Buck Consultants International

Summary paper to Manchester City Council

Commissioned by: Manchester Airport

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Contents

Chapter 1 Introduction

Manchester Airport ("MAN") has recently published its Masterplan for further development up to 2030. MAN is aiming to extend and redevelop the World Freight Terminal and to develop new freight facilities at and within close proximity to the Airport. Internal market research shows that there is a major growth potential for the air cargo cluster at Manchester Airport. Manchester Airport intends to realise these growth ambitions with relatively modest additions to the operational area. Increasing efficiency is at the core of the Land Use Plan..

In the coming years the boundaries of the Operational Area up to 2030 have to be defined and secured. Also a schedule of uses that are appropriate to be located in the Operational Area has to be defined. This Paper discusses the following subjects:

- What is the need for the extension and redevelopment of the World Freight Terminal and for developing new freight facilities and sites?
- What would be the necessary size of these developments?

This document is structured as follows:
Chapter 2: Positioning of Manchester Airport
Chapter 3: Existing Transit/ Freight Needs and current transit/ freight product
Chapter 4: Future Transit/ Freight Needs
Chapter 5: What kind of facility would be needed to meet such evolving demand?
Chapter 6: Impact of Status Quo
Chapter 7: Conclusions

A separate presentation document has also been prepared which provides more detailed evidence of the work undertaken to inform this Paper.

Chapter 2 Positioning Manchester Airport

In this section the position of Manchester Airport is analysed. The following items will be discussed:

- International economic and air cargo trends
- Positioning Manchester Airport against other European cargo airports
- Strategies of other airports
- SWOT-analysis Manchester Airport

2.1 International economic and air cargo trends

The most important international trends in the European air cargo market are included in the table below. In the first column the developments that have a positive contribution to the cargo opportunities at MAN are presented, in the second column, the developments that have a negative contribution to the cargo opportunities at MAN are showed.

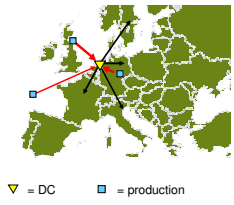
Table 2.1 International economic and air cargo trends

Positive contribution to cargo opportunities MAN	Negative contribution to cargo opportunities MAN
• European supply chain design has moved from a central model of the 90's via today's decentralised networks with central control towards product-market specific, hybrid supply chains (see figure 1 and 2)	• Risks of High oil prices and rising interest rates
• An expected growth of 253% of worldwide air cargo traffic over 20 years	• Development of the Airbus A380 supports hub-and-spoke operations and the development of international hub-airports.
• Increasing share of aviation in knowledge based network economy due to changing customer needs and adjacent changes in supply chain configurations (see also figure 3) • Market share of integrators is growing * • Development of the Boeing 787 (dreamliner) supports the point-to-point operations and the development of hub-bypassing • Congestion (airside and landside) at international hub-airports (London Heathrow, Paris Charles de Gaulle, Amsterdam Schiphol Airport, Frankfurt Airport)	

* Integrators are organisations who take the integral responsibility for transporting shipments from A to B

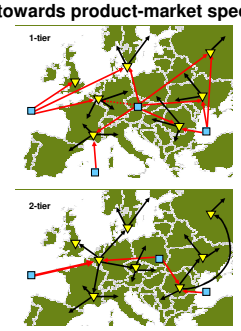
Figure 2.1 European supply chain design I

European supply chain design has moved from a central model of the 90's…



Characteristics	
Primary production	In or near market region
Secondary production	Mainly integrated in primary production function, trend towards integration in DC
Distribution	Centralized in single Euro DC or local market DC's
Inventory	European inventory
Planning	Centralized
Customer service	De-centralized
Shared services	De-centralized but with plans to centralize

…via today's decentralized networks with central control… towards product-market specific, hybrid supply chains

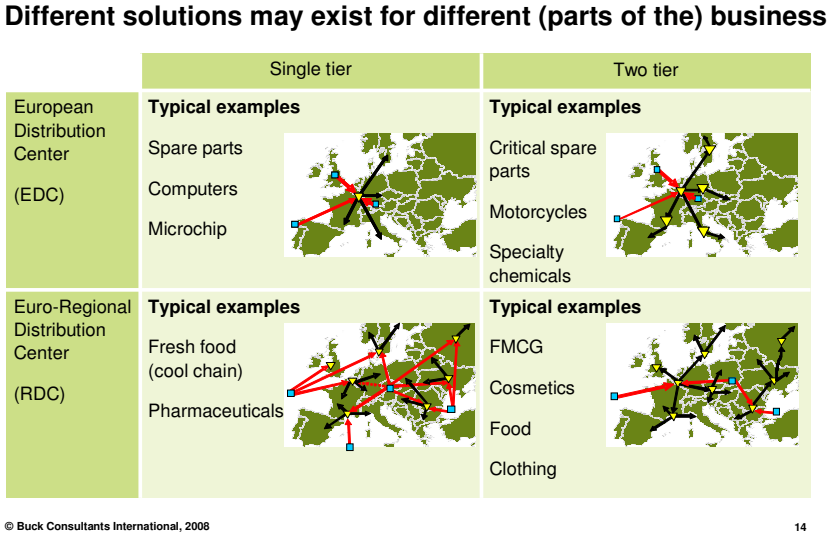


Characteristics	
Primary production	Off-shore or Near-shore
Secondary production	In market/low cost region
Distribution	Regional DC's ▪ Direct sourced ▪ Satellite structure / X-dock
Inventory	European inventory
Planning	Centralized
Customer service	Regionalized
Shared services	Centralized / regionalized

The footprint should be aligned to the requirements per product and market-channel in order not to over-service and not to under-service.

The next figure shows that each supply chain has a different structure. International companies in fresh products, pharmaceuticals, Fast Moving Consumer Goods, Fashion need to have a UK-based Euro-Regional Distribution centre.

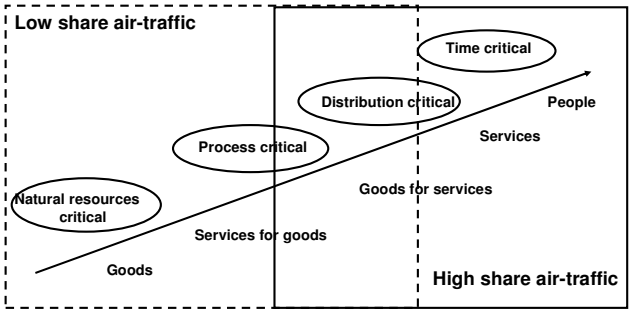
Figure 2.2 Different solutions may exist for different (parts of the) business



The share of air traffic in the knowledge based economy has increased due to

- demand-driven supply chain configuration
- worldwide production and consumption patterns
- fast changing consumer preferences/ shortening of product life cycles, short leadtimes become more important
- just-in-time production and distribution
- minimising stocks

Figure 2.3 Increasing share of air traffic in knowledge based economy

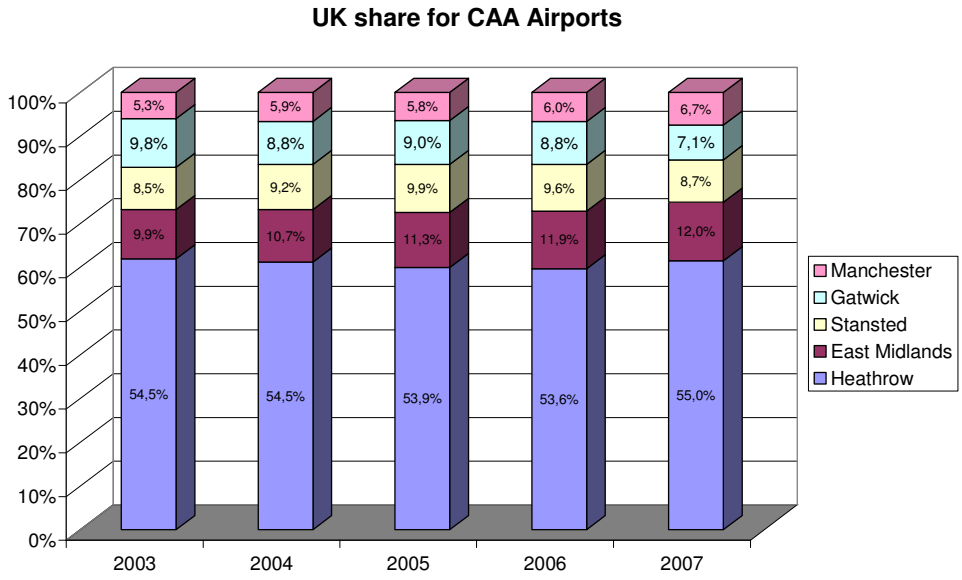


The international air cargo market offers growth opportunities. Whether Manchester Airport is able to benefit from these developments depends on the regional market base and the competitive position in comparison to other cargo airports. Growth figures in the past years underline that Manchester does have a competitive position.

In 2007 five new freighter operators were attracted. These were Great Wall Airlines, Jett8 Airlines, FedEx Express, Air China Cargo and Aeroflot Cargo.This shows that carriers are convinced that Manchester offers a strong market base and airport product with clear future growth potential.

Cargo volumes at Manchester airport have shown a steady growth of approximately 5% per annum in the past years. Manchester has a stable market share in the UK market, which has grown from 5,3 to 6,7 % in the past five years (see figure below). East Midlands is growing fast too, due to integrator operations. This is no threat for Manchester Airport, since Manchester Airports main drivers for growth are long-haul scheduled services (creating belly-hold capacity) and full freighter operations.

Figure 2.4 UK share for CAA airports

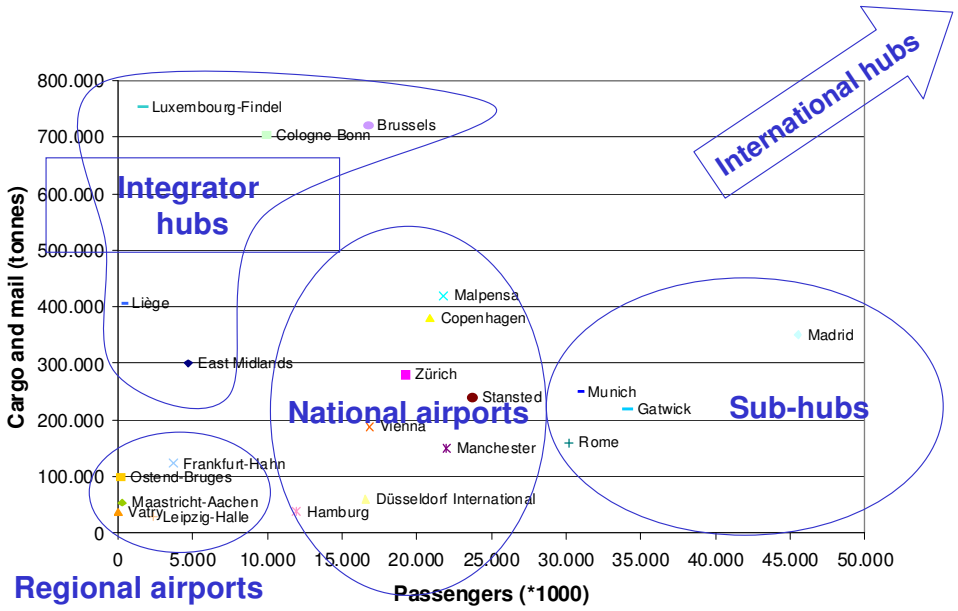


2.2 Positioning Manchester Airport against other European cargo airports

Manchester Airport can be characterised as a national airport for which passenger volumes vary between 10 and 25 million and cargo volumes between zero and 500.000 tonnes, as can be seen in the figure below. This shows that Manchester takes in an average position in the European airport market. Manchester Airport has been awarded the prestigious Best Airport Award 2008 in the 10-25 million passenger category by Airports Council International Europe. At the moment the cargo related employment at Manchester airport is 1.000 job opportunities.

Manchester Airport has grown considerably in the last 10 years and is the only UK airport to have increased its capacity in recent years through an additional runway. Its growth projections and past performance show how it is moving strongly towards a more “sub-hub” definition

Figure 2.5 Passengers and freight European cargo airports



International hubs: London Heathrow, Paris Charles de Gaulle, Amsterdam Airport Schiphol, Frankfurt International Airport, Madrid Barajas

2.3 Strategies of other airports

How do other airports respond to market changes and how do they deal with scarcity of (suitable) land for future expansions? The most relevant and promising innovations/ responses are:

- Total transit shed or forwarding concepts facilitating specific product groups (fresh centre, aerospace centre) at Schiphol and in Germany
- Integrated regional strategy for airport and regional economic development (clear positioning and branding of airport and adjacent sites via cluster strategy): Schiphol and Frankfurt
- Develop remote locations with characteristics of on-airport location (linked via dedicated freight lane): Schiphol
- Flexibility in land use criteria (regarding integration of transit shed and freight forwarding activities)

A great number of other airports try to differentiate themselves with innovative concepts. To stay in line with or better, ahead of competitors extra effort -beyond providing basic requirements, like land use capacity- is needed at MAN to meet future customer-demands.

2.4 SWOT analysis Manchester Airport

The current strengths, weaknesses and opportunities of Manchester Airport have been analysed and are presented in the tables below.

Table 2.2 Strengths and weaknesses air cargo product Manchester Airport

Strengths	***Weaknesses***
Market base • Growing Passenger-based market base in the region (important for the development of the belly-freight network) Airfreight-based market base in the region	Market base • Market base for business class is limited which puts pressure on the rentability of passenger-based flights that create belly-freight capacity.
Airside capacity and the quality of the airside network • Mix of bellyhold and fullfreight capacity attractive to Freight Forwarders	Airside capacity and the quality off the airside network • Limited market base for business class affects the connectivity level of the airside network in a negative way • Noise restrictions in the night, less attractive for integrator operations • No one-stop-shop for freight forwarders like London Heathrow regarding connectivity level
Investment climate • Manchester ranks 2nd after London for the best city in the UK in which to locate a business today (Cushman & Wakefield: UK Cities Monitor 2007) although ground prices are much lower	Investment climate • Shortage of apron-based transit shed space and freight forwarding space in direct proximity of transit sheds
Competitive integrated costs • Transit times shorter than London • Costs of industrial space are £6,50-8,50 in the Southeast and £4,50-5,25 in the Northwest (King Surge)	Competitive integrated costs • Due to large-scale operations at LHR, LHR is more cost-efficient for top international freight forwarders
	The quality of the overall landside logistics network • Congestion for lorry-parking on the landside of transit sheds

Table 2.3 Opportunities and threats Manchester Airport

Opportunities	***Threats***
Market base • World air cargo traffic will expand at an average annual rate of 6 percent for the next two decades, tripling current traffic levels (Boeing, World Air Cargo Forecast: 6,1 %; Airbus Air Cargo forecast: 5.8%) • International and UK air freight growth (Asia) together with stable market share MAN in the UK market which has grown from 5.3 to 6.7% in the past five years. • GVA in Greater Manchester is expected to increase (especially in electronics, motor vehicles and other transport equipment, instruments and pharmaceuticals) illustrating the strong shift of manufacturing up the value chain in response to national and global competition • Number of carriers, operators, integrators and freight forwarders have shown interest to invest in MAN	Airside capacity and the quality off the airside network • Top freight forwarders have large scale operations at LHR and continue to truck freight from the UK to LHR
Create possibilities for facilities where transit shed and freight forwarding activities can be combined	Investment climate • Shortage of apron-based transit shed space and freight forwarding space in direct proximity of transit sheds
Aircraft developments • Upcoming 787 (with substantial belly-capacity) favours subhub-subhub relations • London Heathrow will replace existing aircraft with A380, resulting in decrease of freight space with 50-70% per movement. This gap can be filled by full freighters, but at LHR slots for FF's are scarce • With quiter aircraft, local resistance to further cargo development will decrease	
Open direct long-haul scheduled services with belly-capacity (now served indirectly):	
Increasing differentiating power by development of innovative concepts for terminals, landside connections and by clear branding and positioning of the airport and adjacent sites	
Serving demand for mixed-use facilities of international shippers	

This SWOT analysis shows that Manchester Airport has a competitive position in Europe and a good set of preconditions for future growth. London Heathrow will remain the central hub for the UK.

However, Manchester Airport can continue to grow as a national airport due to a promising market base and a competitive position vis-à-vis London, considering:

- Opportunities in facilitating key regional economic clusters in their demand for air services
  - Air freight based economic clusters: Aerospace/ Aviation, Life sciences and Biomedical, Logistics, ICT/ Electronics (see also table 4)
  - Passenger based economic clusters: Energy/ Environment, Creative/ New Media/ Digital, Financial/ Professional services, Food&Drink
- Opportunities to serve freight forwarders with full-freight services and belly-freight services
- Capacity at London alone is not sufficient to incorporate UK-demand. Additional capacity at other airports is needed
- Manchester Airport can offer a more efficient cargo product, with the absence of congestion in airside operations
- Manchester ranks second after London as the best city to locate a business

Table 2.4 International companies in air freight based economic clusters

Life sciences/ Biomedical

Intercytex: product development and manufacturing

- AstraZeneca GSK
- Eli Lilly
- Bristol-Myers Squibb
- MedImmune (now part of AstraZeneca)
- Novartis
- Sanofi-Aventis

ICT/ Electronics

- Agilent Technologies
- IBM
- Cisco Systems
- Oracle
- Sun Microsystems
- Transitive Technologies

Aerospace/ Avition:

- Northern Aerospace Technology Exploitation Centre (NATEC):
- Manchester University Aerospace Research Institute. MUARI

Logistics/ distribution centres

- Heinz
- L'Oreal
- Wincanton
- Georgia Pacific
- Next
- Office Depot
- Kuehne and Nagel
- Kellogg's
- Brother
- Procter and Gamble
- Carlsberg Tetley
- Adidas
- JJB Sports
- Argos

Chapter 3 Existing Transit/ Freight Needs and current transit/ freight product

In this section the nature of the current demand of transit and freight forwarding product is discussed, followed by the size of the current demand of transit and freight forwarding product.

3.1 Current demand of transit and freight forwarding product : nature of product

Air cargo target groups can be divided into operators, integrators, freight forwarders (expedition and warehousing), logistic service providers (warehousing and distribution) and international shippers.

Basic requirements (on a high level)[3] to attract these target groups are:

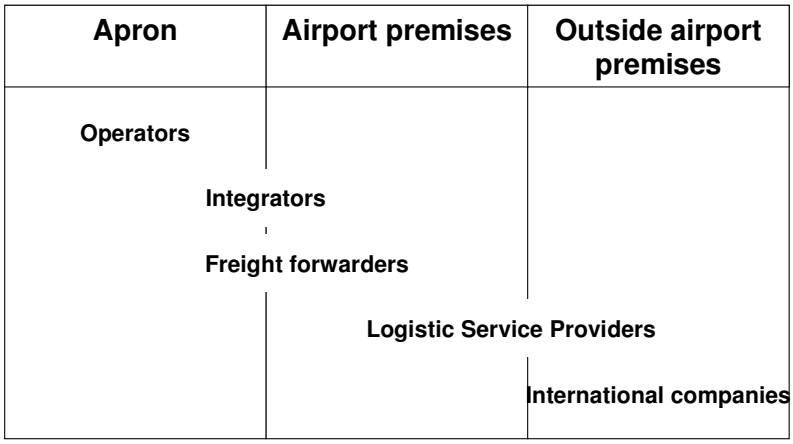
- the catchment area/ presence of a strong market base in the region
- the availability of airside capacity and the quality of the airside network (destinations and frequencies), including night capacity
  - Freight forwarders need a mix of belly-freight and full-freight capacity to be flexible in their operations
- availability of (attractive) transit shed space and freight forwarding space
- the quality of the overall landside logistics network (road, rail)
- the business climate in general
- competitive integrated costs (of airport product, sites, transport etc.)

Due to the nature of transit shed and carrier activities (loading and unloading the aircraft) these activities need to be located on apron-served areas. Freight forwarding and integrator services need to be located in the direct proximity of transit sheds, or at least be connected to transit sheds by a direct, uncongested link. Logistic service providers can be hosted on or outside the airport premises and international

[3] We will not go into technical preconditions of transit shed and freight forwarding facilities

companies usually locate at sites outside the airport premises, but, where possible, in close proximity when operations link closely to the airport.

Figure 3.1 Location of air cargo players.



3.2 Current demand of transit and freight forwarding product: size

Current voids in the World Freight Terminal at MAN relate mainly to office space (units 305, 308, 302). The 26,990sq.m (290.476 ft^2 transit shed space and the 17,842sq.m (192.037 ft^2freight forwarding space are fully occupied at the moment (there is a small amount of voids in the freight forwarding unit 311, which is used in part as transit units because no other space is available). A number of old tenants have relocated off site due to the WFT not being suited to their ongoing needs..

Looking at the current demand at air cargo target groups (carriers, operators, integrators, freight forwarders and international shippers), the following developments can be identified.

Cathay Pacific and Emirates are interested in transit shed space. In addition there is customer interest for new transit shed space from Servisair and Swissport. FedEx is interested in their own transit shed (where they can combine forwarding and transit shed operations) as they are currently handled by Servisair.

Expeditors is interested in a new freight forwarding unit which is double their current size..

In the current situation not even one request for an average size facility of a Transit Shed Operator or a supporting (small-sized) facility of a freight forwarder can be accommodated at MAN. This means that further growth of the air cargo segment can not be facilitated at the moment. Locating these activities elsewhere - at distant sites- is not an option, since transit shed activities are apron-bound and freight forwarding services need to be located in the direct proximity of transit sheds

The current demand in combination with the capacity of floor space (290.476 ft^2 transit shed space and 192.037 ft^2 freight forwarding space) shows that there is an ***immediate need for extra floor space***.

Chapter 4 Future Transit/Freight Needs

In this section the future transit and freight needs (nature of the product and size) are discussed:

- Product specifications: based on findings from the great number of projects that BCI has performed in the field of:
  - Corporate location and site selection services for international companies
  - Real estate projects for corporate clients
  - Supply chain optimisation projects for 3PLs
  - www.bciglobal.com
- Size: based on the Masterplan forecasts combined with future productivity levels, resulting in future floor space needs

4.1 Evolving nature of product to serve changing market demand

In this section the changing market demand of air cargo target groups are being discussed:

- Operators
- Integrators
- Freight forwarders
- Logistic service providers
- International companies

With increasing competition at the operator market ***operators*** are trying hard to increase productivity levels by implementing ICT-systems and by optimising customs procedures and security procedures. In general operator activities are growing parallel with cargo volumes.

In the past years the market share of ***integrators*** in handling international transport flows has grown. Integrators (DHL, UPS, TNT) take the integral responsibility for transporting a shipment from A to B, whereas traditional logistic service providers only take care of a part(s) of the route (i.e. the transport by road or transport by air etc.). Integrators combine a network of hub-facilities where the majority of shipments

are consolidated at airports with a number of supporting facilities at other international airports. At hub-facilities integrators use their own network of air services. Preconditions for a hub-facility of an integrator are 24-hour operations and ample capacity in the night. Supporting facilities, regional consolidation and distribution of shipments is also taken care of. Integrators than buy capacity of other carriers (belly freight and full-freight capacity). Integrators function as operators and freight forwarders at the same time. They prefer to combine these activities in one location which is apron-served

An international ***freight forwarder*** is an agent for the exporter/ importer in moving cargo to an overseas destination. These agents are familiar with the export/ import rules and regulations of foreign countries and the methods of shipping, and the documents related to foreign trade. Freight forwarders need to be flexible and therefore make use of full freight and belly-freight capacity. In the past years many freight forwarders have developed custom-made concepts in specific supply chains to serve their clients. Many have developed specific solutions for a certain sector of industry, in specialised centres (i.e. fashion centre, aerospace centre, fresh (perishable) centre etc, The cargo opportunities in the region, the availability of belly-freight and full-freight capacity and direct and close connections (uncongested!) to carriers and transit shed operators are the most important location requirements. Traditionally cargo is delivered by the freight forwarder to the ground handler, which constructs pallets and deliver it to the airline company.Some freight forwarders (for example Panalpina at Schiphol) are investing in facilities on airside where they can combine ground handling and freight forwarding activities. This enables them to speed up their operations up to 12-24 hours. Also part of the administrative costs from forwarder to ground handler can be saved.

Table 4.1 Average size facilities integrators and freight forwarders

	Sq.ft.	Sq. m
Integrator support facility/ Freight forwarding facility at international airport	21.500-54.000	2.000-5.000
Integrator hub facility/ Freight forwarding facility at hub airports	54.000-107.500	5.000-10.000

Logistic service providers are concerned with warehousing and distribution. In the past years these companies are moving from logistic hub regions to more remote locations with lower costs and less congestion where near airport locations have become overheated

International companies do not always outsource their transport activities to freight forwarders, logistic service providers or integrators. Some organise their own transport network internally. In the past decade European distribution networks of international companies have shown a trend from centralisation hybrid supply chain structures (see also section international trends). This means that central distribution centres are supported by several regional distribution centres (in less congested areas). International companies are more and more combining different activities (Marketing and sales, R&D, Logistics) at one location. The rationale behind this is:

- One-stop-shop of activities (office, showroom, training, logistics)
- The right size

  - Showroom (larger and cheaper location than in city centre)
  - Logistics (small scale, only supporting product presentation and training)
- Accessibility of international relations via Manchester Airport
- Efficient import/ export of samples/ prototypes for product presentation
- Competing rents/ ground prices: in between office and logistics rents

For these facilities not only are the market base of international companies and the airport product in a region important locational requirements, but the investment climate as a whole, including the availability and quality of labour, quality of life, presence of knowhow and suppliers (technology) and the business climate in general. These organisations traditionally do not invest at the airport-premises but the market interest in locations at/ near airports to host a combination of activities is growing.

Four real estate markets offer opportunities for Manchester Airport
- Operators/ carriers
- Support facility of integrators (small scale). A hub facility is not an option due to capacity restrictions in the night
- Forwarding and logistic service providers serving international companies in the region and serving the area
- International companies wishing to combine marketing and sales, R&D, Logistics etc. at one location

4.2 Size of facilities needed to serve market demand

The future needs considering size have been analysed based on the Masterplan forecasts combined with future productivity levels (tonnes/ m^2 floorspace). We have also reviewed the growth projections and assessed recognised industry sources.

Growth Forecasts

A 6% growth of cargo volume up to 2023, and a growth rate of 4% beyond 2023 (resulting in a growth from 169.735 tonnes of freight in 2007 to 567.000 tonnes in 2030) is considered realistic taking into account the results of the SWOT-analysis presented earlier.

Productivity Increases

The current productivity level at MAN is 8 tonnes per m^2 per year. In comparison, Schiphol Airport Amsterdam, one of the most efficient cargo airports in the world and with a cargo volume of 1,5 million tonnes of freight has a productivity level of 10 tonnes/ m^2 per year in its transit sheds. This can be considered the maximum achievable productivity level for MAN, with a cargo volume of 127.000 tonnes[4] . In the scenarios it is assumed that the productivity of transit sheds is 8 tonnes/ m^2 up to 2014 and 10 tonnes/ m^2 from 2014 on (productivity raise according to Masterplan ambitions). The productivity level in freight forwarding facilities is assumed to be 8 tonnes per $m^{2,}$.

In the table below the scale of additional floor space required by 2030 is shown. This is NOT inclusive of the existing space at WFT and is thus a NET additional space requirement.

Table 4.2 Scale of additional floor space required in 2030 (sq ft)

	Transit shed floor space	Freight Forwarding floor space	Total floor space
Additional floor space required	319.275	570.019	889.294

According to this scenario, by 2010 no additional transit shed floor space is needed. This shows that scenarios are a useful tool to ***indicate*** future developments, but they should not be regarded as absolute predictions for the future, because real market developments show that already a shortage of transit shed and freight forwarding floor space has occurred.

Demand figures over time do not show a linear pattern but a leap-pattern. One year three companies can be attracted, the next year none. Developers should reserve ample space in the planning process to be able to respond in a flexible manner to demand changes.

Chapter 5 What kind of facility would be needed to meet such evolving demand?

5.1 Size

In the previous sections the end-situations in 2010, 2020 and 2030 are presented. But how to respond to these demands over time? The starting amount of development that is needed in the World Freight Terminal to accommodate existing occupancy plus 5 years of demand plus existing new requests (ready built need) is shown in the table below. This results in a minimum requirement of approximately 857.000 sq.ft. of floor space by 2013 inclusive of the existing WFT floor space.

Table 5.1 Ready built need for floor space World Freight Terminal

Demand 2013 (Sq. ft)	Transit shed space	Freight Forwarding space	Total .
Existing occupancy of transit shed space	290.476		
Additional transit shed space up to 2013	33.594		
2x new request for transit shed space	118.250		
Expansion Servisair and Swissair	29.500		
New request integrator support facility	37.625		
Existing occupancy of freight forwarding space		192.037	
Additional freight forwarding space up to 2013		131.956	
Expeditors doubling size		25.000	
Total	509.445	348.993	858.438

Transit sheds need to be apron-served. In the long term, additional transit shed space, outside the current platform adjacent to taxiways and runways, will be needed to accommodate future demands.

Freight forwarding companies need to be replaced to a location away from the current World Freight Terminal area. It will be a parallel process of:

- providing space for new demand for freight forwarding facilities at a new location and providing room for relocation of existing freight forwarding companies at a new location

- regeneration or relocation of the current world freight terminal: restructuring buildings of freight forwarders that have relocated to the new location into transit shed facilities.

If current freight forwarders (and offices) are to be out-placed, they will only be prepared to do so if the new location offers the same (or better) quality as the current location. A location in the proximity of the transit sheds and linked (uncongested) to the transit sheds is therefore a precondition.

At the start a development site designated for freight forwarding activities should be able to accommodate about 350k sq ft of floor space to host:
- existing occupancy of freight forwarding space (192.037 sq.ft.)
- five years of demand for freight forwarding facilities (131.956 sq.ft.)
- expansion of Expeditors (25.000 sq.ft)

Additional space requirements

The additional amount of floor space for warehousing/ distribution (3rd line activities) to handle the future cargo volumes of MAN is in broad terms at least similar to the amount of freight forwarding space (2nd line). Say 70.000-100.000 sq.m. for 3rd line This is based on factual ratio's in the Schipholregion.

Not all warehousing/ distribution activities will locate in the direct surroundings of the airport. Assuming that 50% of the 3rd line activities will take place in the airport region than an extra amount of 35.000-50.000 sq m (537.500 sq ft) of floor space is required in 2030 in total around the airport area.

In addition to be able to host mixed-use facilities to meet evolving occupier demands that are occurring at other locations where new floor space has been provided, an estimated potential of 50.000 sq m. (537.500 sq ft) (5-10 units of 2.000 to 5.000 sq m)of floor space is needed.

Conclusion

An estimated total of 220.000 sq m (2.365.000 sq ft) of floor space is required for future developments up to 2030. This includes
- Approximately 50.000 sq m of transit shed space
- Approximately 70.000 sq m. of freight forwarding space
- Approximately 50.000 sq m of warehousing/ distribution space – not specifically tied to the airport but in close proximity.
- Approximately 50.000 sq m of mixed-use space

5.2 Nature of the product

Flexibility in land use becomes more important in the future in order to serve the changing demand of target groups:

- Integrators are looking for facilities where they can combine transit shed and freight forwarding activities
- Freight forwarders are looking for plots where they can develop custom-made concepts to serve their clients
- International companies are looking for facilities for mixed use where they can combine marketing and sales, R&D, Logistics etc. at one location outside the airport premises

Chapter 6 Impact of status quo

A qualitative good infrastructure and accessibility is one of the preconditions for a healthy economy. In the current economic climate, where globalisation is not limited to big multinationals, the importance of accessibility increases. Moreover, an airport that guarantees (inter-)national accessibility, can strengthen the differentiating power of the regional investment climate. At the moment there are 1.000 cargo related job opportunities at Manchester Airport. The developments according to the cargo forecast offer an substantial economic impulse to the region. This impulse consists of the following elements:

- Creation of thousands new job opportunities
- The supply of direct cargo services to internationally oriented companies.
- Positive contribution to exploitation results of the airport

If no solutions are provided to serve the current and future market demand, the cargo segment of MAN is not able to grow. The impact on job opportunities at Manchester Airport will be a missed chance of approximately 3.000 jobs up to 2030.

More importantly though is the importance of MAN as a facilitator for economic growth of air freight based economic clusters in the greater Manchester region. The global supply chain is becoming increasingly dependent on the rapid and reliable movement of high-value low-weight goods such as computer parts. Air transportation facilitates such movements by:

- providing fast and reliable delivery of high-value products: especially relevant to modern-dynamic industries, such as the pharmaceutical/ biotechnology and telecommunication equipment sectors;
- increasing the range of product markets: the development of e-business helps companies identify low-cost suppliers and air transport helps connect buyers and suppliers
- improving companies' handling of returns and complaints: for example, allowing a quick turnaround of repairs or delivery of replacement parts;
- facilitating the development of e-commerce: enabling, for example, companies to transport online shopping orders quickly and reliably between countries, allowing products to be stored in large warehouses reducing retail and distribution costs;
- facilitating improved stockmanagement and production techniques: reducing companies' storage costs, losses due to stockoutages and disruption caused by failure of machinery on production lines; and
- facilitating the development of the express carrier industry: which provides guaranteed, rapid, door-to-door delivery services and increasingly offers logistics support for companies.
- (Source: the economic and social benefits of air transport (ATAG, 2005))

The greater Manchester region hosts a number of air freight based economic clusters with interesting growth perspectives. These are:

- Aviation/ Aerospace
- Life sciences and Biomedical
- Logistics
- ICT/ Electronics.

The new World Freight Terminal can offer an efficient logistics system that results in reliability and competitive lead times in global supply chains of these international companies and supports the growth of these internationally oriented companies. This also means that the region will benefit economically since extra employment opportunities are created if these companies are facilitated in their future growth.

Chapter 7 Conclusions

The cargo activities of Manchester Airport have a substantial benefit for the regional economy (1000 job opportunities) and are of strategic importance to the future growth of key sectors in the region.

London Heathrow will remain the central hub for the UK, but Manchester Airport can continue to grow as a national airport. A 6% growth of cargo volume is realistic with the following preconditions:

- Short and long term growth possibilities for transit shed operators, integrators and freight forwarders in terms of
  - ample apron-based transit shed space and ample freight forwarding space in direct proximity of transit sheds
  - being able to respond to 'spikes' in demand
- Congestion-free lorry-parking on the landside of the transit sheds

At the moment these basic requirements are missing at Manchester Airport. Action is required at short notice to avoid relocation of current occupiers not being able to grow or ‘saying no’ to new requests.

Next to basic requirements, the importance of a competitive landside product, based on customer demands, is needed. Some opportunities have been identified based on market trends:

- Integrated facilities where ground handling and freight forwarding activities can be combined
- Freight forwarders are looking for plots where they can develop custom-made concepts to serve their clients
- Mixed-use facilities where shippers are combining different activities (M&S, R&D, training, Logistics)

Scenario’s show that an estimated total of 220.000 sq m (2.365.000 sq ft) of floor space is required for future developments up to 2030. This includes

- Approximately 50.000 sq m of transit shed space
- Approximately 70.000 sq m. of freight forwarding space
- Approximately 50.000 sq m of warehousing/ distribution space
- Approximately 50.000 sq m of mixed-use space

It should be kept in mind though that actual demand figures over time do not show a linear pattern like in scenario’s but a leap-pattern. Thus, ample space should be reserved in the planning process to be able to respond in a flexible manner to real market developments and demand changes.