in the UK

The location of DCs in the UK, shown in Figure 2.5, reflects a combination of proximity to population centres (for both customers and labour supply), ability to use the motorway or dual carriageway infrastructure, or minimising the distance to sea or airports. The magnetic effect of the M1, M6, M42 and M62 is pronounced, a phenomenon noticeable by its absence along the M11 and M40 – major routes with very few facilities.

Development along the M40 has been limited until recently because, as an affluent commuter belt, land prices have been high and availability of space has been scarce, so very large units have not been viable. However, speculative developments since 2015 have attracted unsurprisingly high levels of demand, especially in the 100,000 sqft to 200,000 sqft range.

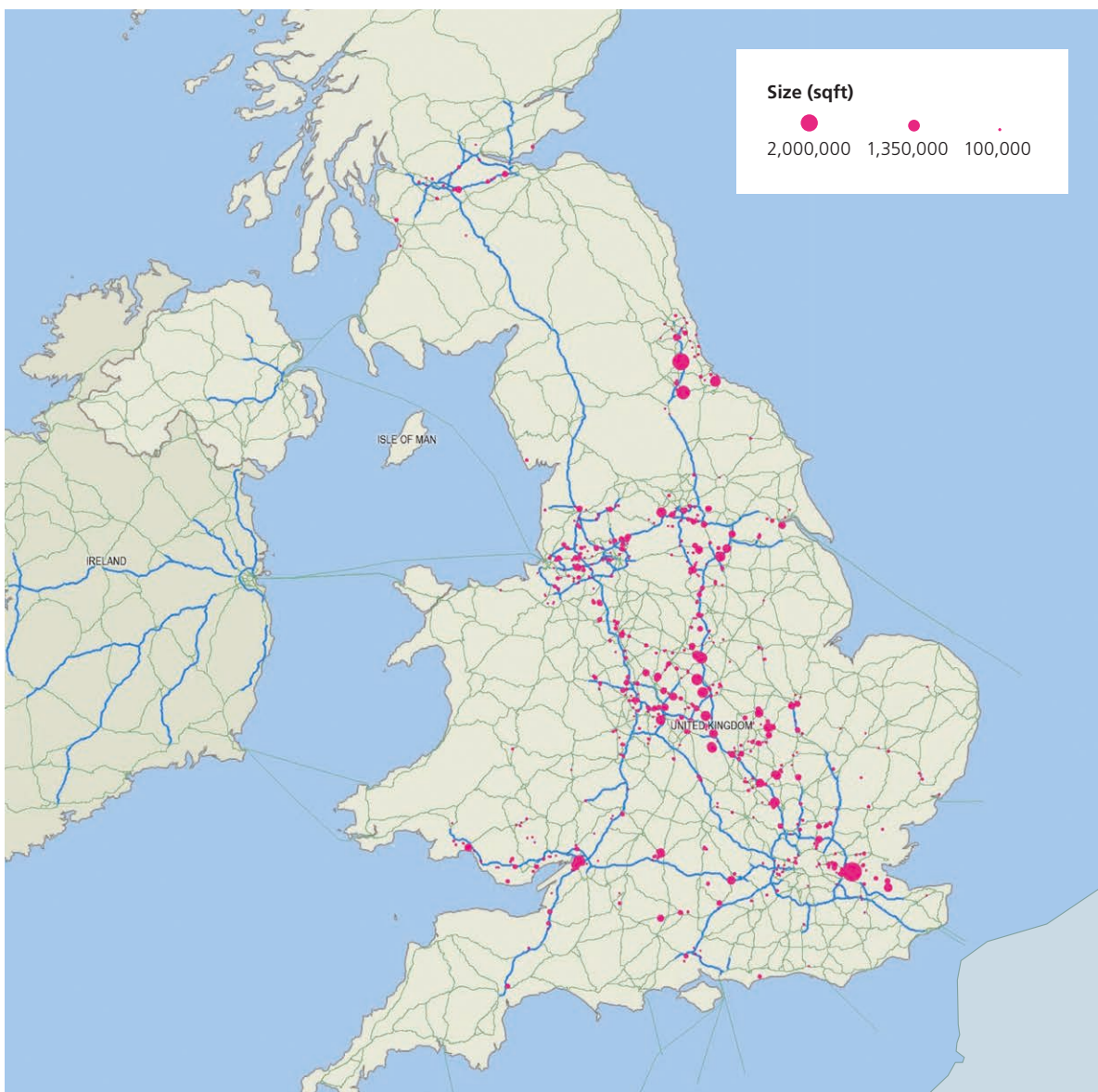
Figure 2.5 also shows the opposite problem: relatively poor infrastructure in the East Midlands (just the A14) and Derbyshire and Staffordshire (the roundabout strewn A38 and A50) servicing comparatively high concentrations of DCs.

⁶ CVA: under UK insolvency law, an insolvent company can enter into a company voluntary arrangement, which allows a business with debt problems to reach an agreement with its creditors over payment of debts. A meeting of creditors is held to determine whether the CVA is accepted; as long as 75% (by debt value) of the creditors who vote agree then the CVA is accepted. All the company creditors are then bound to the terms of the proposal whether or not they voted. Creditors are also unable to take further legal actions as long as the terms are adhered to and existing legal action, such as a winding up order, ceases. CVAs have been used by many struggling businesses to reduce their rental liabilities.

2. TYPES OF SUPPLY CHAIN AND DISTRIBUTION CENTRES

The process of determining warehouse locations seems to have primarily focused on market access and to have been relatively tolerant of an inadequate road network.

Figure 2.5: Location of UK DCs over 100,000 sqft



Source: Savills

Attesting to the primacy of centre of gravity modelling, 33% of all large DC units and space are located in the Midlands. The East Midlands in particular has experienced dramatic growth; in 2010, it represented just 14% of large DC space but in the current decade it represents 21% of all large DC construction. The North West has also seen disproportionate growth in both facilities and space in recent years (see Figure 4.4: Annual DC Construction by Region, 2007 to 2018).

3. LOGISTICAL THEMES AND THEIR IMPLICATIONS

This section addresses the main themes in supply chain management influencing physical logistics, DCs and commercial value. The themes comprise:

- The dramatic growth in e-commerce activity;
- The growth in, and the importance of proximity to, parcel sortation hubs;
- DC modification to accommodate e-commerce capability;
- Technology and automation;
- Labour: recruitment, retention and productivity;
- Government regulation;
- Planning policies and limitations;
- Product cycles and production; and
- High street retail flux.

Within each of these themes, the main implications for investors are identified in highlighted boxes.

3.1. The Rise of E-commerce and Supply Chain Heterogeneity

While many logistical regimes have converged on a common physical structure and operational environment⁷, the physical forms of e-commerce fulfilment are characterised by innovation-fuelled heterogeneity.

Web fulfilment can be managed in a variety of ways, including:

- Dedicated distribution centres, shared user facilities or stored in warehouses also holding retail stock;
- Inventory may be placed in separate pick-faces or be held in joint bins;
- Warehouse management systems may hold stock collectively or e-commerce stock may be systemically separate⁸; and
- E-commerce orders may also be fulfilled from retail branches, satellites or returns hubs, or a combination of these locations for multi-item orders.

The extent of these physical supply chain varieties is increased by the range of functionality of warehouse management systems, whose development cycles are shortening.

This array of supply chains creates an environment of general uncertainty, underwritten by the knowledge that the pace of technological change in e-commerce will make current logistical paradigms inefficient or obsolete over a far shorter period.

⁷ Manual chilled goods DCs have a similar layout and method of operation: exact quantities of palletised products are delivered by suppliers from 06:00 into a stockless environment, organized at goods inwards and walked around a grid comprising many lanes of roll cages for individual shops. Cases are then picked from these pallets and placed into the cages; eventually, the pallets are completely depleted – picked to zero – and once the cages are full, they are moved to marshalling lanes then loaded in store sequence onto trailers. Before the advent of automation, all chill grocery DCs operated in this manner.

⁸ Systemically separate stock allows merchandisers manage different inventory levels depending upon the classification of the stock.

3. LOGISTICAL THEMES AND THEIR IMPLICATIONS

Businesses are less willing to make long-term commitments to assets or locations and are thus seeking shorter leases or occupancy of shared-user facilities. For many retailers, knowing the location and size of the next DC has never been more difficult.

Before the internet, retail growth was a slow and expensive process with the gradual accumulation of high street or out-of-town shopping centre space. E-commerce has brought a new wave of entrepreneurs able to reach vast customer base without the need for real estate. Aside from the immediate financial advantage of this low cost of market entry, the e-commerce operating model is inherently more flexible due to its far lower level of property commitment.

E-commerce retailers therefore tend to display a high level of reticence and reluctance when considering expansion into high street premises, with investment property costs and lease commitments failing to outweigh the comparatively small advantages of a high street presence – the ability to browse, try products for size and interact face-to-face with sales assistants.

During a strategic review of its operating model, the CEO of Boohoo, a large UK-based web-only fashion business, was asked if any high street shops would be opened. “Why would I open a shop when I could open an entire country?” was the reply.

Customer service propositions for e-commerce fulfilment are becoming increasingly important in sales success include:

- Next-day delivery order cut-off time;
- Delivery point;
- Delivery window; and
- Same-day delivery.

The fundamental logistical implications are that online retailers must be able to minimise the time between order receipt, picking, packing, despatch and feeding into a parcel carrier network. That network must also be able to receive, unload, sort, reload and despatch to the delivery hub or local service centre over a short timescale. The absence of time necessitates an absence of distance.

Online retailers need to be able to feed one central hub that can reach all downstream hubs or service centres quickly, making the West and East Midlands the prime locations for such facilities.

It has been common for e-commerce entrepreneurs to set up initial fulfilment facilities in their local area and, as business growth proceeds, for the inevitably hastily-sourced second unit to be in a proximate location, too. The pull of the local – convenience, staff retention, familiarity – is a far more puissant force than the sometimes vague, intangible benefits of proximity to a hub over 100 miles away.

3. LOGISTICAL THEMES AND THEIR IMPLICATIONS

The result of this lazy drag is that many outwardly successful e-commerce businesses have a suboptimal supply chain, based on an inappropriately located DC, unable to provide late cut-off times for next-day ordering.

There will undoubtedly be a shift from the convenient to customer-led locations near hubs, either in a shared user facility for smaller businesses or as independent sites for larger operations.

The use of temporary (mobile) facilities is becoming increasingly popular in supply chains with low residency characteristics such as chilled food service. Devoid of the usual commitments and high levels of investment, pre-fabricated units that can be assembled to form a pseudo-warehouse can provide an extension to a physical network in a matter of days and, crucially, can be removed similarly rapidly. Vehicle outbases, cross-docking hubs and seasonal capacity augmentation can be set up in a comparatively basic environment.

3.2. Proximity to Hubs

DC locations used to be determined by gaining access to local or regional customers (shops) for grocery multiples, leading to an array of RDCs spread across the country, or a single NDC site for smaller businesses, whose position was influenced by the geographical density of its customers. In some cases, retailers elected for facilities in locations providing very low occupancy and operational costs, preferring to suffer higher transport costs⁹.

The ability to feed into a hub that can efficiently and cost effectively distribute packages to UK customers on a next-day basis (with a 22:00 cut-off time) and to mainland Europe in two to three days, is now all important. The DC location decision has effectively become reduced to finding a suitable location in a hub hinterland that offers attractive commercial terms, access to labour supply and the ability to expand (see Figure 3.1).

⁹ Wilko had warehousing facilities in Newport, South Wales, and Worksop, while the geography of its retail estate warranted completely different DC locations; with a single shop in London, Liberty chose to have its DC in Manchester.

3. LOGISTICAL THEMES AND THEIR IMPLICATIONS

Figure 3.1: UK Hub Locations



Source: Savills

Hubs in the Midlands or along the M62 corridor are becoming increasingly attractive to e-commerce retail operations, eschewing more southerly DCs with comparatively higher occupancy costs and less flexible labour pools.

3.3. Reusage or Modification of DCs for E-commerce

At the macro level, aggregate space demand in the logistics market depends on the amount of space required for online sales less the space released for servicing store-based retailing. If online retailing operations require disproportionately more space per sales unit than store-based retailing, then an increase in online penetration of retail sales will lead to an even greater increase in logistics space.

3. LOGISTICAL THEMES AND THEIR IMPLICATIONS

However, it is optimistic to assume that all vacant facilities are likely to be suitable for e-commerce applications: parcel hubs have a very specific design and footprint, and there is increasing evidence that expanding online or high street retailers prefer very large design and build facilities. There may be a structural problem that vacated space is not suitable for the new wave of DCs, which would see longer letting periods for second-hand units once occupied by store-based retailers, with consequentially lower rental values.

The second question is the extent to which disproportionately more distribution space may be required for online retailing than for DCs servicing high street shops. Some developers, such as Prologis, believe up to three times more space is needed for e-commerce fulfilment, although this ratio is relevant to USA DCs and is tending to reduce over time. Some traditional retailers¹⁰ have been able successfully to accommodate e-commerce fulfilment within their existing DC store operations because of the relatively small additional equipment required. The main changes are typically:

- The ability to pick singles rather than just cases (although many high street retailers also pick singles, especially fashion brands);
- Packing benches, usually arranged either side of a conveyor;
- Sortation or despatch lanes for parcel carriers; and
- Dedicated doors for stand trailer(s) for parcel carrier(s).

In some instances, especially if the original operation featured a palletised layout, high density pick faces may be set up to facilitate singles picking. Such enhancements can often lead to mezzanines or picking towers within the DC. Consequently, when e-commerce activities are added to existing DCs servicing high street shops, there is a low to medium impact on space requirements.

Dedicated manual e-commerce fulfilment sites can feature similar layouts to their high street counterparts, indicating there is not a material difference in space requirement. High street retail DCs typically generate sales of between £1,000 to £1,800 per square foot of DC space. By comparison, web-only retailers, such as Boden at £1,000, Boohoo at £1,600 and (the partially automated) ASOS at £2,400, have broadly similar revenue:space ratios.

3.4. Technology

Although fully manual warehouses are still the default operating environment within the logistics market, the higher the degree of product homogeneity, the greater the probability that automation will provide meaningful operational benefits. Conversely, in environments with a wide variety of product shapes, sizes and weights, with extensive variability in product presentation to the DC from suppliers, and unpredictable customer profiles, automation can be highly problematic.

¹⁰ Such as Jack Wills, Mountain Warehouse, Liberty, Moss Bros and Jaeger at the smaller end of the spectrum, and River Island, BHS and WH Smith at the larger end.

3. LOGISTICAL THEMES AND THEIR IMPLICATIONS

There are broadly four types of technology applied in physical handling environments, which are summarised in Table 3.1.

Table 3.1: Levels of DC Automation, Trends and Implications

Type	Description & Examples	Benefits	Pitfalls	Implications
Simplistic mechanisation	<ul style="list-style-type: none"> Motorised conveyor belts and extending booms 	<ul style="list-style-type: none"> Reliability 	<ul style="list-style-type: none"> Often no intelligence built into solution Requires manual intervention 	<ul style="list-style-type: none"> Can be added to most warehouses
Mechanised or automated process areas	<ul style="list-style-type: none"> Automated storage and retrieval systems Mini-load Flow-rack Hanging garment systems Sortation systems 	<ul style="list-style-type: none"> Can be highly effective in compliant environment 	<ul style="list-style-type: none"> Product non-compliance Maintenance Load balancing/capacity limitations Labour needed to feed and remove from system 	<ul style="list-style-type: none"> Some applications (mini-load) require tall facilities Strong floors required
Automated warehouses	<ul style="list-style-type: none"> End-to-end automation of a DC, combining several systems into one integrated operation 	<ul style="list-style-type: none"> Can provide lower operating costs Potentially better able to cope with peak volumes 	<ul style="list-style-type: none"> Hugely expensive and complex Configuration and optimisation can be difficult Maintenance Create an inherently inflexible operational environment 	<ul style="list-style-type: none"> Usually a bespoke solution Higher than usual levels of power requirement Typically found in large and high DCs Need strong floors
Robotics	<ul style="list-style-type: none"> Autonomous guided vehicles Product detection Robotic arms (pick and place, stacking, palletisation and packing) 	<ul style="list-style-type: none"> Operational flexibility Higher degree of tolerance to non-compliance 	<ul style="list-style-type: none"> Can be difficult to optimise 	<ul style="list-style-type: none"> Will be adopted more widely in next 10 to 20 years Will dramatically reduce unskilled labour requirements, and thus make DC location less sensitive to local labour pools

As an appurtenance, creating an automated warehouse system is far from straightforward. It requires many stages of development¹¹, each of which is accompanied by a level of imperfection that cumulatively, over the length of the development period, may render the final solution too expensive, lacking capacity, too inflexible or partially/completely unsuitable.

¹¹ (i) Data gathering; (ii) data analysis; (iii) translation into a functional specification; (iv) solution development; (v) business case; (vi) construction; (vii) commissioning; (viii) implementation; (ix) snagging; and, last, (x) optimisation.

3. LOGISTICAL THEMES AND THEIR IMPLICATIONS

Tesco had set up an automated sortation system in its Southampton chilled distribution centre to supply 56 supermarkets on the south coast. Pallets were delivered from suppliers, cases were fed onto a sorter, and sent down chutes to be placed onto cages for delivery. The retailer then decided to enter the convenience sector by acquiring 186 small stores based in Hampshire. However, with only 56 chutes, its DC didn't have the capacity to service its new hinterland, with the result that the sorter was removed.

Similarly, when Sainsbury's spent £700m on four automated DCs in 2003, it did not foresee the significant shift in consumer taste for chilled products, with the result that it was forced to spend millions more removing its ambient pick-to-belt automation to ensure adequate capacity on its sorter for chilled products.

Developers should build in as much flexibility into speculative and D&B distribution centres as there is a very high probability that fundamental changes will be needed over the life of the DC.

Table 3.2: Design Features to Futureproof DCs

Type	Description & Examples	Benefits
Partial or complete conversion to manual operating environment	<ul style="list-style-type: none"> Higher labour requirement, so more parking/bike sheds, welfare facilities and amenities are required 	<ul style="list-style-type: none"> Not all (low skill) warehouse staff are able to afford vehicles, so sites with excellent public transport links should be preferred at the planning stage Remote DCs carry a risk of being unable to attract sufficient temporary labour
Additional sortation (chute) capacity	<ul style="list-style-type: none"> Greater warehouse footprint may be needed, so 20% to 30% headroom could be planned (but not built) by leaving adequate space for expansion of fallow land 	<ul style="list-style-type: none"> Land-locked sites are not ideal in this respect, so prospective sites should always have room to expand
Additional picking or packing capacity	<ul style="list-style-type: none"> In addition to expansion options above, the construction of mezzanines for high density storage may also be considered Building height and floor strength should be appropriate for mezzanine creation 	<ul style="list-style-type: none"> Elevating or lowering products and/or people can be problematic, so single floor solutions tend to be preferred
Relinquishment of space	<ul style="list-style-type: none"> Ability to be able to subdivide Warehouse space easily; dual entrances, offices and amenities make division simple and quick 	<ul style="list-style-type: none"> Doubling facilities at the design stage may seem an unnecessary expense but planning their subsequent creation is hugely desirable
Maximise flexibility for receiving and despatch	<ul style="list-style-type: none"> Fit more doors than may be initially thought necessary as it is far cheaper and less disruptive to install dock levellers as part of the initial build than to retrofit them 	<ul style="list-style-type: none"> Doors can also be used to add temporary storage capacity

3. LOGISTICAL THEMES AND THEIR IMPLICATIONS

3.5. Labour: Recruitment, Retention and Productivity

There are many areas of the UK that have almost no locally available indigenous labour force (once the local rate drops to below 2%, there is effectively zero unemployment). Although labour pools from the EU in particular may alleviate these pressures to some extent, shortfalls do occur.

Employers requiring short-term/seasonal labour are frequently forced to provide transport from more populous areas to fill the deficit. It is not inconceivable that some employers will provide modest short-term accommodation for employees as a way of securing commitment and attendance. The most recently available claimant data shows that the most popular cluster locations for distribution centres (such as Hemel Hempstead, Milton Keynes, Lutterworth and the Golden Triangle within the M1, M6 and M69) have unemployment rates of 1.7% to 3%, making access to local labour extremely difficult, both for core staff and agency workers.

There is increasing evidence¹² that the location strategies of some large e-commerce businesses are reflecting the dual attractiveness of comparatively low-cost facilities (in the north of the country, especially on the M62 corridor) close to large population centres where unemployment rates are in the 4.5% to 7% range.

More recently, access to skilled or experienced warehouse operatives has been subjected to the arrival of disruptors, such as Amazon and Lidl, that have distorted the local labour market by offering upper quartile levels of remuneration and other innovative employment benefits. The implications for retailers running existing facilities offering lower (but hitherto acceptable wages) can be quite severe: increase labour costs or face an exodus and be forced to use less reliable agency labour, employed at a premium and providing lower levels of productivity.

When determining on a site for a new DC or distribution park, developers must consider the importance of proximity to pools of labour, access to public transport, extensive (multi-storey) parking facilities.

In areas where high employment coincides with a large quantity of low-skill jobs of a similar nature, staff frequently move between employers for relatively small wage increments or a more attractive working environment. There is a trend towards distribution centres featuring a far more comprehensive range of facilities to attract and retain staff, with implications for building and landscape design.

Occupiers need to incorporate as many features as possible that allow tenants to attract staff, especially in local areas with many other DCs that compete in the labour market.

Relaxation rooms and social spaces, with games, video and TV facilities, as well as gyms, prayer rooms, and reading areas are all becoming increasingly popular in modern distribution centres¹³ (and offices). A canteen serving hot meals, usually removed on cost cutting grounds, is regularly cited in employee surveys as a feature many would like to have available once again.

¹² Such as ASOS moving from Hemel Hempstead to Barnsley, and Boohoo choosing to expand in Burnley rather than relocate further south.

¹³ After critical media reports and a visit from a delegation of MPs, ASOS has enhanced its staff facilities in its Barnsley DC with the addition of a gym and a wellness centre.

3. LOGISTICAL THEMES AND THEIR IMPLICATIONS

3.6. Government Regulation: Urban, Environment, Road Pricing and Vehicle Legislation

As congestion and emissions become of increasing concern, urban environments are likely to be serviced by extremely low emission diesel vehicles in the medium term and electric vehicles over the longer term, operating from hubs in suburban or brownfield locations, ideally with good access to arterial routes. Shared user distribution centres and consolidation sites on the periphery of urban environments should become more common, with third party logistics providers supplying the infrastructure.

The Ultra-Low Emission Zone (ULEZ) is to be introduced in April 2019 in the Congestion Charging area of Central London¹⁴. While the details about geography, emission levels and costs vary by council, logistical activity within urban environments will be subjected to increasing levels of scrutiny, restriction and cost. TfL has suggested ways to reduce delivery activity by reducing frequency and supplier consolidation, amongst other initiatives¹⁵. It is unclear whether businesses that do not reduce their deliveries will face fines or other penalties.

The comparatively limited range and payload of current (and planned) electric vehicles relative to conventionally-fuelled vehicles is likely see diesel trucks feeding consolidation sites with stock of low residency for manual cross-docking or sortation. Whilst such facilities should therefore have many doors, height is not particularly important unless multi-level vehicle access can be created to two or more floors (as is common in some European warehouses). See Appendix 2 for illustrations of multi-storey DCs.

3.7. Planning, Infrastructure and Land Availability

The trends in terms of DC size and height are well established (larger and taller) and their implications for location options are becoming increasingly important. The difference in local authorities' policies to very large or very high DCs can be an important factor in determining the location of some facilities. Local authorities may refuse permission for many reasons, such as preference for residential housing, planning blight, the level and type of employment creation, potential congestion, distortion of the local employment market or general misalignment with the strategic plan.

As DCs get taller – especially with the increasing adoption of automation that requires greater height – the significance of planning policies will become greater.

Needing to convert frozen warehouse chambers in its composite DCs to chilled product space to keep up with rising demand for burgeoning categories such as ready meals, Tesco decided to establish a large automated distribution centre for frozen food to service the whole of the South of England. Its modelling determined the intersection of the M1 and M25 to be the optimum location, but the local authority rejected its application for a 20m high warehouse. The eventual facility was built some 60 miles to the north near Daventry, condemning the unit to permanently higher operating costs.

¹⁴ The zone will be extended in October 2021, to the area within the North and South Circular roads, and then, it has been suggested, again in 2027 to the area within the M25 arterial motorway. Although London is in the vanguard of emissions legislation, it is by no means alone; at least 20 cities are planning to introduce similar ULEZ schemes, including Aberdeen, Bristol, Cambridge, Cardiff, Dundee, Edinburgh, Glasgow, Manchester, Reading, Southampton and York. It is difficult to imagine that every other city in the UK will not adopt a similar approach eventually if, indeed, blanket legislation is not introduced in the meantime.

¹⁵ See <https://tfl.gov.uk/info-for/deliveries-in-london/delivering-efficiently>.

3. LOGISTICAL THEMES AND THEIR IMPLICATIONS

While smaller warehouses used to fit into the fabric of towns, very large sites do not sit comfortably alongside residential developments, tending to be located at motorway junctions, with the consequence that there are very few other uses for this type of land.

3.8. Shorter Product Cycles Made by Faster Supply Chains

The prevailing wisdom in merchandising in fashion retail businesses used to be two grand seasonal ranges (Spring-Summer and Autumn-Winter), coupled with a sourcing strategy favouring low-cost economies. This arrangement was distinguished by very low input costs but frequently created a stale customer proposition, resulting in lacklustre sales, unplanned (and therefore unbudgeted) promotional activity and high levels of terminal inventory.

While there are still many proponents of this approach, the merchandising paradigm has begun to shift to far greater range differentiation, characterised by a perpetual stream of short-term products, offering consumers a continuously refreshed shopping experience (across all channels) with more product options and customisation opportunities. The more successful fashion retailers tend to have embraced this more responsive customer proposition.

This new product strategy necessarily changes production economics (smaller batches made closer to market) and supply chain velocity (production to market in days or weeks not months), with fundamental implications for international transportation modes, warehouse design and inventory management. Slow sea freight, while still hugely important due to its enduring vast scale and low cost, is being augmented with air-freight from the Far East or road-freight from European sources. There are increasing instances of apparel production shunning slow global supply chains, with both market leading and specialist retailers manufacturing some ranges in the UK.

Following the lead of Inditex with its local manufacturing base in Spain, providing just-in-time production and product flexibility, some UK brands have developed their own local manufacturing model, such as Boohoo (in Leicester) and Sunspel (Nottingham).

In the next 10 years, there is likely to be a small but potentially significant rise in UK garment production facilities, possibly using smaller warehousing and distribution premises vacated by failing high street retailers.

3.9. The High Street Under Increasing Pressure

The rise in business rates¹⁶, rent increases, competition from low-cost e-commerce businesses, the devaluation in Sterling (increasing the cost of imported goods by 15%), rises in minimum and living wages, higher utility bills and transport costs, as well as declining footfall are irresistible forces bringing about fundamental and, for some, worrying changes to the high street.

¹⁶ Recent research undertaken by the Altus Group showed that business rates across the UK increased by 3% in April 2018, in line with CPI inflation, although the effect was far from evenly distributed. Average rates for department stores in England and Wales had risen by 26.6% in just two years; while large high street shops saw average rises of 10.8% but rates for some online retailers dropped during the same period. The DC occupancy costs of e-commerce giant ASOS and Shop Direct, the former Littlewoods empire, actually fell, while Amazon paid just 0.7% more.

3. LOGISTICAL THEMES AND THEIR IMPLICATIONS

To meet these challenges, retailers may try to operate from smaller premises with less stockholding capacity or product processing space, with the result that delivery frequency will have to increase (note, however, the pressure to have fewer deliveries with lower emissions by TfL and other local authorities), and product will more commonly be delivered retail-ready¹⁷. Parking and temporal access restrictions have already created impossible delivery stores, with businesses habitually and begrudgingly accepting parking fines as a cost of service. Shorter delivery turnaround times are now targeted by logistics providers, using a variety of handling media and smaller vehicles to limit exposure to additional costs.

Smaller retail units with less storage and processing space will require more frequent deliveries from small electric vehicles, increasing the need for service centres on the periphery of urban areas.

Flexibility in DC design to allow the subletting of space in the event of traditional retailers no longer requiring as much space is also desirable, albeit there is little relief for existing occupiers in facilities without such design features.

Consolidation in the (retail) sector may be expected to lead to extensive supply chain rationalisation in terms of DCs, fleet, systems, management teams and operators.

At the macro level, predictions about the extent and impact of this phenomenon are that smaller, inefficient, compromised or less well located DCs will be closed, with products migrating to larger facilities. Completely new DCs may be needed if existing facilities are near capacity and do not have the ability to absorb the volume of the acquired business.

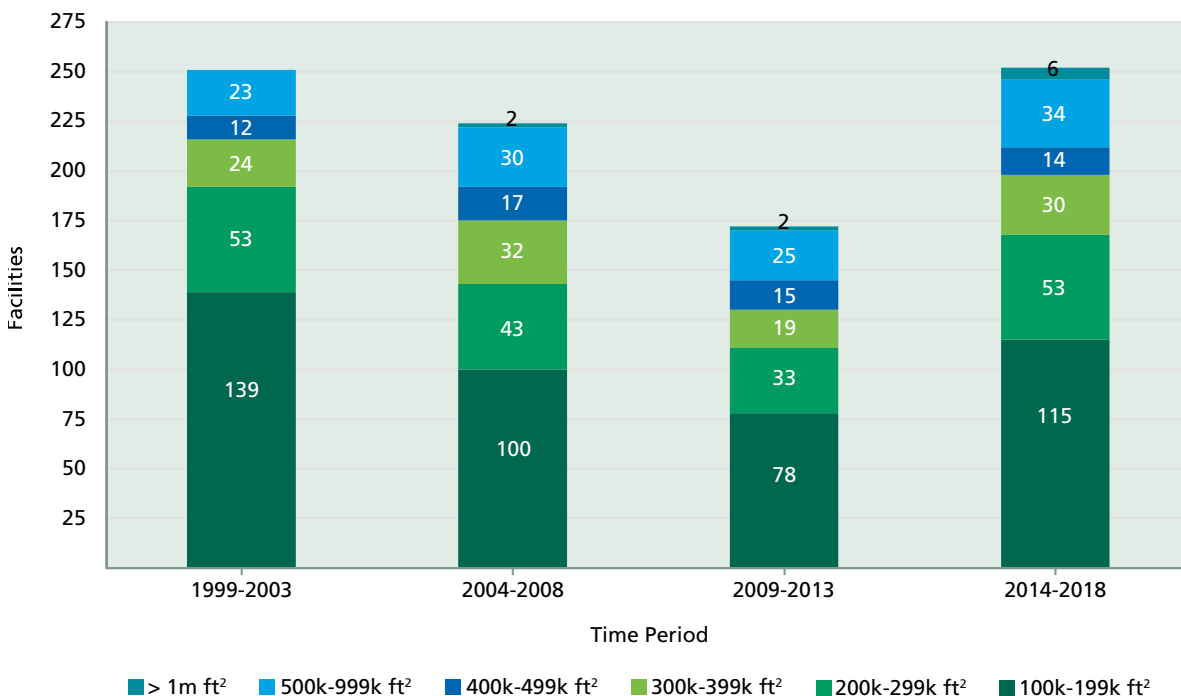
¹⁷ Garments may have to be presented with price/barcode labels applied, security tagged, hanging and shrouded.

4. IMPLICATIONS FOR DC DESIGN

4.1. Size

Available research data¹⁸ shows that on average, over the last two decades, 50 DCs per annum were built during favourable economic conditions. Whilst annual construction rates fell to only 35 DCs during the economic downturn following the financial crisis of 2008 (see Figure 4.1), the trend for ever-larger and higher DCs is clear. The demand for facilities in the 100,000 sqft to 200,000 sqft range is also notable.

Figure 4.1: UK DC Construction Since 1999



Source: JLL

Practical operational limits to the size of DCs are experienced during every (annual or recurring) volume peak. Facilities of two or three million sqft, employing 5,000 to 10,000 people, are beyond the management capabilities of most businesses, and are unlikely to evolve from the planning stage to implementation.

As DCs increase in size, the operational and management challenges of running such facilities intensify exponentially. The workforce of such DCs may surge to 3,000 to 4,000 staff at times of peak demand, from a base labour load of perhaps one third of that level, creating significant problems of recruitment, training, supervision and management, extending over three shifts from one, or perhaps two, under the normal working regime. Productivity rates tend to be severely impacted with any large expansion of the workforce, and process errors and product damage are also adversely affected. Such large sites also carry a far higher risk level, being a single point of failure for power outages, strikes or automation breakdown.

¹⁸ JLL, 2018

4. IMPLICATIONS FOR DC DESIGN

As land availability falls, especially in relation to long-developed urban areas, and commercial property values increase, there will be an increasing trend towards multi-storey DCs. Such DCs are defined by having vehicular access to several warehouse levels, effectively increasing the usable footprint of the facility without the need for products or people to move floors.

It is highly probable that the very largest facilities will always be specific design and build projects. Speculative build ventures will not entertain the risks of being at the extremities of either size or height and will fit within the norms of physical attributes for a given period, where the majority of customers are likely to be found. However, just as average DC size and height has increased, speculative builds have become dimensionally larger, with some facilities exceeding 500,000 sqft.

4.2. Design Flexibility

In the early 2000s, DCs exceeding 500,000 sqft were a comparative rarity but, approaching 2020, sites twice that size are becoming far more common as new build facilities in both the grocery and, particularly, the e-commerce sectors. One significant problem with very large, single occupier DCs is the difficulty of sub-letting in the event that the business is rationalised and less space is needed.

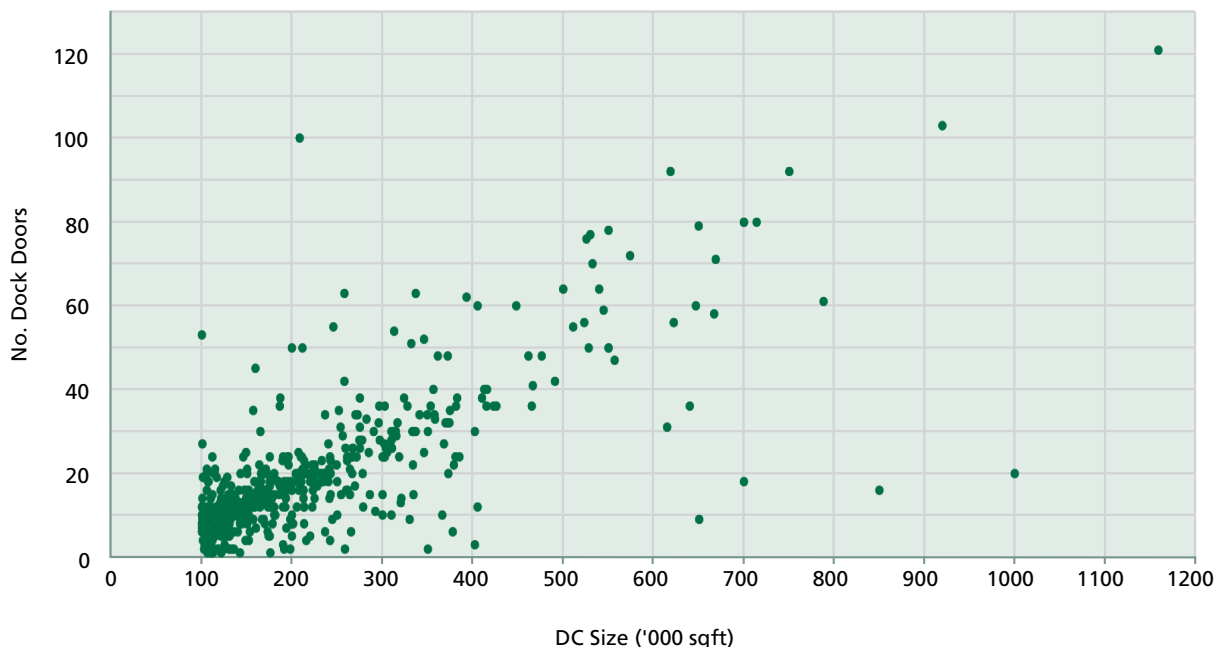
DCs should be built that allow simple and relatively inexpensive subdivision into two or more smaller units: separate gatehouses, divisible parking, multiple staff entrance points for different labour pools, separate amenities, modular offices for each part of the warehouse. Developments in Greenford and Heathrow illustrate this theme.

4.3. Doors

The number of dock doors tends to increase with DC size but usage ultimately determines the number of doors needed. Parcel sortation facilities require a very large number of doors for their comparatively modest footprint but manufacturing facilities have a far lower need for throughput capability and thus require far fewer doors for a given location size. The average number of dock doors for large DCs is one per 11,500 sqft, although the range is considerable, with some 200,000 sqft facilities having 100 doors and 400,000 sqft DCs having just 10 (see Figure 4.2). Over the last 20 years, the average has fallen from 14,000 sqft per door, indicating a greater emphasis on facility throughput and a lower residency time, so more vehicles are required to infeed and load out materials and products.

4. IMPLICATIONS FOR DC DESIGN

Figure 4.2: Relationship between DC Size and Number of Doors



Source: Savills

Given the difficulty, disruption and cost of retrospectively fitting dock leveller doors, speculative build projects should at least provide doors equating to this average, if not offer a slightly lower ratio (more doors).

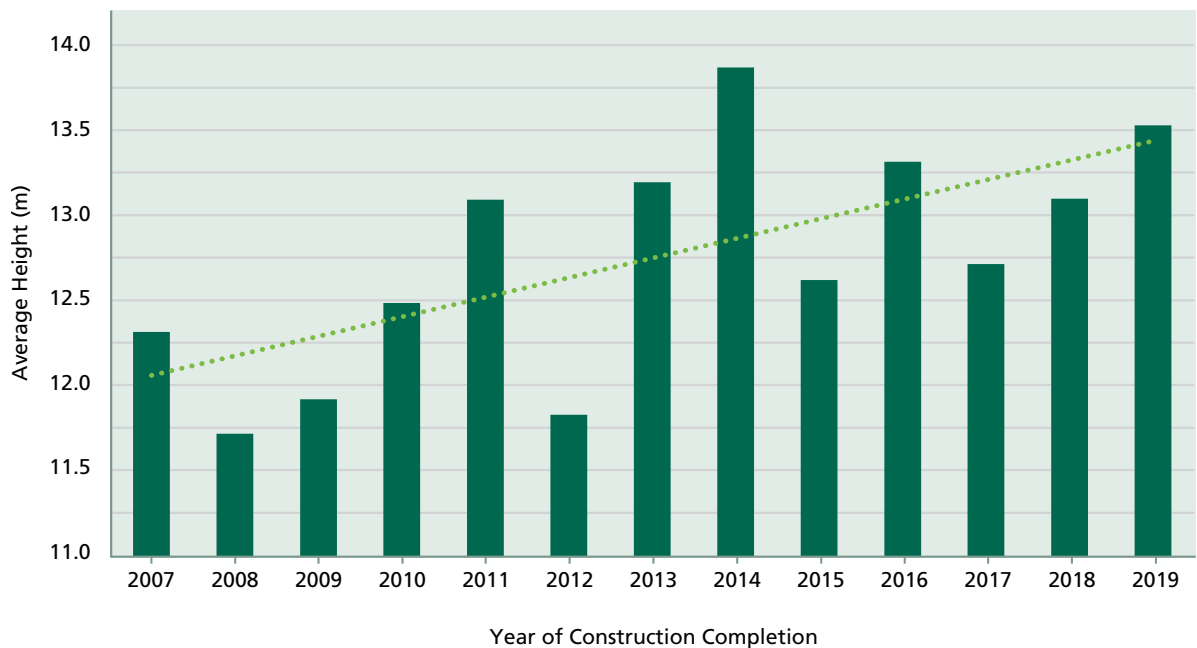
4.4. Height

Over the last 50 years, the eaves height of DCs has increased steadily, from 5m to 6m in the 1960s to 15m or more today. As forklift (FLT) and narrow aisle trucks have improved in aerial capability, with automated handling systems becoming more commercially and operationally viable, rises in land and construction costs have caused logistics users to make more use of increased elevations.

Figure 4.3. shows the average DC eaves height constructed annually since 2007; although there is some variability between years, the trend is clear, with an average increase of 10cm per annum. The majority of DCs built in the last decade (80%) are in the range 12m to 15m, although the rate at which DCs over 15m are being built is increasing.

4. IMPLICATIONS FOR DC DESIGN

Figure 4.3: Average DC Height, 2007 to 2019



Source: Savills

It is a curious anomaly that DC occupancy costs are almost invariably quoted in cost per square metre, rather than the far more telling cost per cubic metre. If the full height of a building can be used productively, then the cubic cost is far more relevant to logistics operators and finance directors alike, and ostensibly cheaper lower height facilities can seem paradoxically expensive.

Letting agents should consider listing cost per cubic metre as market comparisons may be more favourable.

It should not be assumed that greater height always translates into more market appeal; there are practical limits to height usage for different applications. Chill facilities whose primary supply chain model is cross-docking or flowthrough do not need more than 3m to 4m. Wide-aisle palletised DC operations should not be taller than 15m as reach trucks (far more productive than NVA trucks) tend not to be able to operate above 13m. Conversely, facilities using automated storage and retrieval systems for pallets, or mini-load tote handling systems, should be installed in higher DCs to maximise the available footprint.

One innovation in mainland Europe chill supply chains that has yet to find favour in the UK is the two-storey distribution centre. As the chambers of chill pick-by-line warehouses do not need to be tall, it is possible to operate on two floors, each having doors for receiving and despatching product. While a speculative build of this type would be difficult to justify, the design may become more popular as the need to intensify asset utilisation increases.

4. IMPLICATIONS FOR DC DESIGN

Table 4.1 provides a summary of some of the trends and themes in relation to DC height, usage and suitability.

Table 4.1: DC Features and Associated Applications

Height	Description	Equipment/Installations	Applications	Productivity
15m to 20m	<ul style="list-style-type: none"> Very high facilities, typically built within last 10 years, usually featuring some form of automation Multi-functional sites Design & build, specified to user requirements 	<ul style="list-style-type: none"> VNA trucks (beyond capability of standard reach trucks) Automated storage & retrieval systems Mini-load Flow rack 	<ul style="list-style-type: none"> High bay: slow-moving /high density pallet storage Aerial picking High stock keeping unit count handling 	<ul style="list-style-type: none"> Efficient if automated, albeit critically dependent upon handling unit compliance
12m to 15m	<ul style="list-style-type: none"> Common height for DCs in last 20 years Popular in many sectors Suitable for pallet operations 	<ul style="list-style-type: none"> VNA/APR Reach trucks (upper limit) Mezzanine Automation 	<ul style="list-style-type: none"> Pallet storage & movement Case picking Automation (mini-load & flow rack) 	<ul style="list-style-type: none"> Highly productive putaway & replenishment operations, especially in wide aisle guise
10m to 12m	<ul style="list-style-type: none"> Typically, 1980s to 1990s (retail) DCs 	<ul style="list-style-type: none"> APR Mezzanine Reach trucks Sortation 	<ul style="list-style-type: none"> APR Mezzanine Reach trucks 	<ul style="list-style-type: none"> Highly productive environment, but not ideal for high stock levels
8m to 10m	<ul style="list-style-type: none"> 1970s to 1980s warehousing facilities 	<ul style="list-style-type: none"> Reach trucks APR Powered pallet trucks 	<ul style="list-style-type: none"> Wide variety of applications, typically favouring small to medium businesses/RDCs 	<ul style="list-style-type: none"> Medium level of productivity as pallet storage to throughput ratio not ideal
5m to 8m	<ul style="list-style-type: none"> Very old DCs Conversion from factory of other buildings Smaller (sub 50k ft²) DCs 	<ul style="list-style-type: none"> Reach trucks Powered pallet trucks 	<ul style="list-style-type: none"> Wide variety of applications, typically favouring smaller businesses Flowthrough 	<ul style="list-style-type: none"> Not ideal for large pallet operations (as storage to throughput ratio is sub-optimal)
2.5m to 5m	<ul style="list-style-type: none"> Conversion from factory or other buildings Purpose-built (e.g. parcel sortation facilities) 	<ul style="list-style-type: none"> Reach trucks Pump trucks Powered pallet trucks Manual operations Sortation 	<ul style="list-style-type: none"> Ideal for cross-dock or pick-by-line chill activities (as height is not required) Smaller (retail) operations Flowthrough Parcel hubs 	<ul style="list-style-type: none"> Used well, can provide 30% more productive environment than stock picked by store DCs
Up to 2.5m	<ul style="list-style-type: none"> Temporary facilities Can be expensive (in terms of cost per sqft) 	<ul style="list-style-type: none"> Pump trucks Powered pallet trucks Manual operations 	<ul style="list-style-type: none"> Cross-dock Short-term storage All temperature zones possible 	<ul style="list-style-type: none"> Can offer highly efficient operational space if inbound & outbound are synchronised

4. IMPLICATIONS FOR DC DESIGN

4.5. Energy Generation

Although it was not possible to obtain accurate figures for the purpose of this report, there appears to be a modest trend towards environmentally friendly methods of energy generation, such as the use of wind turbines and solar panels. Some businesses wishing to enhance their environmental credentials may find such features attractive and there may be national or local authority grants to encourage installation.

Developers should build in as many sustainability features as possible, as legislation, the attitudes of potential occupants and costs are all likely to favour greener facilities.

4.6. Location

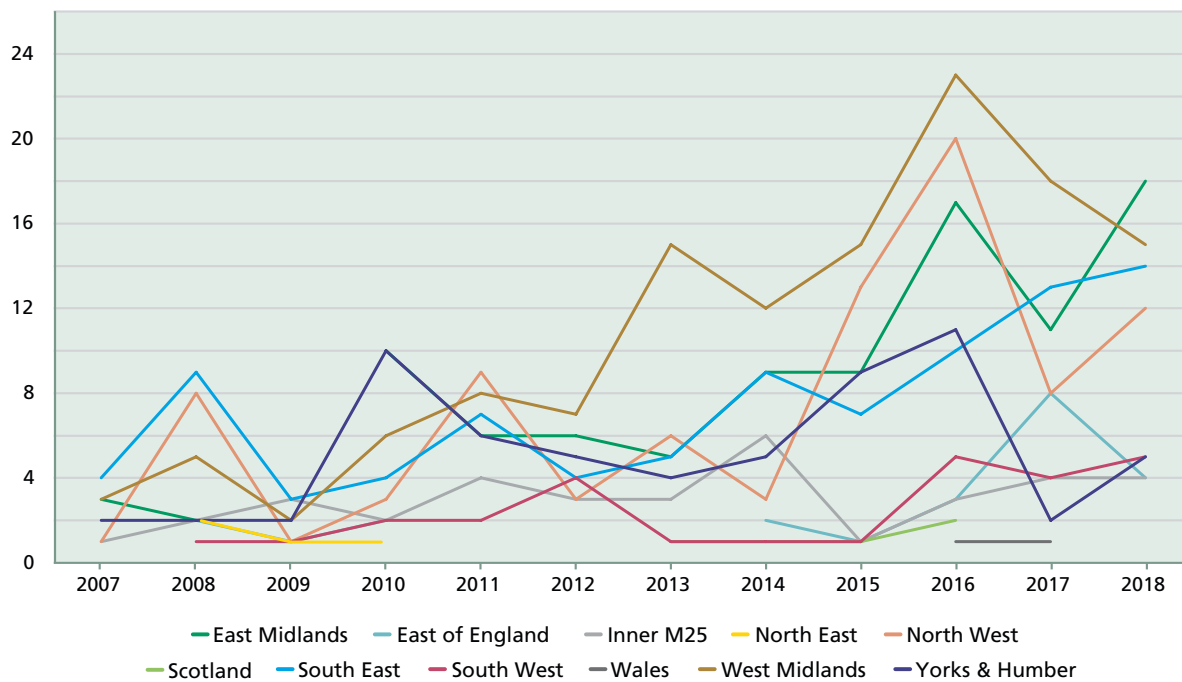
Perhaps the most fundamental shift in DC location has been the disproportionate increase in facilities along the M62 corridor (see Figure 4.4). in the North West and Yorkshire & Humberside regions. The construction of warehousing facilities along the M62 has typically represented 20% of the national level but in the current decade, that figure has risen to almost 40% in some years and to 30% overall. In 2016, the most prolific year of DC construction in the UK, only 10 facilities were built in the South East, while 31 were erected along the M62 corridor.

Although the expansion of traditional distribution sites, such as Magna Park, has continued, there is a clear preference for occupancy of facilities in the North of England and the Midlands, enjoying far lower rent and rates costs but nevertheless affording access to e-commerce parcel hubs.

In early 2019, there were 515 motorway junctions in the UK. Proximity to a motorway junction affords greater utility for distribution centres, reducing operating costs and travel time for inbound and outbound delivery vehicles. Within a given locale, distribution facilities enjoying greater proximity to motorway junctions should carry a slight premium over those sited in more remote areas.

4. IMPLICATIONS FOR DC DESIGN

Figure 4.4: Annual DC Construction by Region, 2007 to 2018



Source: Savills

4.7. Summary of Implications

The main strategic points identified by this research are summarised in Table 4.2 and comprise:

- Further losses amongst the high street retailers are to be expected, with CVAs leading to downward pressure on rents for logistics units.
- Quick access to parcel sortation hubs is essential for online retailing and dictating the location for multi-channel retailers. This pattern favours locations in the Golden Triangle and along the M62 corridor.
- Over a strategic timeframe, increasing penetration of automation and robotics will lead to larger units, with higher eaves, stronger floors and a requirement for access to higher levels of power (2MVA to 6MVA). However, it is harder to gain permission for very tall units in some parts of the South East and the Midlands, although automated units may be in strong demand in some parts of these regions where labour is scarce.
- Labour shortages are having a significant impact on operating productivities and capacities, especially in areas populated with many DCs. Competition for labour will deter logistics occupiers from locating in areas of very low unemployment whilst placing a premium on (24-hour) public transport services, parking spaces and an attractive working environment.
- There is no meaningful difference in the spatial requirements of e-commerce DCs compared with their traditional high street equivalents in the UK. In the USA, the differential, once considered to be 3:1, is narrowing.
- Flexibility to add to space, maybe using temporary mobile facilities, and/or sub-divide space will maximise

4. IMPLICATIONS FOR DC DESIGN

the likelihood of tenant retention.

Table 4.2: Summary of Implications

Usually	Primary/ Import Warehouses	Consolidation Centres	National Distribution Centres	Regional Distribution Centres	Parcel Sortation Hubs	Returns Centres
Region	<ul style="list-style-type: none"> Proximity to ports important; changing trade patterns may shift port usage More airport usage Silk road Multi-modal freight 	<ul style="list-style-type: none"> Should benefit from locations in heartlands of suppliers 	<ul style="list-style-type: none"> Midlands always likely to dominate for high street retail unless store distribution is particularly geographically skewed 	<ul style="list-style-type: none"> Distributed across country according to store distribution Some consolidation possible 	<ul style="list-style-type: none"> Fed by service centres, so either Midlands or near to population centres 	<ul style="list-style-type: none"> Near to hubs is ideal
Proximity to hubs	<ul style="list-style-type: none"> Unimportant 	<ul style="list-style-type: none"> Unimportant 	<ul style="list-style-type: none"> If retailer has e-commerce in NDC, should be within 60 minute drive time 	<ul style="list-style-type: none"> If retailer has e-commerce products in RDC, should be within 60 minute drive time 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Proximity is a distinct advantage for efficient product flow
Access to labour	<ul style="list-style-type: none"> Relatively low labour requirement as handling activity usually at pallet level Some tipping of containers FLT skills 	<ul style="list-style-type: none"> Relatively high labour component as mixture of pallet and case picking 	<ul style="list-style-type: none"> Typically large sites with large labour pools Access to labour very important 	<ul style="list-style-type: none"> Usually medium to large sites with relatively large labour pools Access to labour very important 	<ul style="list-style-type: none"> Usually feature sorters but still require medium levels of warehouse labour and drivers 	<ul style="list-style-type: none"> High labour requirement as activities can be arduous
Proximity to infrastructure	<ul style="list-style-type: none"> Not as important as for high throughput DCs 	<ul style="list-style-type: none"> Not as important as for high throughput DCs, but still desirable 	<ul style="list-style-type: none"> Important to be close to (several) motorways due to usually high levels of vehicular movement 	<ul style="list-style-type: none"> Important to be close to efficient road network as usually high levels of vehicular movement 	<ul style="list-style-type: none"> Good access essential due to extremely high levels of vehicle movement 	<ul style="list-style-type: none"> Moderately important; hub proximity slightly more important

4. IMPLICATIONS FOR DC DESIGN

Size	<ul style="list-style-type: none"> • Typical range 100k ft² to 250k ft² 	<ul style="list-style-type: none"> • Typical range 100k ft² to 200k ft² 	<ul style="list-style-type: none"> • Typical range 100k ft² to 500k ft² 	<ul style="list-style-type: none"> • Typical range 100k ft² to 300k ft² 	<ul style="list-style-type: none"> • Older facilities less than 50k ft²; new sites up to 300k ft² 	<ul style="list-style-type: none"> • Typical range 100k ft² to 200k ft²
Usually	Primary/ Import Warehouses	Consolidation Centres	National Distribution Centres	Regional Distribution Centres	Parcel Sortation Hubs	Returns Centres
Height	<ul style="list-style-type: none"> • Height advantage (15m) for reach truck operation • Possibly high bay applications to 20m • Inexpensive, older facilities also popular 	<ul style="list-style-type: none"> • 10m to 12m stocked 	<ul style="list-style-type: none"> • 12m to 20m with high bay or automation 	<ul style="list-style-type: none"> • Age dependant: 6m to 15m 	<ul style="list-style-type: none"> • 6m to 15m, again age dependant 	<ul style="list-style-type: none"> • 8m to 12m
Doors	<ul style="list-style-type: none"> • Not as many required as compared to high throughput sites • 10 to 15 dock leveller doors • 5 to 8 level access doors 	<ul style="list-style-type: none"> • Multiple vehicle movements; 30 to 50 doors 	<ul style="list-style-type: none"> • Large sites require high levels of vehicular access; 80 to 100 doors for very large facilities 	<ul style="list-style-type: none"> • 30 to 50 doors 	<ul style="list-style-type: none"> • As many as possible; 100 to 260 doors across two sides 	<ul style="list-style-type: none"> • 30 to 50 doors
Energy efficiency	<ul style="list-style-type: none"> • Tend not to be heated 	<ul style="list-style-type: none"> • Temperature-controlled products require efficient facilities 	<ul style="list-style-type: none"> • Average importance 	<ul style="list-style-type: none"> • Especially important in multi-temperature (composite) sites 	<ul style="list-style-type: none"> • Average importance 	<ul style="list-style-type: none"> • Average importance

5. COMMERCIAL INVESTMENT IMPLICATIONS

Section 3 described nine themes affecting logistics operators and section 4 summarised the expected implications on the location and specification for different types of DC. This section describes the impact that these changes are estimated to have on the future investment performance of logistics property.

Returns from logistics investments can be split between the initial development phase and the subsequent period as a standing investment.

5.1. Development

A large amount of new logistics space is expected to be developed in the coming years to meet the increased demand from online retailers. This will provide opportunities for significant returns for developers that are able to meet this demand.

The return to developers will accrue at various milestones in the development process: principally site acquisition, obtaining planning permission, completion and letting.

The risk of development is focussed on the final two stages: construction cost/time over-runs and letting risk.

In the last 10 years over half of development has been much lower risk pre-let or design and build development. This is expected to continue as online retailers seek bespoke schemes to meet their requirements. Design and build not only reduces the exposure of the developer to the risk of cost/time over-runs during the construction phase, which will be lowest for tried and tested building formats, but also removes letting risk.

The letting risk is of declining rental values during the period from scheme start to scheme letting, which can be measured by the volatility of rental values. The volatility of rental values on the MSCI distribution warehouse series from 1980 to 2018 has been 5.9%, much lower than the 12.7% volatility of central London offices for example. The construction period for logistics units is also significantly shorter than for example town centre offices, which reduces the developer's exposure to a market downturn. Developers should not be complacent though; from 1991 to 1994 rental values on distribution warehouses in London fell nearly 30%.

5.2. Standing Investments

The determinants of standing investment returns from logistics property can be split into four components:

- Current income;
- Growth in the rent;
- Transition risk from the current lease to a new letting; and
- New letting terms.

5.2.1. Current Income

The current income characteristics of logistics property are determined by the unexpired term of current leases, the financial strength of the occupiers and the level of irrecoverable costs.

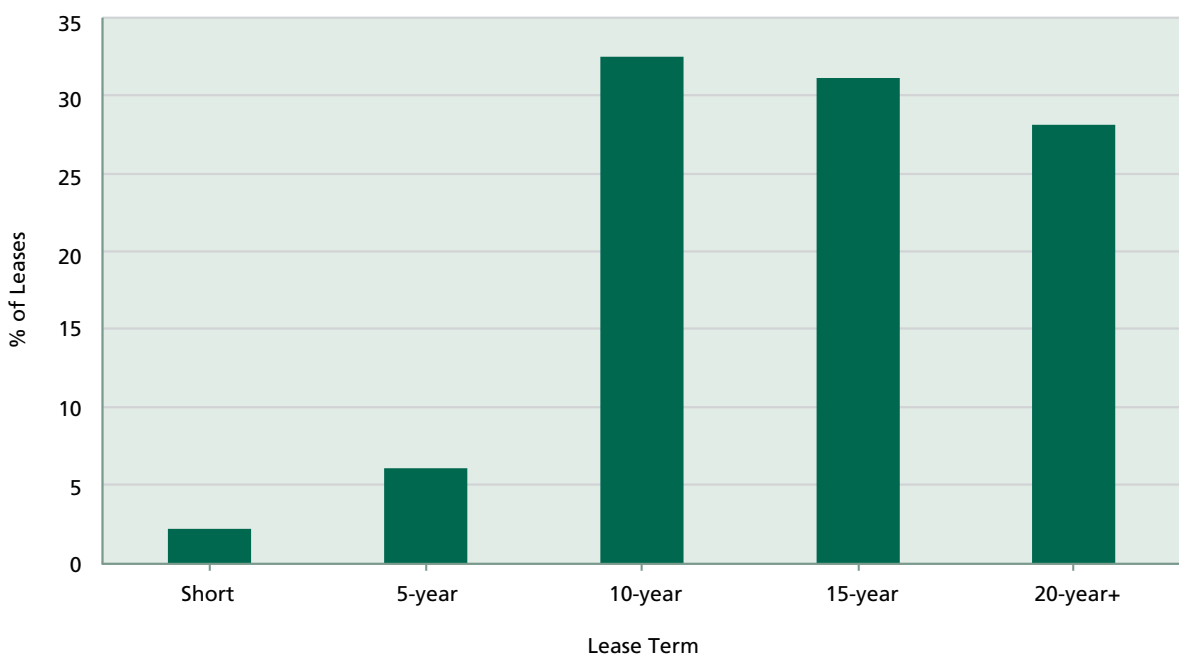
The longer the unexpired term of current leases, and the stronger the financial strength of the occupiers, the greater the security of income and the lower the investment exposure to any occupier market downturn.

5. COMMERCIAL INVESTMENT IMPLICATIONS

Current Income – Unexpired Lease Term

The logistics sector is blessed with a large amount of new stock secured on particularly long leases. Figure 5.1 shows that initial lease terms on new logistics units, let over the last 10 years, have tended to be long, with nearly 90% of units secure for 10 years or longer.

Figure 5.1: Lease Terms on New Logistics Units, 2008-2018



Source: Savills

Current Income – Covenant Strength

The security of income afforded by these leases also depends upon the likelihood of tenant default over the term of the lease. The key triggers of tenant defaults are:

- Cyclical (the wider economy);
- Structural (e.g. technological change or increased competition), or;
- Specific (e.g. unwise expansion or acquisitions by individual companies).

The insolvency risk of logistics occupiers would therefore be expected to rise in a recession or if there are any adverse structural changes in the industry. The current decline in the fortunes of high street retailers is a perfect example of such a structural trigger causing a spike in tenant defaults. As previously identified, investors with an exposure to high street retailers through their logistics assets are vulnerable to tenant insolvencies or CVAs.

The high concentrations of occupiers in other industries also increases the risk of a spate of tenant insolvencies (in the automotive sector for example).

5. COMMERCIAL INVESTMENT IMPLICATIONS

Current Income – Irrecoverable Costs

The actual income received by investors is eroded by irrecoverable revenue costs such as rent review fees. With most units let on a full repair and insurance basis these costs tend to be very low, at around 5%.

5.2.2. Growth Component

Growth in rent is driven by a combination of the strength of occupier demand and the supply response.

Past rates of rental growth on logistics property have averaged 2.4% per annum from 1980 to 2018. Inflation (CPI) has averaged 3.2% per annum over the same period. In real terms therefore, rental value growth on logistics property have fallen by -0.8% per annum.

Figure 5.2: Distribution Warehouse Rental Trends, 1981-2018



Source: MSCI, ONS

Given the strong growth in occupier demand for logistics units, the long-term below-inflation rate of growth in rental values suggests that new supply has been able to keep pace with demand.

There is some evidence that rental growth has been strongest in London, suggesting that supply has been slightly more restricted around London, presumably by site availability and land cost. This regional hierarchy to rental growth would therefore be expected to continue.

5. COMMERCIAL INVESTMENT IMPLICATIONS

Table 5.2: Long-Term Rental Growth by Broad Region, 1980-2018

	Nominal Rental Growth, % pa	Real Rental Growth, % pa
London	2.8	-0.4
Rest of South East	2.2	-0.9
Rest of UK	1.9	-1.2
All Distribution Warehouses	2.4	-0.8

Source: MSCI, ONS

Rental value growth has exhibited a cyclical pattern. Periods of above-inflation rental growth has occurred from 1985-1990, 1996-2001 and 2013-2017. Outright rental falls occurred from 1990-1995 and 2007-2012.

Since 1985, there have been two complete cycles, therefore. In the first, from 1985 to 1996, rental values rose in real terms by 52%, then fell by -34% from their 1990 peak, to a trough in 1996. In the following cycle, from 1996 to 2013, rental values rose by 10%, to a peak in 2001, before a long steady fall of -27%, until 2013. Post-inflation rents have risen by 8% so far in the current cycle, the third on record.

Table 5.1: Distribution Warehouse Rental Trends

Cycle 1	Real Rental Growth, %	Cycle 2	Real Rental Growth, %
1985-1990	52	1996-2001	10
1990-1996	-34	2001-2013	-27
1985-1996	-1	1996-2013	-20
1985-1996 (pa)	-0.1	1996-2013 (pa)	-1.3

Source: MSCI, ONS

The two previous cycles are only a guide to investors of what they can expect in future. Each cycle is different in the length and quantum of the upswings and subsequent falls in rental values (RICS, 1994). The two characteristics of these cycles are of a large increase in stock, delivered through a high proportion of pre-let schemes. Assuming the further demand growth is met by a high degree of pre-let schemes, it is reasonable to assume that relatively low rental volatility will be repeated in the current cycle.

5. COMMERCIAL INVESTMENT IMPLICATIONS

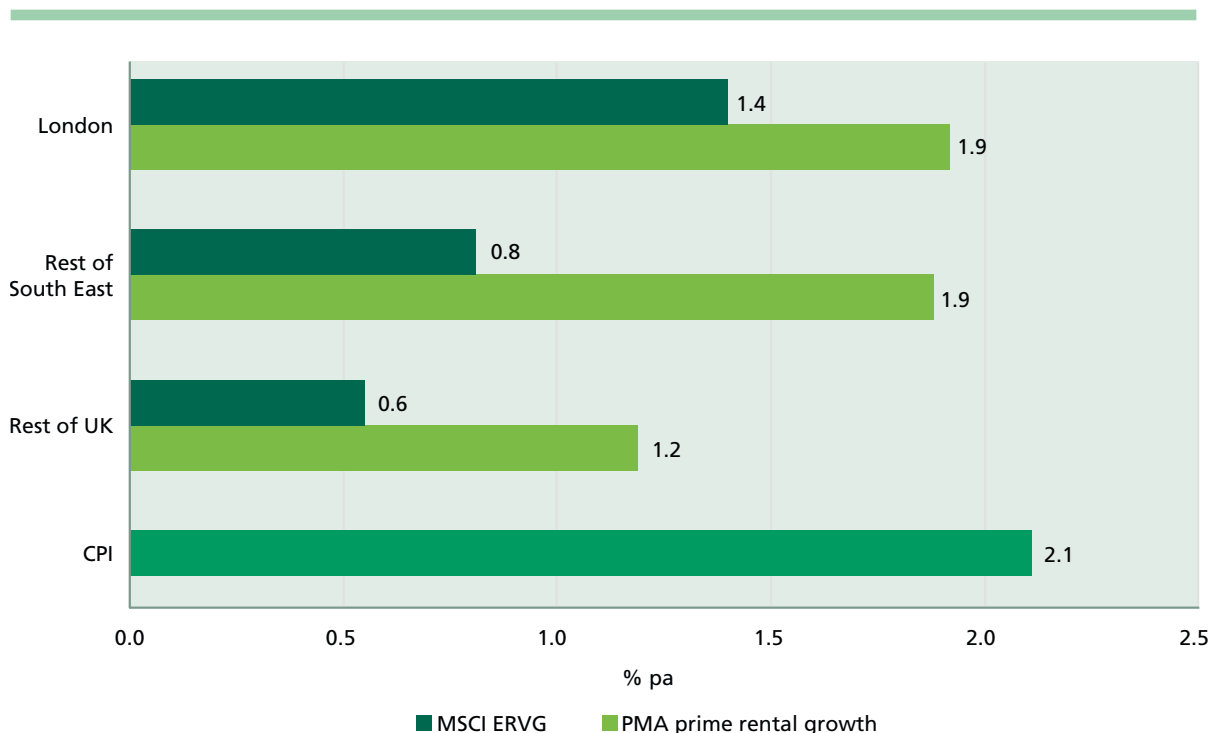
Growth Component – Depreciation

Section 4 outlined the changing functional requirements of logistics occupiers. Such changes feed through into depreciation of the current stock.

The gap between prime and average rental growth can be used to quantify the rate of depreciation. Average rental growth is measured on held stock, whilst prime rental growth is measured on the newest buildings in each period. If occupier requirements change significantly, then rents on existing stock will depreciate relative to those on new facilities.

Reported prime logistics rental value growth from 2000 to 2018 ranged from 1.9% per annum in London and the South East to 1.2% per annum in the rest of the UK. Over the whole 18-year period, for which prime rent data is available, the growth in prime rents outstripped average rents by 1.1% in the South East, 0.5% in London and 0.6% in the regions.

Figure 5.3: Prime versus Average Rental Trends by Broad Region, 2000-2018



Source: PMA, MSCI, ONS

The gaps between prime and average rental growth on logistics units by region are similar to the 0.5pp gap calculated in the IPF report into depreciation (IPF, 2005) for all industrials. Whilst section 4 outlined a continued move towards larger, higher formats for online retailers, this was not to the exclusion of all other formats for other users and uses. The sector is therefore expected to generate similar, relatively low, rates of depreciation for the foreseeable future.

5. COMMERCIAL INVESTMENT IMPLICATIONS

Growth Component – Future Assumption

Looking forward, investors can break down their growth assumptions into their long-term inflation expectations, the growth in prime rents in real terms and a deduction for depreciation.

Using the evidence above, long-term real prime rental growth on logistics property is expected to be around +0.2 pp, -0.3pp and -0.6pp in London, the South East and Rest of UK respectively (reverse engineered from real rental growth from 1980-2018 plus a consistent depreciation rate of 0.6pp).

Table 5.3: Long-Term Rental Growth Assumptions (%)

	London	Rest of South East	Rest of UK	All Distribution Warehouses
Real prime rental growth	0.2	-0.3	-0.6	-0.2
Depreciation	-0.6	-0.6	-0.6	-0.6
Real rental growth	-0.4	-0.9	-1.2	-0.8
CPI	1.8	1.8	1.8	1.8
Nominal rental growth	1.4	0.9	0.6	1.1

Source: RES estimates, MSCI, Oxford Economics

Growth Component – Stock Selection

The rental values on any two logistics units may diverge widely due to variations in either the attractiveness to tenants of the specific location or the property specification. Baum et al report a 29% inter-quartile range in 10-year rental growth on individual industrial properties (-0.4% per annum versus 2.3% per annum).

Section 4 has identified several specific stock attributes that are expected to drive future variations in individual scheme rents: better access to labour, better facilities to aid staff retention, opportunities to add additional floors, additional land to add temporary facilities, units located nearer hubs, units adjacent to new ULEZs and, finally, units with sufficient height (with access to enough power) to allow automation, especially those in local authorities that impose restrictions on new scheme heights. Units with these characteristics are expected to generate significantly higher rental growth to the market average and are summarised in Table 5.4.

Table 5.4: Stock Selection Drivers of Rental Growth

Drivers	Characteristics
Labour shortages	Features to improve tenant retention (parking, public transport, cafes, etc.)
Intensification	Opportunities for multi-storey
Flexibility	Space for temporary facilities; division of unit
Next/same-day delivery	Proximity to hubs
Environmental	Periphery of urban areas
Automation	Taller; adequate power supply

5. COMMERCIAL INVESTMENT IMPLICATIONS

Growth Component – Capital Expenditure

Where the growth in rental values is achieved through asset management, for example, refurbishment, capital expenditure is incurred and returns are proportionally reduced.

According to MSCI, the rate of capital expenditure on distribution warehouses has averaged 1.2% per annum since 1980.

This figure is slightly higher than the rate of 0.8% per annum calculated in the IPF Depreciation report for all industrials, suggesting that this industrial format has required more expensive modifications to maintain occupancy than standard industrials.

Growth Component – The Transition

The transition period from current to future income (when the income reverts to market levels) is determined by the actions of tenants at break and expiry, the length of any subsequent vacancy period and the new lease terms achieved.

The more likely tenants are to exercise breaks, the less likely they are to renew their lease, the longer the resulting vacancy periods and the shorter the new lease terms, the lower the future income stream. The 'innovation-fuelled heterogeneity' suggests that occupiers cannot be relied upon to stay in the same logistics unit beyond their current lease term and possibly want to leave long before it reaches expiry. We will assume a tenant rollover rate of 50% as little evidence is available. Units that can be sub-divided to accommodate letting to two or more occupiers are more likely to retain their current occupier, at least in part, than less flexible units.

According to data from Savills, the average letting periods on second-hand logistics units in the last four years has been 15 months with an average new lease term of just over 10 years. Based on these assumptions, investors should factor in a long-term vacancy rate of just over 5%. This figure matches the average vacancy rate recorded by MSCI of 5.1% from 2006-2017, which peaked at 8.3% in December 2009.

The highest quality units, in other words those with a lowest degree of obsolescence, would be expected to achieve similar lease terms to new builds and be most attractive to the existing and potential new tenants. Units with the stock features identified previously are therefore expected to not only generate stronger rental growth but also achieve longer new leases, shorter letting periods, higher tenant retention rates and, consequently, an even greater margin of out-performance over other units.

5. COMMERCIAL INVESTMENT IMPLICATIONS

5.3. Pricing

The pricing of the four determinants of income drives capital growth:

- In some time periods investors are risk averse and value secure income more highly than growth prospects.
- In other time periods the premium for income security is much reduced and investors are more optimistic for growth prospects, letting periods and new lease terms.

Unfortunately, explicit pricing of each of the income determinants is not available. Investor expectations can only therefore be inferred from current pricing levels. As at the end of 2018 the MSCI equivalent yield for distribution warehouses was 4.5% for London logistics units, 5.1% in the Rest of the South East and 5.6% in the Rest of the UK.

To estimate if current pricing is overly optimistic or pessimistic for future prospects, the long-term expected return from logistics units can be compared to a required return.

5.4. Expected Return

The long-term future expected return from standing investment logistics property is a function of current pricing, projected growth, lost income to vacancies, irrecoverable costs and capital expenditure:

Equation 5.1:

Expected Return = Current Yield - Vacancies - Revenue Costs + Growth - Capital Costs

Table 5.5: Expected Return on Standing Investments by Region

	London	Rest of South East	Rest of UK
Current pricing (CP) ¹⁹	4.5%	5.1%	5.6%
Irrecoverable costs (IC)	5% of income	5% of income	5% of income
Vacancies (V)	5% of income	5% of income	5% of income
INCOME RETURN (CP*(1-(IC+V))	4.0%	4.6%	5.0%
CPI ²⁰	1.8%	1.8%	1.8%
Real prime rental growth (RPRG)	0.2%	-0.3%	-0.6%
Rental depreciation (D)	-0.6%	-0.6%	-0.6%
NOMINAL RENTAL GROWTH CPI+RPRG+D	1.4%	0.9%	0.6%
Capital costs (CapEx)	1.2%	1.2%	1.2%
CAPITAL GROWTH (ERVG-CapEx)	0.2%	-0.3%	-0.6%
EXPECTED RETURN	4.2%	4.3%	4.4%

¹⁹ MSCI December 2018

²⁰ Oxford Economics 10-year forecast.

6. IMPORTANCE OF BUILDING A PORTFOLIO

It should be re-emphasised that over a 10-year period individual units would be expected to deliver an inter-quartile range of +/- c. 1.5% per annum around the rental growth figures. Factoring in the impact on new lease terms, tenant rollover rates and letting periods and an even wider range of total returns should be expected on individual units. This highlights the benefit of stock selection – if investors can get the balance of their portfolios into the '+' side of this equation.

Of course some of this return variation is not predictable and indeed almost random (a particular occupier expanding or becoming insolvent). Whilst investors will want to benefit from positive stock selection they should not want such an uncertain return.

A portfolio diversifies these individual property variations (specific risk²¹) to reduce the uncertainty of investor return closer to the market average. The return on a portfolio holding of only a small number of logistics properties will be heavily dependent on the specific performance of the individual properties and less so the pattern of returns of the logistics market as a whole.

Individual logistics unit are not particularly large but are usually single let and located in clusters, so even a very large portfolio will inevitably have a high exposure to particular tenants, towns and lease expiry dates. These 'concentration' risks drive the residual specific risk²² in a portfolio.

To obtain a diversified exposure to the sector, all but the largest investors should therefore favour specialist listed companies or unlisted property funds.

²¹ Specific risk is also referred to as "unsystematic risk" or "diversifiable risk."

²² Theoretically investors are not rewarded for undiversified specific risk as this can be removed in a portfolio. In practice some undiversified specific risk is inevitable in all real estate portfolios so part of the required return from real estate must include an allowance for some residual specific risk.

7. REQUIRED RETURN

The required rate of return is the minimum return an investor requires to compensate them for the risk taken. The expected return has transferred the inferred growth and risk from the property yield into a risk adjusted expected cash flow – assuming a diversified holding.

A premium expected return from property over bonds is required to compensate investors for the higher volatility, lower liquidity²³ and lower transparency²⁴ of real estate.

Equation 7.1:

Required return = Bond Yield + Liquidity Premium + Transparency Premium + Volatility Premium

Estimates put the required return premium for all property over bonds at around 250 basis points (Baum, 2009), although this figure will vary from investor to investor. Investors with long-term investment horizons, for example sovereign wealth funds, typically have less need for liquidity and therefore have lower a required return when compared to those with shorter horizons.

Logistics property has a slightly higher volatility of return than retail²⁵ but are less volatile than offices, 10.0% versus 9.0% and 11.0% respectively. Based on this time period, investors in logistics units therefore require a slightly lower return than offices, but slightly higher than retail.

Table 7.1 illustrates the gap between the expected and required return, known as 'fair value', using a slightly higher risk premium for the more volatile London region than the regional markets. Currently the sector does indeed look priced to deliver a higher return than investors require.

Table 7.1: Fair Value by Region²⁶

	London	Rest of South East	Rest of UK
Bond yield	1.2%	1.2%	1.2%
Risk premium	2.8%	2.6%	2.4%
Required return	4.0%	3.8%	3.6%
Expected return	4.2%	4.3%	4.4%
Fair value	0.2%	0.5%	0.8%

²³ The speed and time taken to convert an investment into cash.

²⁴ The degree of uncertainty in current pricing.

²⁵ On a forward looking basis, many investors are probably increasing their required return from retail.

²⁶ A portfolio of lower quality logistics units or with shorter unexpired lease terms would be expected to have a higher volatility than a portfolio of higher quality units or with very secure income due to the volatility of pricing. A higher required return is therefore required on portfolios with lower investment quality. (Frodsham, 2016)

8. CONCLUSIONS

- Further development of large logistics units is expected in the coming years, offering attractive opportunities for relative low risk development returns from design and build schemes.
- The logistics sector is attractively priced to deliver strong risk-adjusted returns to investors.
- Investors should not extrapolate the recent significant growth in prime rents in perpetuity. In a recession, rental values would be expected to fall back.
- Current pricing variations by region match past differentials in rental growth. These rental differentials are expected to persist and therefore little regional differential in performance is expected.
- A portfolio approach is required to diversify the specific risk from exposure to individual covenants and relatively few leases. For example, further casualties amongst the high street retailers are to be expected, with CVAs leading to rent reductions.
- Variation in stock performance is expected to focus on labour shortages, intensification, flexibility, proximity to hubs, environmental legislation and automation.

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APPENDIX 1

Pick-by-Store/Stocked DCs

Distribution centres in the grocery retail sector operating this pick-by-store model tend to have an average inventory cover of one week and hold several thousands of pallets of stock in wide aisle racking. DC heights are usually in the range 8m to 13m. As the DC layout is a function of product pick faces (usually palletised), the handling regime is sensitive to the number of stock keeping units (SKUs).

The UK's largest grocery retailer, Tesco, operates two order cycles per day, a main fill and a top-up. Twice a day, sales are polled in the ordering system and orders are sent to local distribution centres that hold the 3,000 fastest moving products in the food range. As order quantities are calculated using a sophisticated algorithm based on sales until the next delivery, over 90% of delivery stock can fit on the shelf, the best one-way stock ratio in the industry, resulting in a highly productive replenishment process. Because backrooms are primarily transit points, they can be free of racking and relatively small; at typically 22% of store footprint, they are the lowest in the sector.

Depending upon occupier, levels of demand and operational competence, productivity throughput levels in ambient pick-by-store DCs tend to be in the range of 3.0 to 5.5 cases per square foot per week. Interestingly, automated facilities handling the same products have not had a material impact on throughput rates, so these rates can be used to calculate space requirements with a high degree of confidence.

Pick-by-Line/Flowthrough DCs

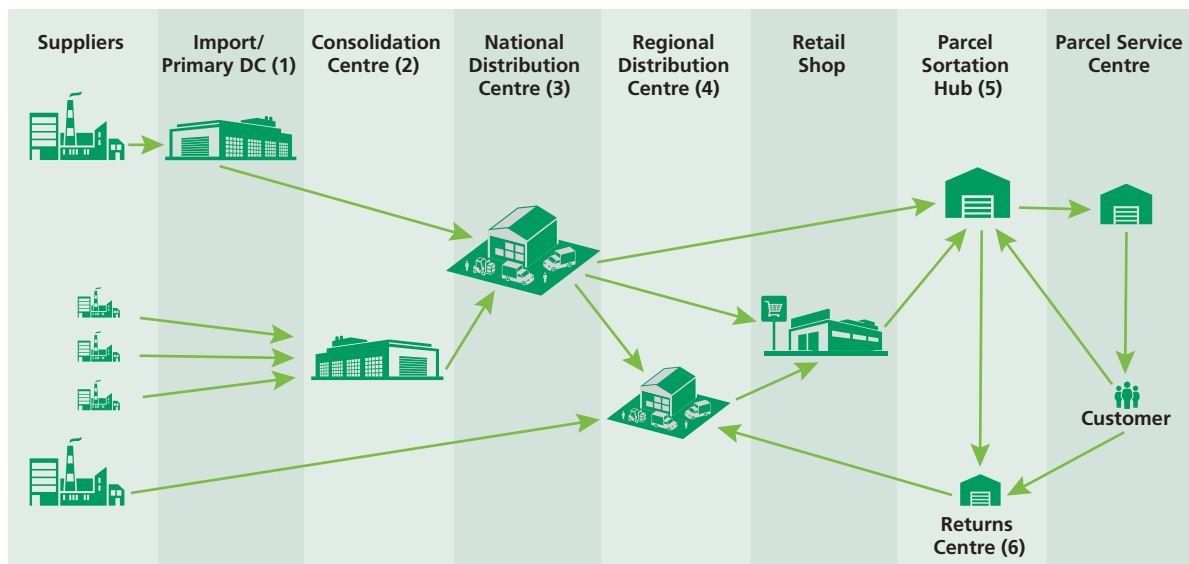
In general terms, the slickest supply chains – demonstrating the greatest control, interconnectedness, lean processes and throughput productivity – are chill supply chains. Inefficiency and inventory have been engineered out of chill supply chains to maximise shelf life and minimise waste. Productivity throughput levels in chill pick-by-line DCs tend to be in the range of 4.0 to 7.5 cases per square foot per week. This higher rate is explained by the shorter path the product takes through the DC; in racked pick-by-store operations, products are handled more and travel a far greater distance than in their pick-by-line counterparts.

In contrast to pick-by-store facilities, the layout of pick-by-line DCs is a function of the number of retail stores (usually organised as short lanes of roll cages). Consequently, the handling regime is sensitive to the number of shops and not products.

Although this type of distribution centre does not need the height required in pallet racked operations (in many cases, only the first three metres of the facility's height are used) chilled facilities tend, somewhat inexplicably, to be a similar height to racked warehouses, with the result that a significant volume of air is chilled unnecessarily.

APPENDIX 2

Figure A2.1: Supply Chain Network



Primary/Import Warehouses [1]

Primary import warehouses typically hold goods from overseas sources for extended periods of time in dense storage conditions (such as narrow aisle pallet racking or block stack). These facilities are frequently found near ports or lower cost (more northerly) areas of the country; as they tend not to supply retail outlets directly, there is no compelling need to be proximate to them. Rather, the primary sites feed regional distribution centres with stock when it is required. These facilities sometimes perform basic processing, reconfiguration or assembly tasks but tend to operate in pallet units, moving and storing bulk loads.

Consolidation Centres [2]

Many grocery retailers insist on Day 1 for Day 2 deliveries into their distribution centres seven days a week. For some smaller vendors, or for those businesses supplying slow-moving items, national deliveries at that responsiveness and frequency are prohibitively expensive. The economic answer is to be a part of a consolidation centre: a facility that can meet retailers' inbound needs but allow the supplier to deliver in full truck loads at a far lower frequency.

APPENDIX 2

National and Regional Distribution Centres [3,4]

In some ways, NDCs and RDCs are the core of physical distribution in the retail logistics sector. These facilities hold products for supply to retail branches and handle all temperature regimes (ambient, produce [+10°C], chilled [+2°C] and frozen [-18°C to -26°C]). They can operate a stocked or flowthrough supply chain regime, and may deliver directly or operate via a trunking network. Large grocery businesses frequently divide their product ranges into groups according to their logistical characteristics – such as rate of sale, size, supplier, category – with the resultant combinations determining their place in the distribution network and the associated supply chain regime (handling type, stock level, order frequency, etc.).

Figure A2.2: Examples of Multi-storey Distribution Centres



Source: Prologis

As the throughput volume of these facilities can be up to three million cases per week, manual handling can be very expensive and operationally problematic at peak times when adequate supplies of capable labour cannot be secured. Retailers have therefore invested hundreds of millions in automation in NDCs and RDCs, not always with unbridled success.

Shared User Facilities

Typically run by third party logistics (3PL) companies, shared user warehouses provide warehousing and distribution for businesses lacking the critical mass to be able to operate a DC of their own cost effectively. The concept has operated for over two decades with suppliers servicing grocery retailers; by amalgamating several suppliers in one DC, 3PLs have been able to offer far lower transport costs and meet customer service demands.

In the e-commerce arena, this model has been adapted to allow small businesses, each with relatively modest parcel delivery activity, to be able to pool their volumes to gain far lower carriage rates with parcel carriers: a single shared user e-commerce DC may accommodate 20 to 30 small retail brands.

APPENDIX 2

Temporary Facilities

Temporary storage and distribution facilities – usually comprising one or more prefabricated modular or inflatable units – are becoming increasingly popular for a variety of reasons, including:

- Additional storage capacity at existing DCs;
- The provision of a logistics solution in areas where suitable properties are difficult to find in a timely manner;
- Slow logistics decisions (on building new DCs) to be delayed; and
- Provide network capability while new infrastructure is being developed.

Their ephemeral nature means that businesses no longer face the same pressure to make expensive and long-term commitments on fixed assets, especially in remote areas.

Parcel Sortation Hubs [5]

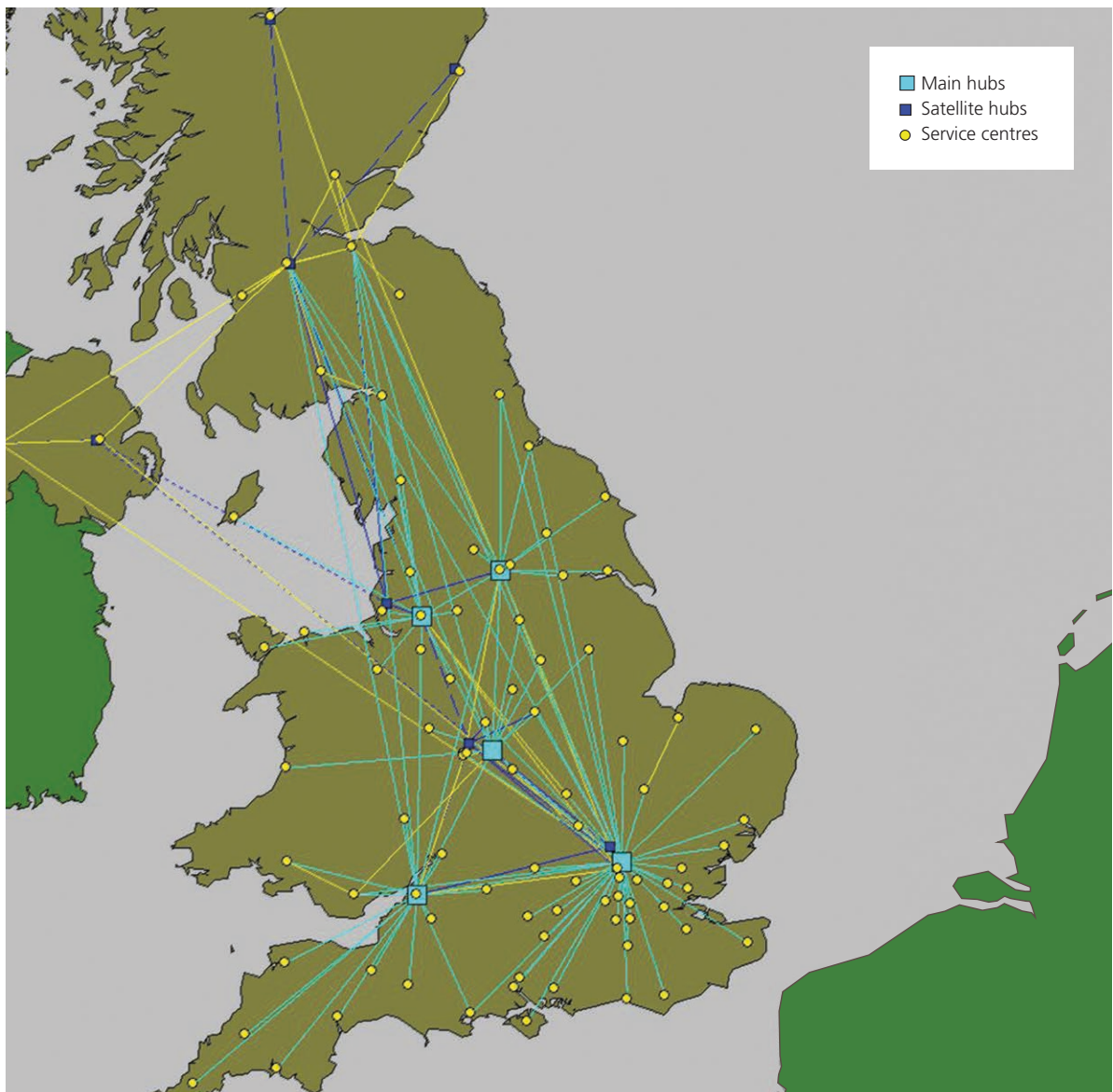
Similar at a conceptual level to pick-by-line DCs, parcel sortation hubs also hold no inventory; products arrive at a receiving door, are unloaded, passed across a sortation carousel, then shot down a chute to a waiting vehicle that transports cargo to a delivery hub overnight, ready for customer deliveries the next day. Such facilities tend to be narrowly rectangular, with many doors on the long sides, and extensive automation within.

The burgeoning growth of e-commerce has led to an enormous investment in physical infrastructure recently, with businesses like DPD spending up to £150m on largely automated parcel sortation hubs of up to 300,000 sqft. Since 2011, some 18 facilities have been constructed, representing a total area of 3.7 million sqft.

This very dynamic sector typically operates a hub-and-spoke operating model, whereby a large number of small parcel collection facilities (circa 5,000 sqft to 25,000 sqft) servicing local markets feed a much smaller network of hubs that move products between them (see Figure A2.3), with hubs in blue and service centres in yellow. The specific operational requirements of these facilities – the ability to accommodate a large number of vehicles and to move over 300,000 parcels per day – usually mandates bespoke design and build projects in particular geographies facilitating efficient transportation.

APPENDIX 2

Figure A2.3: Example of a Hub and Spoke Parcel Network



Source: DHL

Outbase Facilities

For businesses with a small number of facilities located in the logistical heartland of the UK, servicing the extremities of the British Isles presents a logistical conundrum. Deliveries to Cornwall or Northern Scotland from Lutterworth cannot be achieved within a single driver working day, so businesses have the option of (i) sending out a delivery vehicle for two or three days, or of (ii) breaking the journey into parts by using an outbase, a small secure facility where trailers or vehicles can be swapped, enabling products to reach the periphery of the UK while drivers remain in their region.

APPENDIX 2

Returns Centres [6]

If not an Achilles heel, the e-commerce operating model does nevertheless have a significant flaw: the level of customer returns, especially in fashion businesses. With returns rates in the range 15% to 50%, and most commonly 23% to 28%, e-commerce businesses must handle an enormous quantity of returns as part of their daily operations. Initially, returns tend to be sent to the origin facility but as businesses grow, especially internationally, the volume of returns reaches a tipping point where fulfilment of new customer orders can take place from returned stock.

Returns centres can also be set up as discrete operations to separate the processing of returns from virgin fulfilment: all returns require inspection, and many may need repackaging, retagging, repairs or other activities to be performed before they can be resold.

Occupational Drivers of Investment Performance in the Logistics Sector

Occupational Drivers of Investment Performance in the Logistics Sector



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