



Warehouse locations

Choosing the right warehouse location can make all the difference in how effective, efficient and profitable a company can be.



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Introduction

Warehouses may not be obvious as we go about our daily lives but they are there in abundance, lining busy roads, filling out of town business parks, alongside canals and docks and in huge expanses at airports. Many of these buildings have been in use for generations and fill a niche in a specific marketplace. Often the approach to these warehousing solutions has evolved over years rather than being decided strategically at a senior level.

The very best operations however, who are looking to achieve the most efficient warehousing, have a scientific approach to warehouse location selection that will maximize output efficiency and lower the overall cost of storage and distribution and hence increase profitability.

The Stowga Marketplace have calculated using data collected independently and from Land Registry, that there is 2.1bn square feet of warehouse space in the UK (2017 figures). At a £5 per square foot average, that is £10.5bn in annual rent. Rents range from the most expensive in central London to the cheapest in Carlisle in Cumbria. On a price per pallet calculator, the most expensive locations are in Heathrow, London and the cheapest in Pontypool, South Wales.

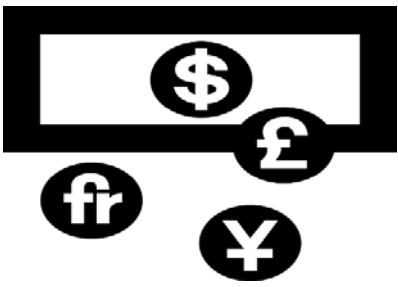
By region, the majority of warehouse space is located either near the major population centres or within the ‘Golden Triangle’ at the centre of the UK. The East Midlands itself, accounts for 18% of all warehousing space in the country. London and the South East combined account for 25% of warehouse stock.


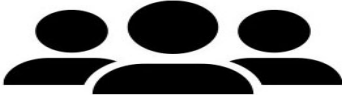
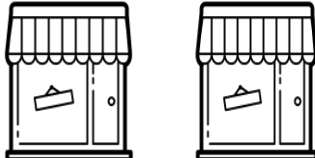

From this data it becomes obvious that choosing the right warehouse location can make all the difference in how effective, efficient and profitable a company can be. The optimal location for warehousing in a supply chain network is a strategic decision for top management. Once implemented the decision is irreversible and any wrong decisions can lead to high losses for a company.

For the purposes of this paper, the term warehousing includes distribution and fulfilment centres.

Factors influencing warehouse location

There are five critical areas of consideration to assess before an organisation should look to secure warehousing facilities:

Cost	
	<p>Cost is a key criterion for selecting a warehouse location. In the US, rental is normally per square foot per month or year. Tax incentives and local government subsidies can make a big difference to advertised costs.</p> <p>Some warehouses are more dependent on certain utilities such as refrigeration warehouses and their demand on water and electricity usage can increase costs.</p> <p>Hidden costs can offset any savings on cheap rental rates.</p>

<p>Transportation links</p> 	<p>Accessibility to roads and highways as well as local traffic density is paramount for improving speed of distribution, reduced fuel costs and lower carbon footprint.</p> <p>Proximity to airports, railways and ports is vital to an import export business to control drayage costs and maintain maximum number of containers a month.</p> <p>Proximity to carrier services is important to supplement in house transport.</p>
<p>Workforce availability</p> 	<p>Not every geographical location offers a workforce with the right skills at the right price. Low workforce availability and high demand will drive salaries up, meaning operating costs will be higher. High levels of workforce availability and low demand will drive salaries down. A workforce skills gap may result in a potential reduction in service, productivity and competitiveness. The availability of good affordable housing is a key location factor.</p>
<p>Markets and suppliers</p> 	<p>Proximity to suppliers, producers and the markets being served is a primary consideration. This will reduce lead times, decrease transportation costs, reduce risk in the wider supply chain and increase responsiveness.</p> <p>Ready access to key markets is fundamental to success. The supply chain can develop more effectively by strategically selecting warehouse locations close to major supply chain partners and key market outlets.</p>
<p>Building usage, local factors and development</p> 	<p>New build warehouses may have to meet specific building regulations regarding height or noise or access. Local environmental factors such as flood risk, natural disaster risk, weather conditions need to be considered.</p> <p>Consider the standard of the internet capability locally, and the speed and connectivity promised against actual. Special storage requirements for products may be necessary. They may be flammable, fragile, hazardous or highly valuable and the warehouse location must be flexible enough to cope with this.</p> <p>The warehouse needs to accommodate projected growth/change in the business of the future and be flexible enough to meet the needs for the next 25 years.</p>

Warehouse networks

There are various models of warehousing networks, from the single largescale distribution centre close to a large transport hub, to a network of smaller warehouses in less central locations but close to consumer populations. The flexibility of multi chain warehouses within a country or across many countries can bring advantages over expanding one already huge distribution centre.

The factors to be considered in developing a warehouse network strategy include:

- **Reduced shipping costs.** A company with customers spread over a wide area or that has gained customers in a new geographic market can reduce shipping costs by adding new warehouses closer to customer locations. After Amazon moved the bar for immediate gratification by offering free two-day delivery to Prime customers, many retailers adjusted by spreading a product throughout different warehouse locations, so they have a better chance of being closer to the customers who order it, and thus less costly to ship quickly.
- **Reaching a wider customer base.** Adding new warehouses can be in response to growth, or can be a strategy to stimulate growth. A company with a strong presence in one region or country can develop by duplicating this offering in new markets and new countries including investing in warehouses to service those new customers.
- **Specific warehouses for specific purposes.** Using multiple warehouses can simplify warehouse management. Some firms use a discrete warehouse to fulfil ecommerce requirements, keeping this separate from their traditional business operation.
- **Replacement for disaster recovery purposes.** If one warehouse is taken out of service through fire, flood or transport problems, business can continue from alternative locations if a network approach is used.
- **Spreading of risk.** It is easier to scale the business up or down as a result of economic pressures or changes in consumer demand if there is a network of smaller warehouses across a range of locations.
- **Flexibility to respond to market conditions.** A variety of smaller international locations can help take advantage of local benefits such as access to lower cost workforce or raw materials than one large centralised location.

In summary, the cost advantages of having one central warehouse location need to be evaluated against the decreased risk and flexibility advantages of having a network of warehouse locations.

Use of Warehouse Location Analysis

The positioning of warehouse facilities is a long term decision that must be fully aligned with the business strategy and include plans for expansion, order profile changes and volume changes. The location of the warehouse will drive the business's long term supply chain performance and consequently, it is a decision that requires deep dive analysis.

Identifying optimal locations for warehouses and other fixed facilities within the supply chain is a major decision for any business. Warehouse location drives transportation costs and where new supply routes are being introduced or an existing supply chain is being engineered then full and comprehensive warehouse location analysis needs to be undertaken.

Location analysis tools have been developed which require the use of applied mathematics and are referred to as 'Centre of Gravity Modelling'. In principle, the aim of the Centre of Gravity Model is to identify the geographical location where distance and/or transport costs are minimised. Warehouse sizing and demand

allocation are based on a wide range of possible drivers. Location analysis modelling can be performed on varying time horizons using different levels of aggregation in the data.

Undertaking warehouse location modelling for multiple rather than single facilities needs to consider a number of additional variables. The optimal number of warehouses is calculated through the balance of warehousing costs, transport costs and service time parameters (for example, do goods have to be delivered within a tight timescale due to customer demand or perishability of goods). The allocation of demand between each warehouse, which may vary with seasonality, needs to be considered and entered into the location analysis model.

The first pass modelling output provides a blueprint so that suitable warehouses or sites for new build can be identified. Using mapping software, it is possible to locate from existing preferences or where no preference exists, an optimal site/location which can be followed up with property agents in the area.

In the future, where demand for warehousing space is growingly massively and suitable locations are increasingly hard to find, warehouse location analysis tools will become increasingly important.

Source: Taken from 'Warehouse Location Analysis' by Paul Trudgian 2017

Case Studies

Warehouse locations in the USA

As we have seen, warehousing location is driven by proximity to transport infrastructure, access to large customer bases and to an educated workforce. These factors are reinforced by a study of top locations for warehousing in the USA

- Atlanta, Georgia

Atlanta is home to the busiest airport in the world. It has the third fastest growing metropolitan population which offers a large job pool for companies to choose from and a huge consumer base. It has an educated population, a tech friendly culture and affordable living.

- Dallas/Fort Worth/Houston, Texas

Dallas is one of the major commercial hubs in Texas. It provides easy access to the western states, the southern states and Houston (which itself has access to the Gulf of Mexico). The city experienced the largest population growth from 2016-2017. Houston's growing population and port access has influenced retailers like Ikea, Wal-Mart, Home Depot and Ford to set up distribution centres in this city. The widening of the Panama Canal has given the region hope to become a major entry point for cargo into the US.

- Central New Jersey

The location and infrastructure in the region, allows this area to rank as a top location for distribution centres. From this location, shippers can reach 40% of the US population within a day's drive.

The Port of New York and New Jersey is the largest port on the East Coast and the third largest in the US. It offers much more space and affordable living than its neighbour New York.

- Los Angeles/Long Beach, California

This area has the dual benefit of being the second largest metropolitan area in the US as well as being strategically placed to import and export to the rest of the Pacific Rim.

Riverside and San Bernardino are about 60 miles from Los Angeles and are large metropolitan areas in their own right with each county containing a population of over two million people. It has significantly less congestion and lower property values than Los Angeles and Long Beach, making it less expensive to house large distribution centres there and cheaper for a workforce and consumer base to live there, lowering the overall cost of operation.

Source: Kenco Group Logistics Blog June 2018

New 17,000 square meter warehouse facility in Rotterdam

P&O Ferrymasters has announced the opening of a 17,000 square metre state-of-the-art warehousing facility in Europoort to support its trans-Continental operations. The 10-year contract for the additional facilities will significantly expand the warehousing storage capacity of P&O Ferrymasters at Rotterdam, allowing its customers new storage opportunities and flexibility at one of the business transport hubs of Europe.

Source: Shutterstock



The warehouse, which consists of two 7,500 square metre levels, and has close proximity to both the Maasvlakte 2 area in Rotterdam and the Europoort ferry terminal, making it ideally positioned to accommodate the import and export of goods requiring storage for routes on the deep sea, short sea and North Sea. P&O Ferrymasters is equipping the new facility with 16 loading docks and proven warehouse management systems to ensure its customers immediately receive the benefit of extra storage capacity in their end-to-end supply chain solutions.

“This new warehouse capacity at Rotterdam marks an important step in our plans to enable trade flows across Europe,” says P&O Ferrymasters’ Contract Logistics Director.

“This new facility will provide the operational flexibility and capacity our customers need to ensure their supply chains are becoming even more efficient and effective with direct access to a central hub linking rail, road, inland barging, deep sea and short sea.”

P&O Ferrymasters is a leading pan-European provider of logistics solutions. The company serves 20 strategic locations in 13 countries across the continent, operating integrated road, rail and sea links via a fleet of more than 5,000 trailers and containers.

<https://www.multimodal.org.uk/article/po-ferrymasters-opens-new-17000-square-metre-warehouse-facility-rotterdam>

Author



Having worked in corporate industry within procurement for many years, undertaking everything from expediting, through contract negotiation, to strategy development and large scale change management initiatives, Susan is now focusing on project procurement, commercial training, coaching and technical authoring through her own business.

Susan is a great contributor to CIPS and has been involved with CIPS through her chairmanship of the Birmingham branch and participation in the annual Negotiation Challenge events.

Susan Randall (BA FCIPS Chartered)



LinkedIn

Further reading

Kenco Group www.kencogroup.com

Multimodal Magazine www.multimodal.org.uk

Paul Trudgian Ltd www.paultrudgian.co.uk

Stowga Marketplace <https://resources.stowga.com/blog/mapping-the-uk-warehouse-market>

United Kingdom Warehousing Association www.ukwa.org.uk

