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AIR EXPRESS MARKET OUTLOOK 2020-2024

At a Crossroads: How E-Commerce and Emerging Competition are Changing the Nature of the Air Express Business

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Air Express Market Outlook 2020 - 2024

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Prepared By:

Cargo Facts Consulting SARL
Cargo Center, Building S-329,
L-1360 Luxembourg

fhorst@cargofacts.com
www.cfcinsights.com
www.cargofactsconsulting.com

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Executive Summary

The Air Express business is at a crossroads. Over the past five years the business has seen significant changes and there is more disruption ahead. These changes are taking place both on the supply as well as the demand side.

A market that was previously the domain of FedEx, DHL, UPS and prior to 2016 TNT is now facing the emergence of new domestic and regional competitors in the form of e-commerce platforms with in-house delivery capabilities (such as Jd.com or Amazon). Meanwhile, SF Express has not only built a substantial ground and air network in China but has also branched out into international express services. Today the company moves almost as many shipments as UPS. In other regional markets, companies such as Aramex and Blue Dart have been posting healthy growth, but while Aramex has become more profitable, Blue Dart has become less so.

Almost two thirds of the world's freighter fleet are operated by or for express operators, and increasingly also e-commerce platforms such as Amazon. The express business is a major source of aircraft demand and subcontracted flying from feeders to large jets. We expect this to continue.

On the demand side, the product mix is changing with business to consumer e-commerce becoming the primary driver of shipment volume growth. As express companies have expanded their role as subcontractors to the big e-commerce platforms, they have lost a degree of control of the direct relationship with shippers and become more of an intermediary than an integrator.

Express traffic accounts for almost one fifth of international air cargo volumes and most air cargo in large domestic markets such as the United States, China and within Europe. Express traffic has consistently outpaced overall air cargo growth and will continue to do so. In the last five years, international express shipment growth has accelerated to an average of 7.6%. While we expect growth in 2019 to come in at just over 3%, and we forecast 5% per annum over the coming five years. The downside of this growth, is that shipment yields have declined and have increased pressure on margins.

Meanwhile, the US domestic express market has gone from being a mature low to no growth market to one where growth has returned. Average shipment growth in the last five years accelerated to 3.4% and in 2019 we expect a whopping 9.2%. However, as e-commerce platforms such as Amazon insource volumes, we feel that much of this recent growth may be lost and forecast underlying growth of only 1.2% over the next five years. If this happens, some of the recent yield declines driven by a surge of B2C traffic may be reversed.

The Chinese express market has grown by over 40% per year for the last five years, although air represents only a small portion. While we expect this growth to moderate, the fleet plans of SF alone would imply growth of at least 10% per year for the next three years. Based on analysis of Chinese express carriers, the size of the Chinese Domestic Air Express market is as big as the US.

We also forecast an increase of intra-European air express tonnage. While historical 5 year growth has been in the order of 2.5% per year, we forecast an accelerated of growth of 3.4% per year from 2019 to 2024. Part of this is driven by an increase of intra-European B2C traffic as well as cross border intercontinental traffic distributed through intra-European networks on the final legs of its journey.

Some of the biggest changes taking place are in last mile networks, which have moved from being courier driven networks supporting access to businesses in urban areas to serving a mix of businesses and residential customers in less dense as well as urban areas. While Courier networks have grown, companies are looking at expanding alternative delivery and pick up locations including retail outlets and parcel lockers. This has been driven both by the requirement to reduce costs to counter the erosion of margins, as well as the need to provide better service levels to stay competitive.

1. Introduction and Organization of the Report

This report brings together our analysis of the state of the air express business, the changes that have taken place in the last decade, as well as predictions for what is likely to happen in the coming years. The report provides a historical overview and five-year growth forecast of key international and domestic air express markets through to 2024. The Air Express Market Outlook analyses the performance, positioning and strategies of the key global and regional express operators including Aramex, Blue Dart, DHL Express, FedEx, SF Express and UPS in the light of emerging competition from e-commerce platforms and postal companies. Given that almost two thirds of the world's freighter fleet are operated by or for express companies, we also address the medium to long term outlook for aircraft demand and subcontracted flying services. The report complements our *2019 Global E-Commerce Logistics Outlook*, which provides additional depth the role that platforms, express, postal and other companies play in the distribution of e-commerce parcel traffic.

Chapter 2 provides an overview of the air express value chain and key characteristics of the segment, including how shipments move through networks, the type of customer the business serves and how volumes are spread throughout the year.

Chapter 3 takes a look at each of the main domestic and international air express markets, including domestic US, domestic China, intra-Europe and other markets such as India, Japan and Australia. This section also includes a forecast to 2024 of international express and US domestic shipment volumes.

Chapter 4 provides a comparative analysis of the key companies operating in the air express segment. This includes the big three global players DHL, FedEx and UPS as well as SF Express, Blue Dart and Aramex. The section covers long term historical performance, recent 2019 developments and a discussion on how these companies are positioned to benefit from future market growth.

Chapter 5 discusses how a change in customer mix and emerging competition are threatening the business traditionally owned by DHL, FedEx and UPS. In this context we highlight what we believe are the critical success factors going forward.

Given the importance of express as a key freighter aircraft customer, Chapter 6 provides an overview of current and forecast express aircraft demand, as well as the market for contract flying services.

Appendix A (starting on page 74) includes profiles of each of the express operators analysed in the report. Subscribers will receive periodic updates to these profiles. Appendix B (starting on 87) provides on overview of the content contained in the supplementary interactive map tool which can be accessed via the Cargo Facts Consulting Insights platform (www.cfcinsights.com).

We hope you find this report useful in shaping your company's strategy. We welcome your feedback and suggestions on what you would like to see included in next year's report.

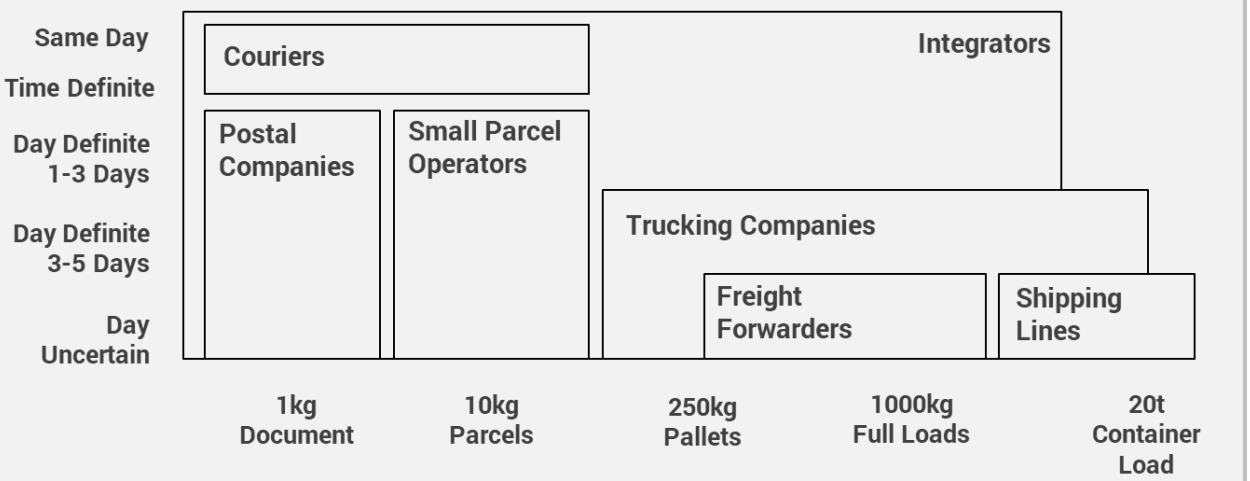
2. The Air Express Value Chain

Key Findings:

- Air Express accounts for almost 17% of international air cargo traffic.
- The lines between different air cargo segments are often blurry as companies often operating across multiple segments.
- Express networks have traditionally been geared towards moving small packages and documents with late afternoon pick ups and early morning delivery.
- Contrary to the air freight business, express companies tend to have a more diverse customer base.

There are three main air cargo sectors – freight, express and mail. Express traffic accounts for approximately 17% and mail for 3% of international air cargo traffic. Freight usually refers to larger, bulky shipments (usually more than 70kg) sold by freight forwarders and carried by all cargo and combination carriers. Combination carriers are passenger airlines that a combination of passenger lower hold and freighter capacity to transport cargo. Mail refers to letters and packages moved through postal network. Express traffic refers to documents and small packages carried by integrated carriers such as FedEx, UPS, DHL, or SF Express, or as part of Express Mail Services (EMS) moved though postal networks. Express carriers are often referred to as integrated because they offer door to door services, including first mile pick up and last mile delivery. The distinction between each segment is somewhat blurry as companies may operate in multiple segments (see Figure 1).

Figure 1 – Key Participants in the Global Freight and Logistics Business



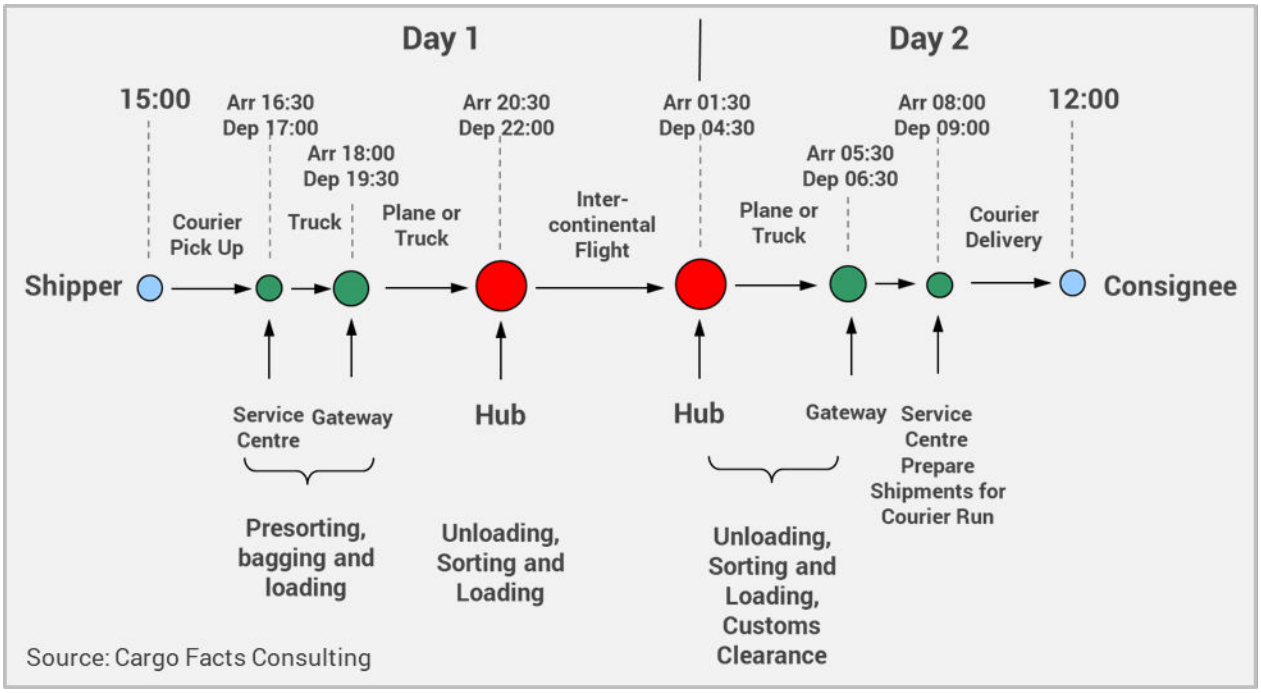
Source: Cargo Facts Consulting

Small package air networks achieve lower cargo densities than general air freight networks, with loaded densities in the order of 7lbs per ft3 (or 110kg per m3) as opposed to 10 lbs. per ft3 (or 160kg per m3). This has implications for the type of aircraft required in express, with a preference for volume over weight carrying capabilities.

Express shipments spend most of their time in ground networks and sorting facilities. Figure 2 and

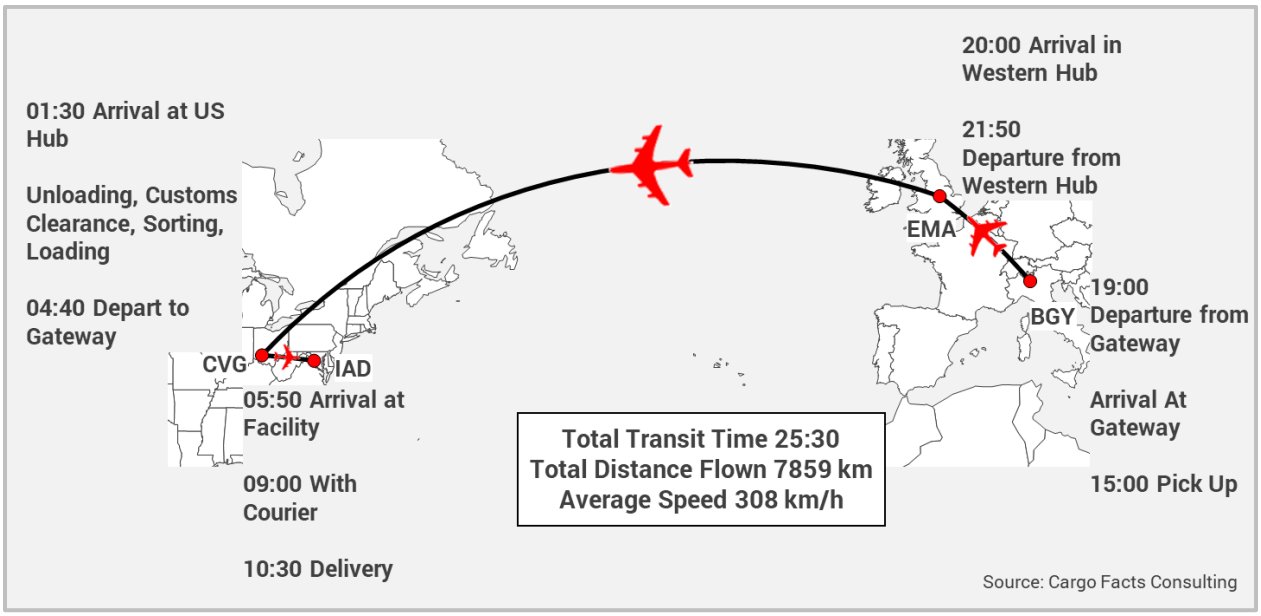
Figure 3 show the process of moving a Westbound transatlantic express shipment from origin to destination. Domestic shipments follow a similar process, except for customs clearance.

Figure 2 – Typical Intercontinental Express Shipment from Europe



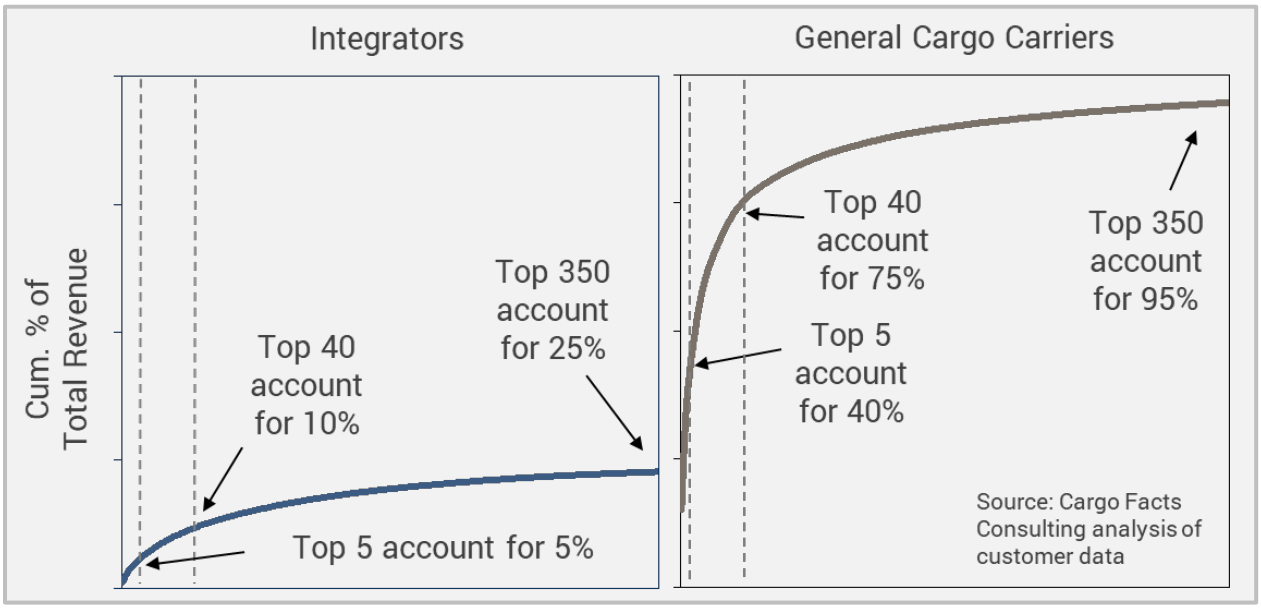
The type of service level that an integrator can offer depends on both time zones and network structure. So far, overnight services have been the standard in domestic or regional markets and two to three day service in international markets. However, express carriers have branched out into both deferred or economy type services as well as same day or instant delivery within cities. Operating days have been expanding from 5 to 7 days. Increased proliferation of same day services creates network challenges. Most express networks have traditionally been geared towards late afternoon pick-ups and early morning deliveries. These have been facilitated by a hub and spoke networks centered around large sorting facilities strategically located to provide minimum connecting distances between economic centers. Same day services require more localized sorting, which can be more labour intensive.

Figure 3 – Example of an Intercontinental Shipment from Milan to Washington DC



In terms of customer mix, integrators tend to be quite diversified, with no single customer accounting for more than a few percent of overall revenues. For example, FedEx has pointed out that Amazon accounts for less than 1.3% of its overall business and UPS states that no single customer generates more than 10% of its business. Figure 4 shows the typical difference in customer concentration between integrators and cargo carriers, which operate in a wholesale market generating most of their revenues with a handful of freight forwarders.

Figure 4 – Difference in Customer Concentration between Integrators and Cargo Carriers



The express market is seasonal in nature and cycles impact revenues and volumes. Traditionally, the U.S. express market experiences an increase in volume prior to the holiday season, around November and this lasts throughout the end of the year. This sales season cycle also affects international business, especially the US-Asia market, that shows peaks in the fourth quarter of every year. The summer and winter quarters historically show lower volumes and the operating costs and shipment levels can also be affected by weather, especially during the first quarter of the year in the Northern Hemisphere. This has implications for infrastructure and asset investments which need to be geared towards peak volumes rather than average volumes. The peaks have been exacerbated by the shift towards more business to consumer traffic and promotions around key shopping events such as Black Friday, Cyber Monday and Singles Day, among others.

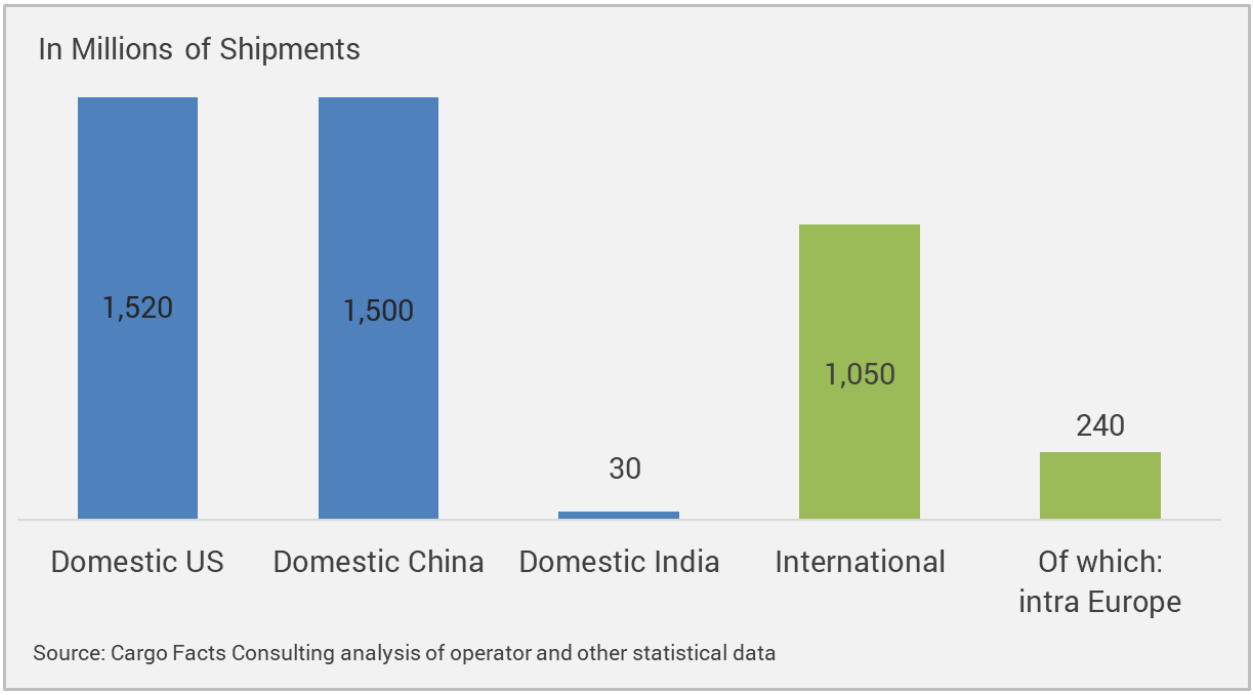
3. The Main Express Markets – History and Forecast

Key Findings:

- Global air express traffic has consistently grown faster than general air freight and mail traffic.
- We expect 2019 international express shipment traffic to grow at around 3% and accelerate to 5% per annum between 2020 and 2024.
- The world's largest domestic air express market has shifted into growth mode again. We expect growth of over 9% in 2019 primarily driven by UPS and E-Commerce traffic.
- However, as Amazon makes moves to insource more volumes, this market could take a hit. Therefore, we forecast underlying growth of 1.2% per year between 2020 and 2024.
- Domestic China is fast becoming the world's most important domestic express market, but so far air only represents 3% of the market.

In this report, we focus on the development and outlook for the key international and domestic express markets, including Domestic US, Domestic China, Domestic India and Intra Europe (see Figure 5)

Figure 5 – The Main Domestic and International Air Express Markets 2018



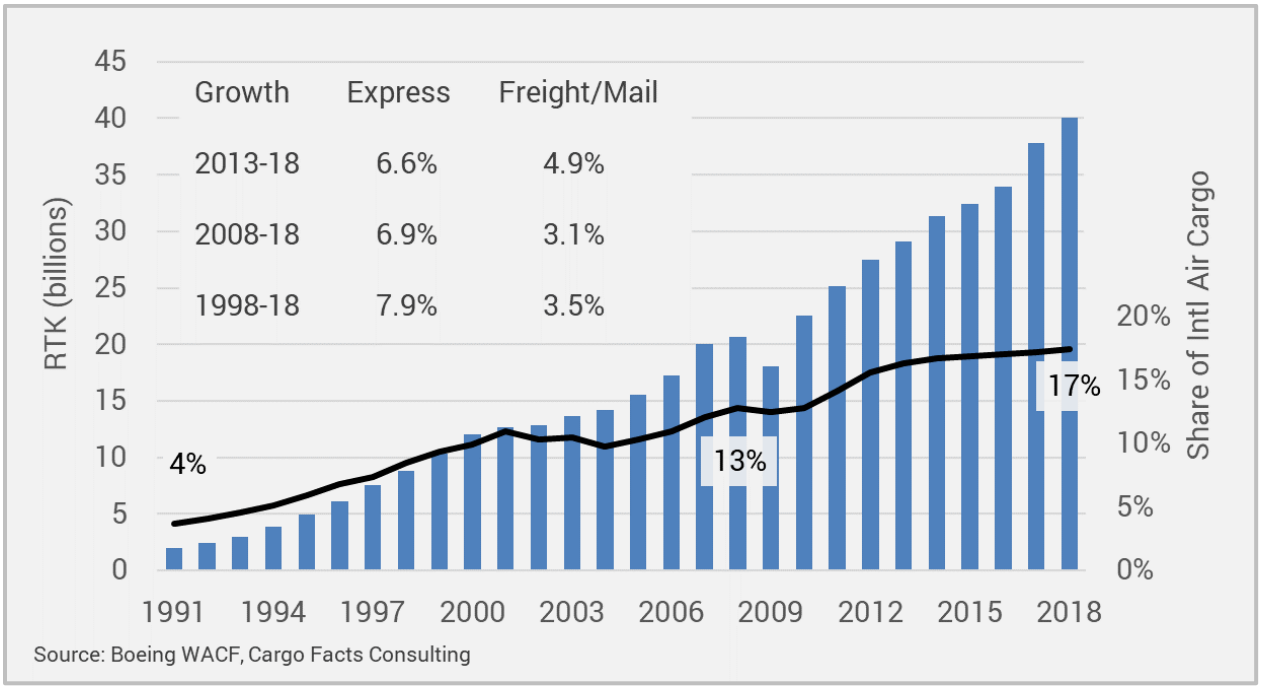
Source: Cargo Facts Consulting analysis of operator and other statistical data

Note that we have chosen to exclude other domestic markets such as Australia, Canada, and Japan, among others, even though they are an important source of air express revenue and drive the demand for aircraft capacity. Please contact us if you would like more information on these markets.

3.1 International Express

Global air express traffic has consistently outpaced the growth of general cargo traffic. Growth over the last 5 years has been 6.6% per annum and today express accounts for 17% of international air cargo traffic, up from 13% in 2008 and 4% in the early 1990s (see Figure 6).

Figure 6 – International Air Express Traffic Growth 1991 - 2018



90% of cross border air express traffic takes place in 5 intercontinental and intra- regional markets. In terms of shipment volumes, Intra-Europe, Intra-Asia, Transpacific and Transatlantic are roughly the same size, each accounting for about 1/5th of total traffic (see Figure 7). Note that international shipment count does not include express shipments within different countries. This traffic, combined with intercontinental shipments distributed throughout regional networks means that actual volumes carried on aircraft within these networks are higher.

International shipment growth has outpaced international traffic growth and the share of intra-regional markets such as intra-Asia has grown. Interestingly the pace of international shipment growth has accelerated in the past five years, with shipment volumes growing at over 7% per year for the past five years compared to just under 6% in the last 10 years (see Figure 8). We expect 2019 growth to come in at around 3% and forecast growth of 5% per year for the next five years. By comparison, we expect a decline of overall air cargo traffic of around 3-4% in 2019, and longer term growth of just under 4%.

Figure 7 – The Main International Express Markets in 2018

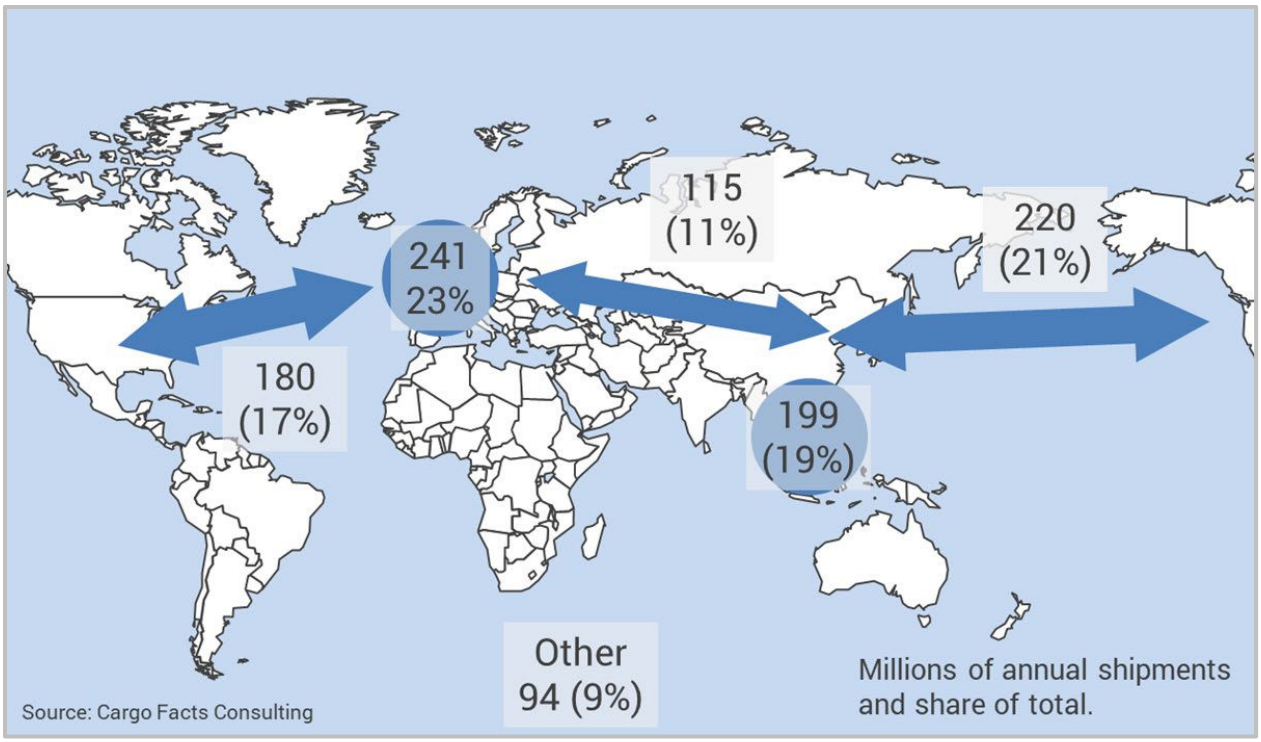
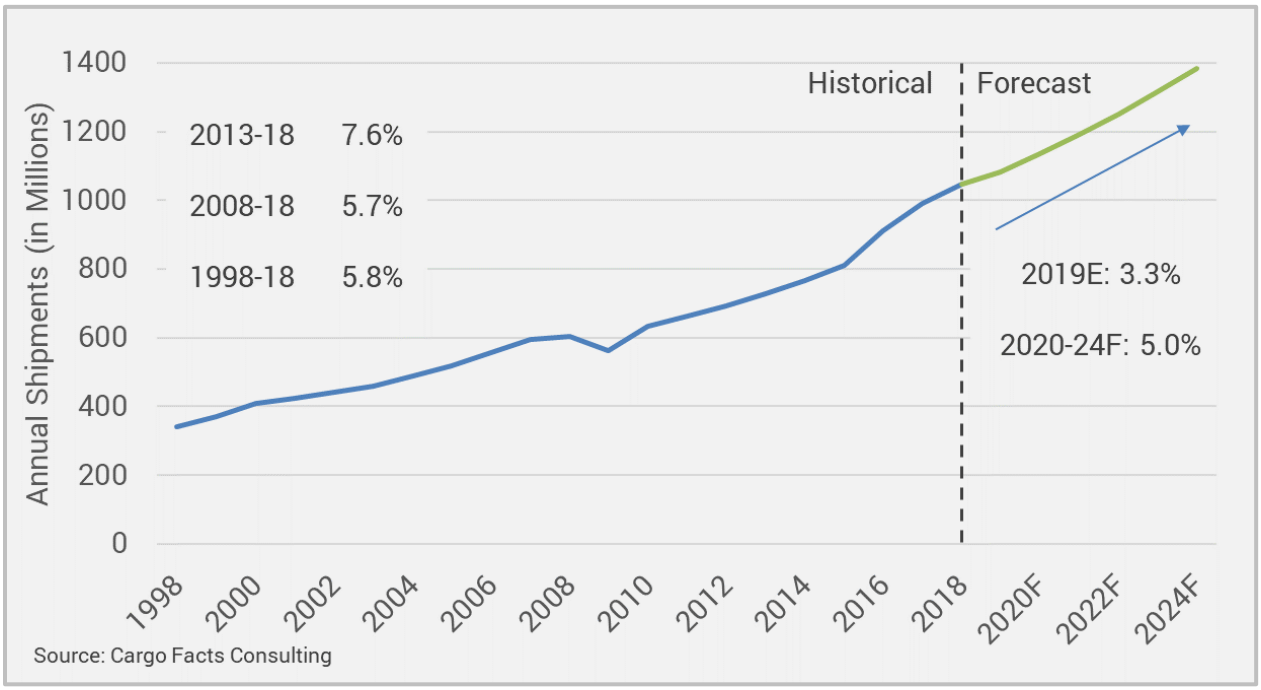


Figure 8 – International Express Shipment Growth and Forecast 1998 - 2024

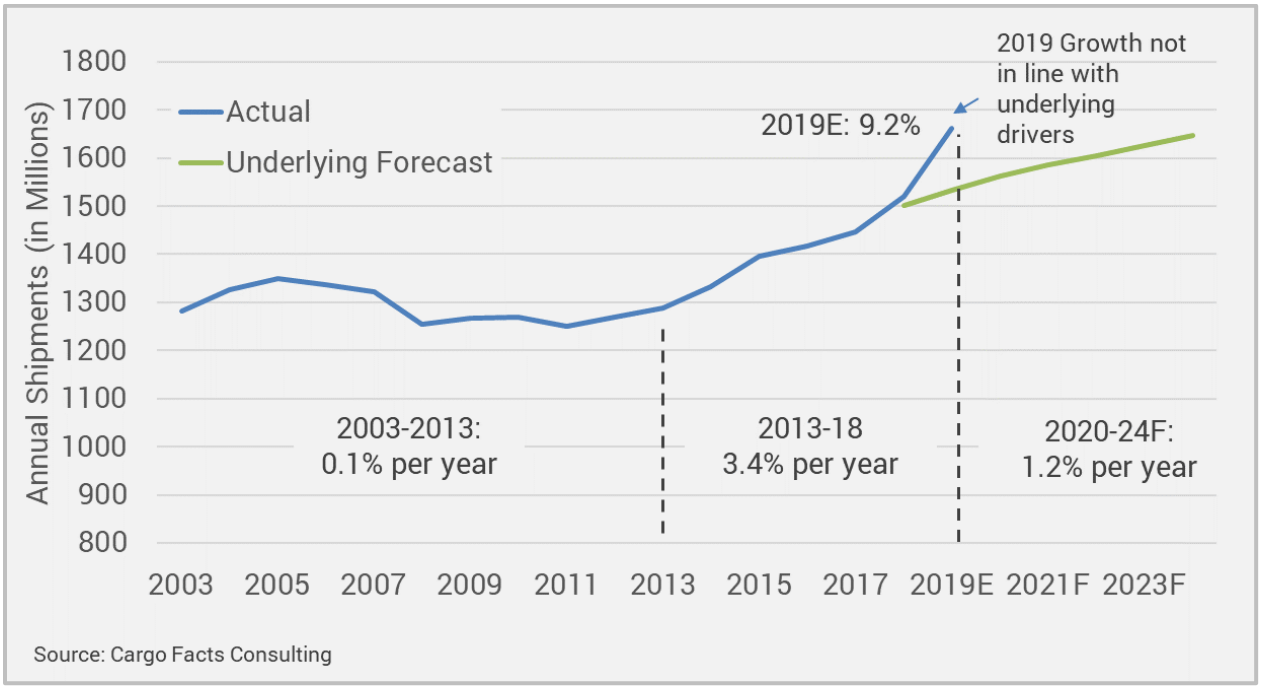


3.2 Domestic US

The US Domestic air express industry has seen fundamental changes since the early 2000s – both on the demand and supply side. Until about 2013, the domestic air express market was swinging between negative, flat and moderate growth, partly a result of poor economic conditions as well as a decline of document traffic. Average annual shipment growth in the 10 years to 2013 was only about 0.1% per year (see Figure 9).

Things have changes in the last five years, with growth picking up significantly to over 3% per year, driven primarily by a rapid increase in business to consumer traffic carried in air express network. In 2019, we even expect growth of around 9%. However, we are not confident that this level of growth can continue for much longer as Amazon, the driver of a big portion of this growth moves to insource volumes currently moving in third party express networks. Therefore, we are forecasting underlying growth of only 1.2% per year as volumes come back down to earth (see Figure 9)

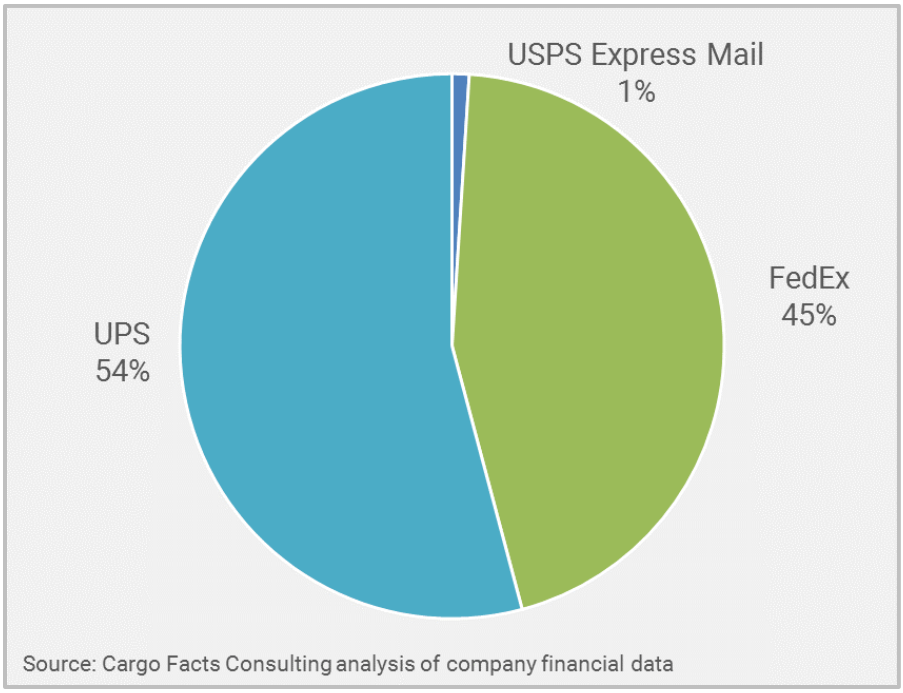
Figure 9 – US Domestic Express Shipment Growth and Forecast 2003 - 2024



On the supply side, the major express carriers – FedEx and UPS – continue to dominate the US domestic air freight and express market. The withdrawal of BAX Global in 2011 and exit of DHL domestic operations in 2007 are the latest in a series of changes in the US Express industry in which the number of freighter networks has declined sharply. Although DHL does not provide domestic express services in the US, it continues supporting international operations in and out of the US. This leaves only two major players in

the market: FedEx and UPS, while the United States Postal Service (USPS) Express Mail accounts for a much smaller share (see Figure 10)

Figure 10 – U.S. Domestic Air Express Shipment Market Shares 2019



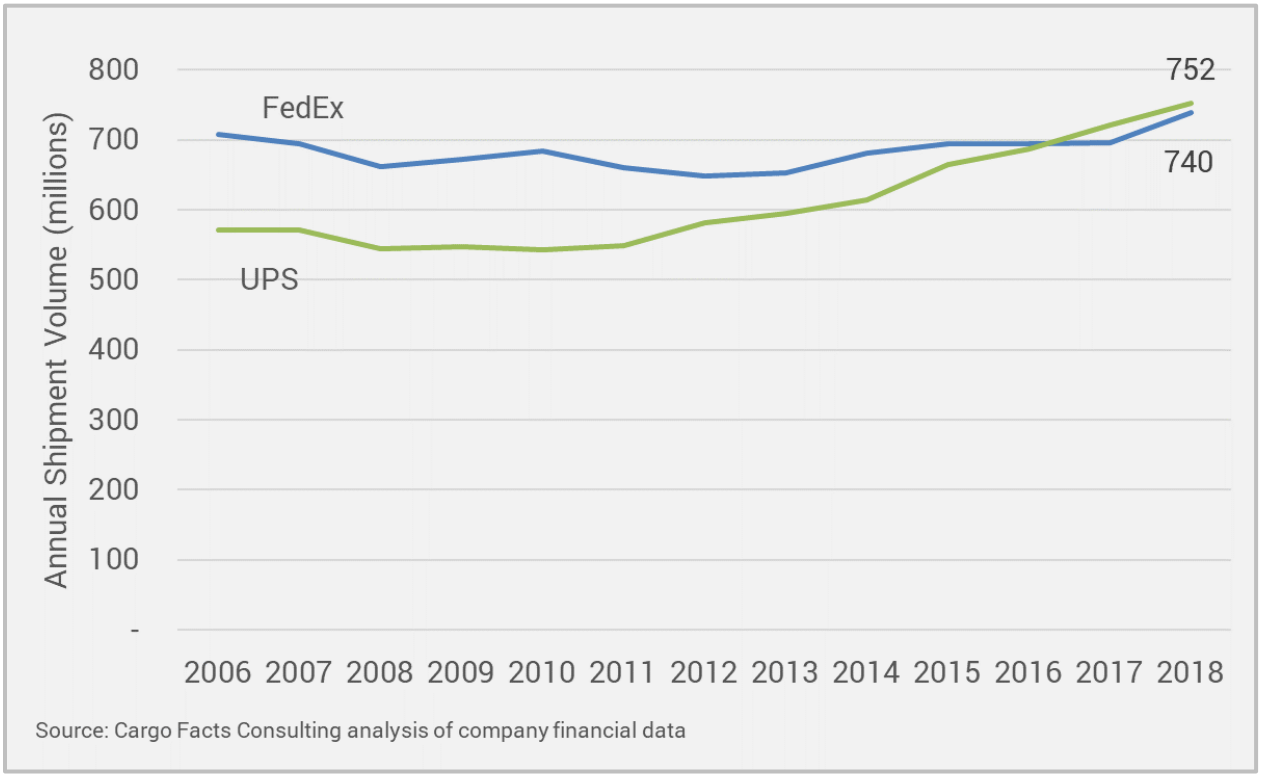
Currently (in 2019) the size of the Domestic US Air Express market is about 1.55 billion shipments per year, or on average 6.2 million shipments per day.

Figure 10 provides visibility regarding how the US air express market has shifted among the two main players: FedEx and UPS beginning in 2006. Prior to DHL's decision to exit the US domestic market, its market share was approximately 15% of the market. USPS market share has declined from approximately 3% of the US domestic market in 2003 to about 1% today. FedEx figures here include an unspecified amount of traffic associated with the contract FedEx has to transport Priority and Express Mail on an airport-to-airport basis for USPS. FedEx reports its USPS traffic as Freight and not Mail so there is no visibility on the USPS share of FedEx total volume.

The levels for FedEx and UPS were flat over the period from 2007 through 2013. This factor is surprising given that both of these companies should have picked up significant amounts of the shipments that left DHL beginning in the third quarter of 2008. Presumably, all three competitors would have seen declining traffic by the end of 2008 if DHL had remained in the market as the market was shrinking during the recession. As it turned out, traffic gained by FedEx and UPS as a result of the DHL closure roughly offset declines these two competitors would have felt from the economic slowdown.

Figure 11 indicates that UPS experienced some post-recession gains in US shipment volumes beginning in 2011, while FedEx experienced a small rebound in 2010, but then had declines in 2011 and 2012. The net result is that the domestic express shipment growth in 2018 for FedEx and UPS combined were up less than 3% from 2006 so these are obviously unimpressive gains. UPS has had higher growth rates in the last decade and it surpassed FedEx in terms of average daily shipments in 2016 and it handled around 73,000 more per day in 2018.

Figure 11 – FedEx and UPS Domestic Express Shipments 2006-2018

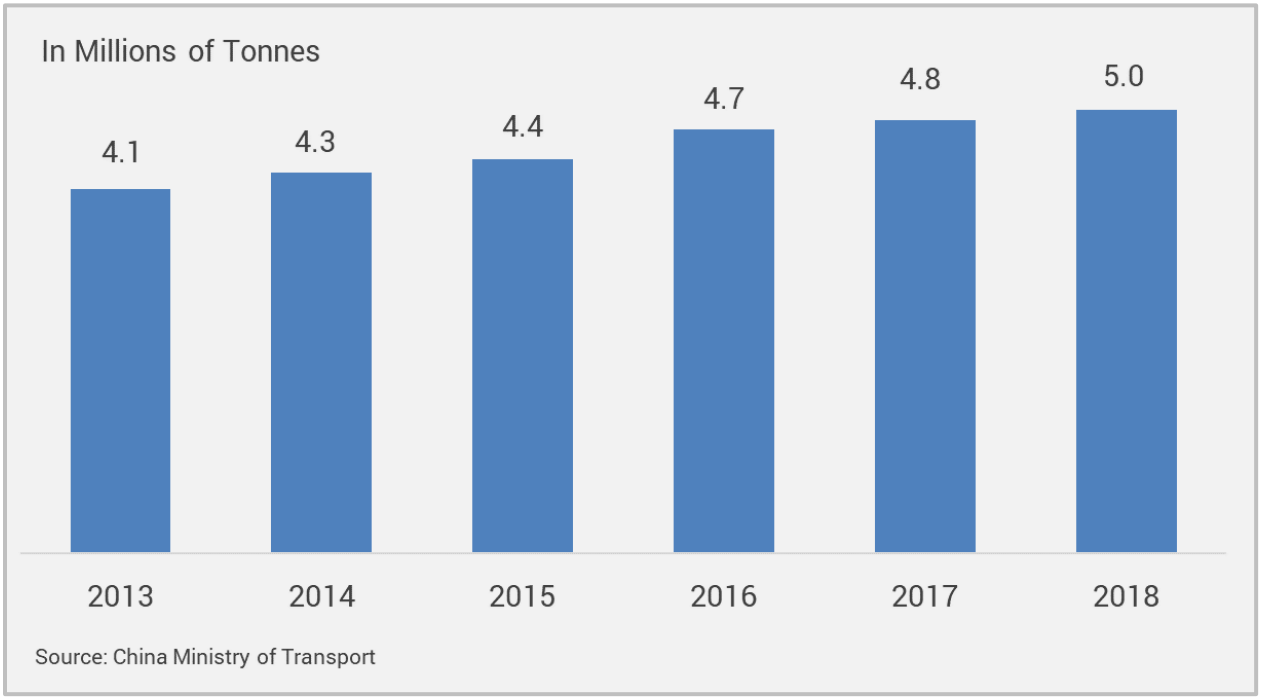


There are some combination carriers that work in conjunction with freight forwarders to serve the US Domestic air freight industry by offering belly space on passenger flights. However, with the exception of Alaska Airlines, the rest do not operate freighters and there is not a regular use of widebody passenger aircraft in the US. The majority of domestic flights are operated by narrowbody aircraft which have very limited space for freight so the express operators are indeed the key players in this market.

3.3 Domestic China

Domestic Chinese Express has shown strong growth over the past five years, but the majority of this growth has been in ground networks. Average annual domestic air cargo tonnage growth between 2013 and 2018 has been 4% per year and currently stands at approximately 5 million tonnes per year (about 100,000 tonnes per week (see Figure 12). Most of this traffic is related to domestic postal deliveries. SF Express, the largest Chinese air express operator states that its market share of China domestic tonnage is approximately 20%.

Figure 12 – Chinese Domestic Air Freight Tonnage 2013 - 2018

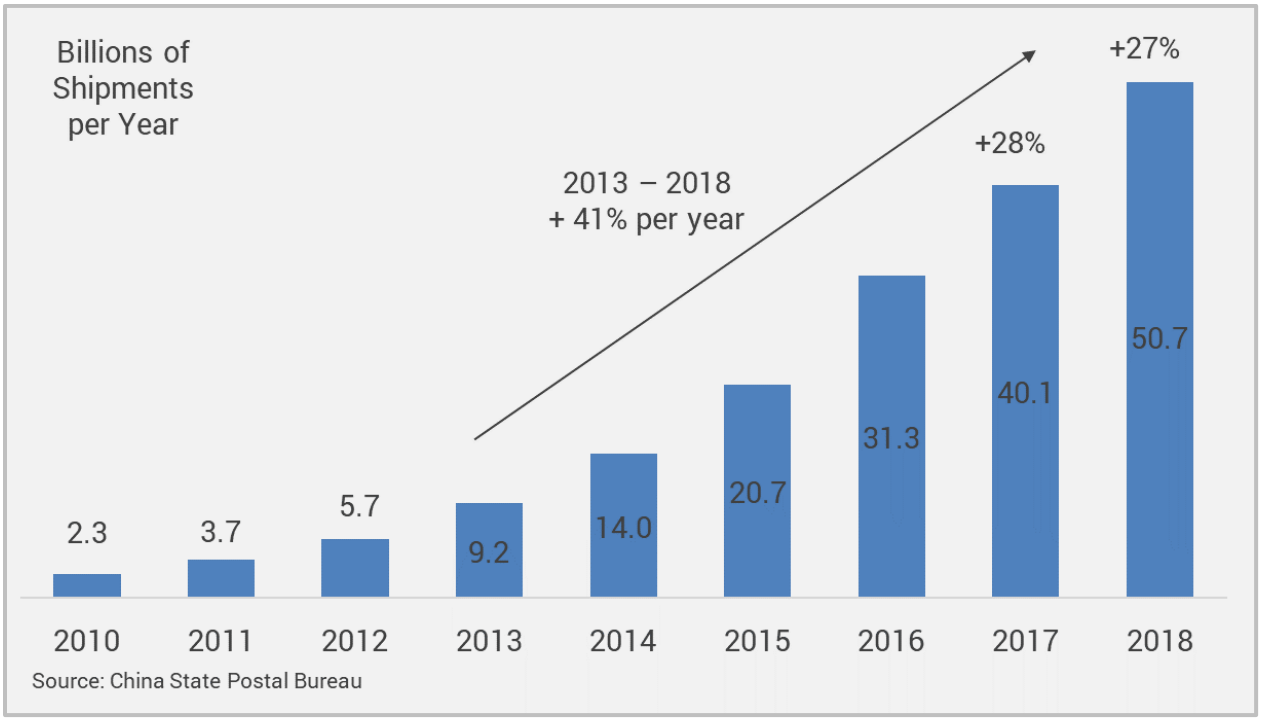


By comparison express traffic growth has been in the order of 40% per year over the last five years. Figure 13 provides an overview of Chinese domestic express shipment volumes between 2010 and 2018, according to the China Postal Bureau. Based on this information, the total market size in 2018 was 50.7 billion shipments. Growth in the last two years decelerated to 27% and 28%, respectively in 2018 and 2017. By comparison, SF Express posted 27% growth in 2018.

However, during this period shipment revenues declined by 50% to 12 RMB (about US$1.70) per shipment today. About 23% of shipments in 2018 were intra city, 75% between cities and the remaining 2% to international destinations, Hong Kong, Macao and Taiwan.

Based on company reports, we estimate that the air express share of this traffic is in the order of 3% (about 1.5 billion shipments), with 800 million carried by SF Express, 500 million by China Postal Airlines, 150 million by YTO, and 50 million by Yunda Express.

Figure 13 – Chinese Domestic Express Shipments 2010 - 2018



Currently there is insufficient air express shipment data available to produce a reliable forecast of Chinese domestic air express shipment or weight. The existing SF express fleet growth plans through 2022 would imply air express shipment growth expectations of approximately 10% per year for the next three years.

However, is worth noting that even though SF Express reported a total of 800 million air shipments in 2018, the reported air traffic carried by SF Airlines and third parties operating for SF was only about 23% of what UPS and 15% of what UPS carried their domestic networks, respectively, even though shipment counts would imply that all three each move about the same number of air shipments.

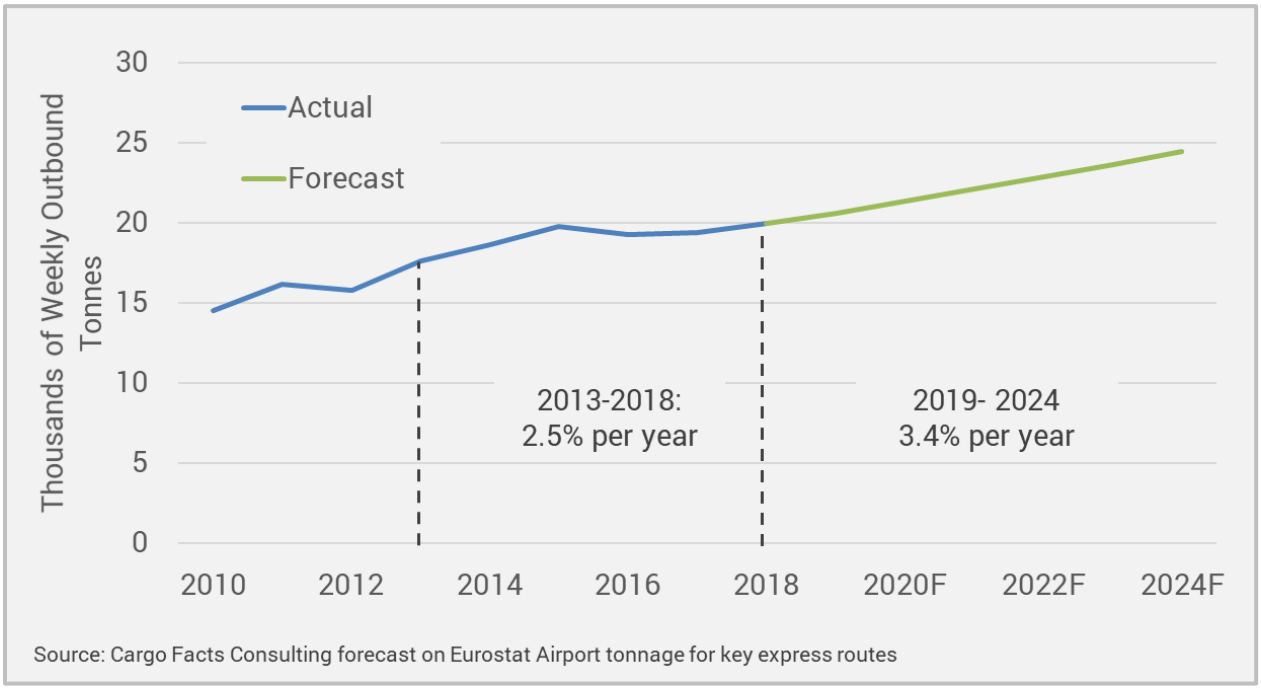
3.4 Intra Europe

The Intra European Air Express market is dominated by three providers: DHL, UPS and FedEx. FedEx acquired TNT Express in 2016 and has been integrating the operations of the company since then. The TNT brand is still in operation but set to disappear soon. There are many companies (such as GLS, DPD, or Hermes) offering express and courier services in the European market. There are also some postal companies in France, Italy, the UK and Sweden that use air capacity. However, only DHL, FedEx and UPS have extensive air operations that cover the whole of Europe and as such we have focused exclusively on these companies.

Most European Express traffic moves through six hubs: East Midlands (DHL, UPS, FedEx), Cologne (mainly UPS and DHL), Paris (FedEx), Brussels (DHL), Liege (FedEx) and Leipzig (DHL). These six hubs generate about 2,200 outbound flights and 20,000 tonnes of traffic per week (about 1 million tonnes per year).

We forecast growth in the order of 3.4% per year for the next 6 years at these six airports, which is higher than the recent historical average of 2.5% per year (see Figure 14). This is growth is driven by both intra – European as well as intercontinental traffic for onward distribution in intra-European networks. We have not factored any Brexit related downside into our forecast.

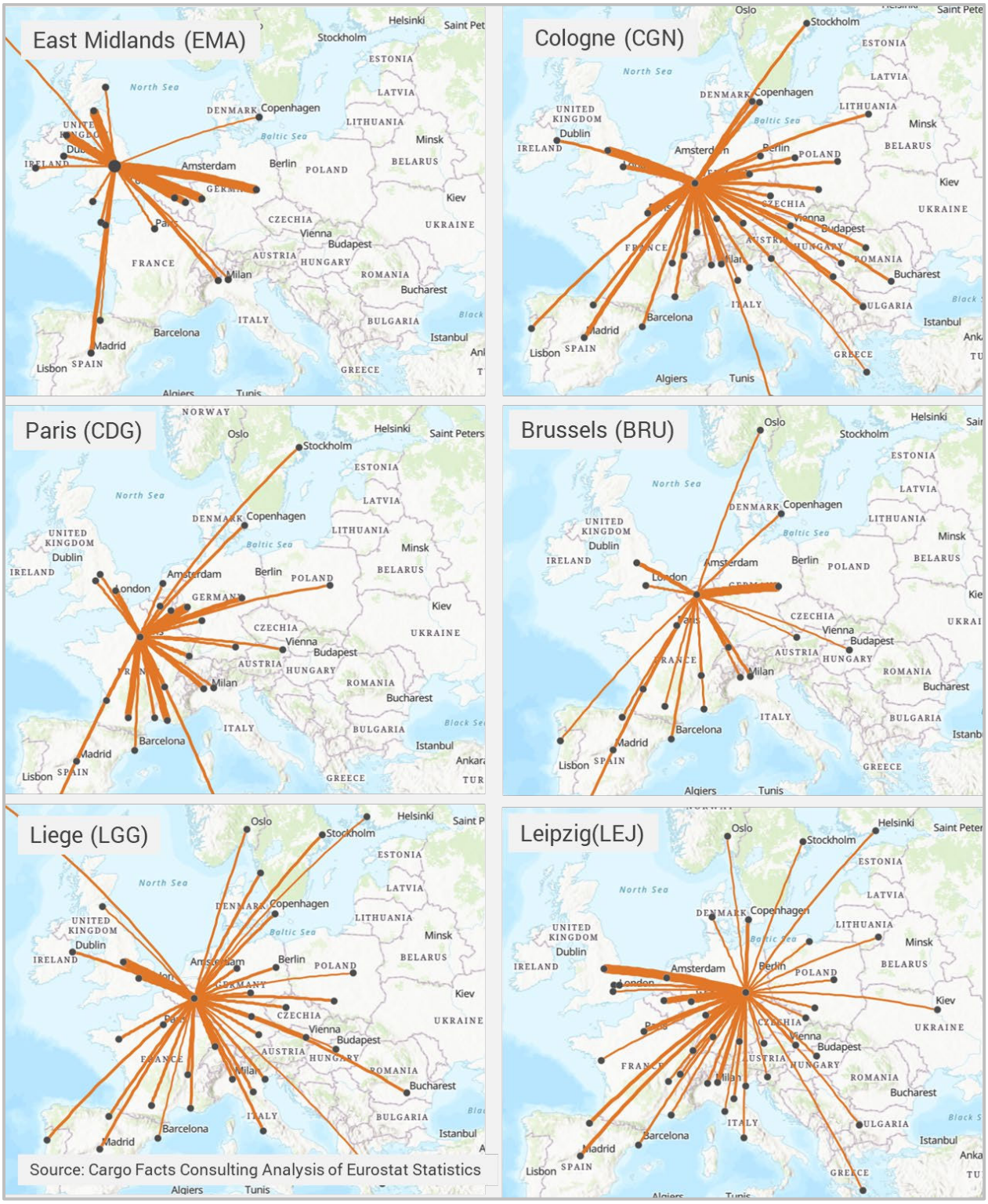
Figure 14 – Major European Express Hub Traffic 2010 – 2024



Source: Cargo Facts Consulting forecast on Eurostat Airport tonnage for key express routes

Figure 15 provides an overview of the intra-European networks from The map application that accompanies this report allows users to conduct a more detailed analysis of the networks out of each of these locations.

Figure 15 – Flights from Major European Express Hubs 2019



Collectively, these airports serve approximately 200 direct destinations within Europe. Leipzig (LEJ) and Brussels (BRU) have seen the most growth in intra-European traffic over the past years. Paris (CDG) has declined as FedEx has shifted more traffic through Liege (LGG). Cologne (CGN) has been showing an upward trend, while East Midlands (EMA) has stayed largely flat.

We expect further growth to center around Liege, Leipzig and Cologne. The continuing role of East Midlands as component of intra-European express networks will depend on the type of arrangements that emerge between the European Union and the UK following Brexit, whenever that should happen. Although we note that there are arrangements in place to guarantee continued connectivity between the UK and the remaining 27 Member States of the European Union following a no-deal Brexit, the longer term issue at stake is how a non-EU hub can serve as part of an intra-European network.

3.5 Domestic India

India is currently one of the fastest growing major economies in the world. According to World Bank data and IMF projections, India will surpass the United Kingdom to become the fifth-largest economy in 2019. India's logistics network value is estimated to be $160 billion and its projected CAGR of over 10% shows an estimated logistics value of $215 billion in 2020. We have decided to include India in this study because of the growing potential of its e-commerce market and express operations development.

The logistics industry in India is growing fast and is also undergoing continuous infrastructure and technology improvements, but in spite of a promising long term outlook, the business environment remains challenging, unstable and uncertain and this has been reflected in the overall country's logistics performance. According to the latest World Banks' Logistics Performance Index (LPI), India's overall logistics performance moved to the 44th position in 2018 from a 35th rank in 2016.

The Indian government has committed to focus on infrastructure development initiatives such as building dedicated freight corridors with the goal of reducing transit times across industrial regions in Central India to seaports in the Eastern and Western Coast. There are several road, sea, rail and air projects in execution aiming to decongest heavily saturated networks. The near term prospect is complex, and the express logistics business is continuously evolving, facing new challenges, business entrants and increasing competition.

India's aviation industry has suffered in the last decade. High operation costs and low yields has resulted in events like Jet Airways' (once the nation largest airline) ceasing operations in early 2019. Other factors have contributed to the aviation crisis that India is currently going through: both GoAir and Indigo are facing a crew shortage and are forced to cancel flights everyday while SpiceJet had to ground its twelve Boeing 737 MAX aircraft.

On the air freight front, India's performance has also been disappointing. Moves over the past decade to reduce a hobbling bureaucracy and upgrade infrastructure have failed, with cargo airport plans not materializing and freighter operators going out of business. DHL-owned Blue Dart Aviation remains the only success story in India's cargo scene and its brand has become the market leader for value, speed, customer service and operational reliability. Blue Dart is India's largest and only express delivery company with a supporting air network (See 4.4). At an estimated 30 million air shipments per year, the Indian domestic Air Express Market is only 2% the size of the Chinese domestic and 13% the size of the intra-European express market.

4. Express Company Twelve Year Business Review and Outlook

Key Findings:

- DHL, FedEx and UPS dominate the global express business, but they their geographical exposure is very different. Although all three have US origins DHL is the most global.
- Meanwhile, SF Express is almost as big as UPS in terms of shipments moved, but it is primarily a Chinese domestic operation.
- While volumes in all markets have grown, long term international package yields have followed a downward trend.
- The US domestic market seems to have reached an inflection point with yields dropping significantly in 2019.
- In terms of profitability, companies have followed a different trajectory. Aramex and DHL Express have shown long term improvement, while FedEx and UPS are flat. Blue Dart margins have been falling.

The global air express business today is dominated by three companies: DHL, FedEx and UPS. All three companies have US origins. However, on a regional level there are large differences in the scope and scale of operations and these companies face competition from regional champions and new entrants, some with global ambitions. FedEx, UPS and the United States Postal Service (USPS) dominate the US domestic express market, where DHL Express is no longer present. In Europe, DHL, UPS and FedEx compete with ground-based parcel companies such as DPD, Hermes and GLS, to name a few. None of the big three are present in the Chinese domestic market which is the domain of the likes of SF Express, China Postal Airlines, YTO Express and a huge array of ground based express companies. In the Middle East and Africa DHL competes with companies such as Aramex. Prior to the 2016 takeover by FedEx, TNT operated in a mix of intra-European, intercontinental and domestic markets (such as Australia or Brazil).

This section focuses on five companies: DHL, FedEx, UPS, SF Express, Aramex and Blue Dart. All of these report regular financial results and operating statistics, albeit of varying granularity and usefulness. We have prepared a profile of China Postal Airlines, but due to lack of financial data have not included the company in financial and strategy analysis of this section. Most of the analysis covers the period from 2006 to 2018, but we have included a chapter that discusses recent developments in 2019. Financial years for Aramex, DHL, SF Express and UPS follow the calendar year, while FedEx ends its financial year in May and Blue Dart in March. Where appropriate we have adjusted FedEx and Blue Dart figures to reflect our calendar year based analysis.

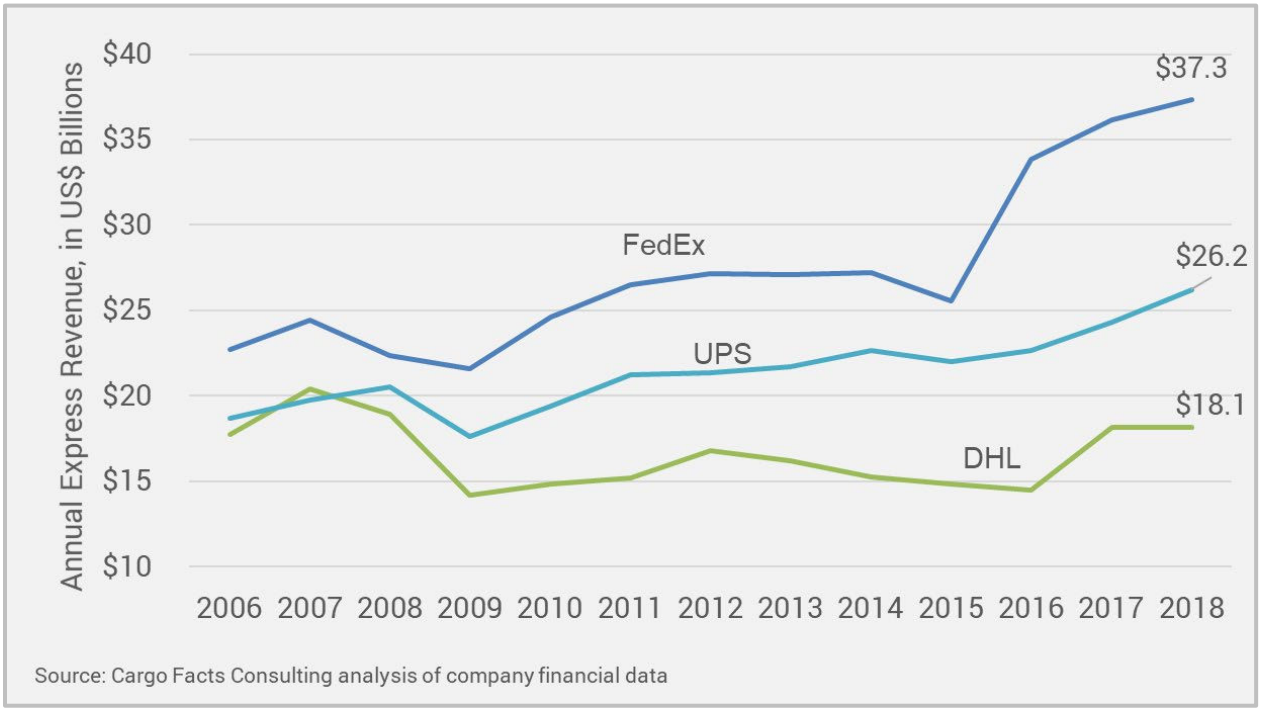
Chapter 4.1 provides a comparative analysis of the big three DHL, FedEx and UPS with regard to market shares, yield development and changes in product mix. Chapter 4.2 provides an overview of key developments in 2019 and the following chapters (4.3 - 4.9) provide an analysis of the six companies covered in this report in alphabetical order.

4.1 Companies Compared – Revenue, Growth, Market Share and Yields

In terms of overall corporate revenues, Deutsche Post DHL, FedEx and UPS are all $70 billion a year companies, but a very different mix of businesses and scope. SF Express is a $13.6 billion company, while Aramex generated revenues of approximately $1.4 billion. Blue Dart generated revenues of $460 million in the last financial year.

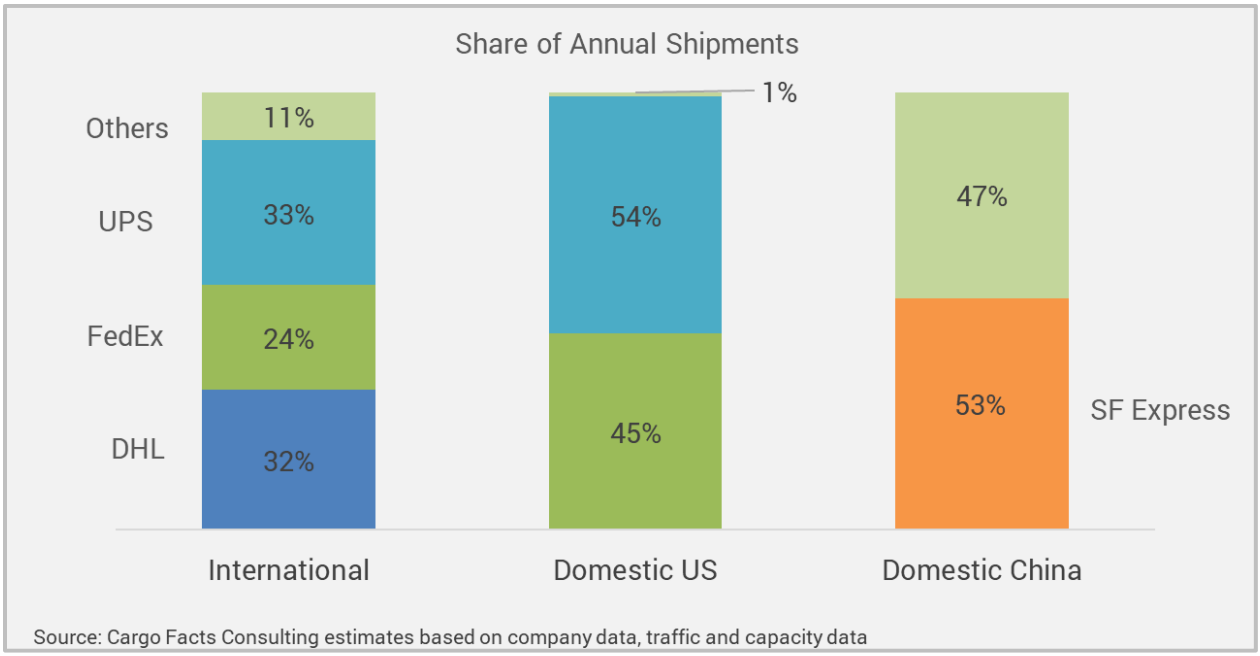
The size of each company's express business varies substantially. FedEx Express is about twice the size of DHL Express and its global express revenues are about 40% higher than UPS Express products. In revenue terms FedEx has grown its express business much faster than either UPS or DHL (see Figure 16). Please note that this analysis includes the following UPS express products: Next Day Air, Deferred, International Domestic and International Export.

Figure 16 – Top Three Integrators Express Revenue 2006-2018



The three big global integrators account for 90% of international express shipments, with UPS and DHL together accounting for approximately 65% (see Figure 17). The Domestic US market is dominated by UPS and FedEx, while the Chinese Domestic Market is dominated by SF Express. None of the big three are active in the domestic China market, even though for example UPS and SF cooperate internationally.

Figure 17 – International, Domestic US, and Domestic China Air Express Market Shares 2018

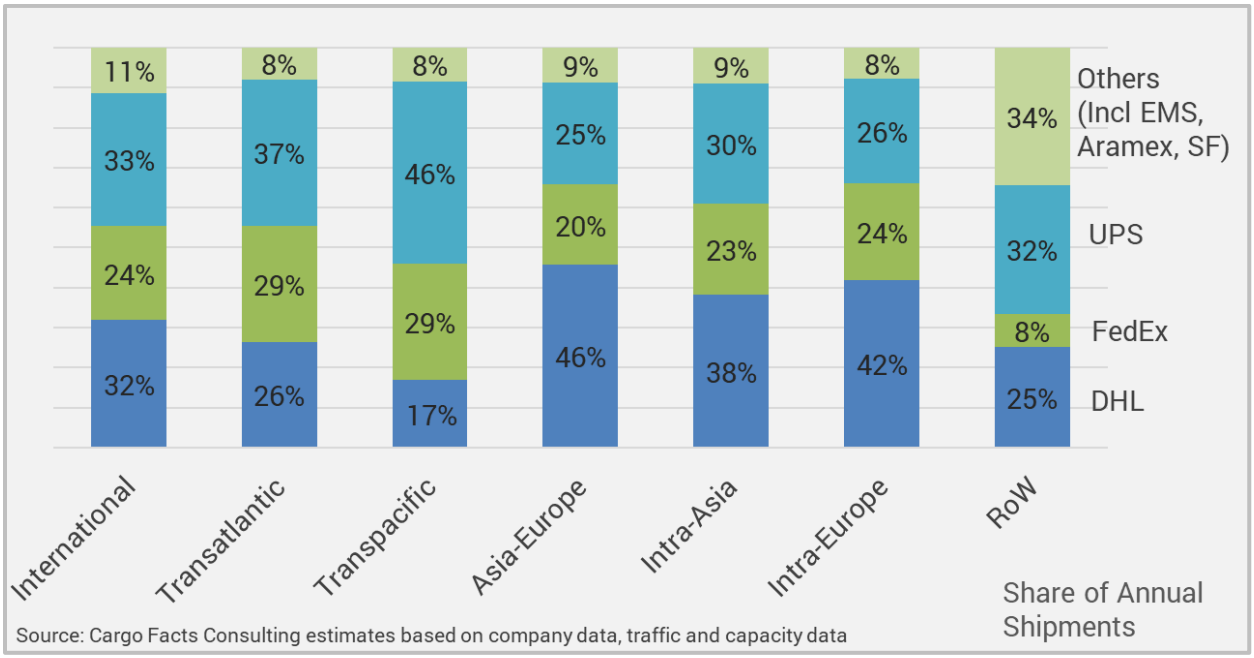


Surprisingly, UPS generates more international air express traffic than DHL, albeit at lower yields. This explains the inconsistency between, for example, the market shares shown here and those shown by Deutsche Post for DHL in its annual report, the latter being based on revenue, not shipments. Due to its industry leading yields, DHL's market share is much larger in revenue terms. For example, DHL's TDI yields are around twice the UPS yield per shipment and 16% higher than FedEx's combined international express yield (see also Figure 19).

The relative strength of each of these companies varies by international market. Predictably, UPS and FedEx are stronger on markets to and from the US than markets not linked to the US, while DHL has a dominant presence in Asia to Europe and Intra-Asian Markets. Figure 18 provides an overview of shares in the transatlantic (North America – Europe), transpacific (North America – Asia), Intra European, Intra Asian and Other markets. It is in the Rest of the World (RoW) category where companies such as Aramex have been able to tap into rapid growth. This includes markets such as Asia and Europe to the Middle East and Africa, as well as markets to and from Latin America. Postal EMS (or Express Mail Shipments – see Chapter 5.3 starting on page 63) account for just under 10% of global express volumes, but have underperformed the rest of the international express market.

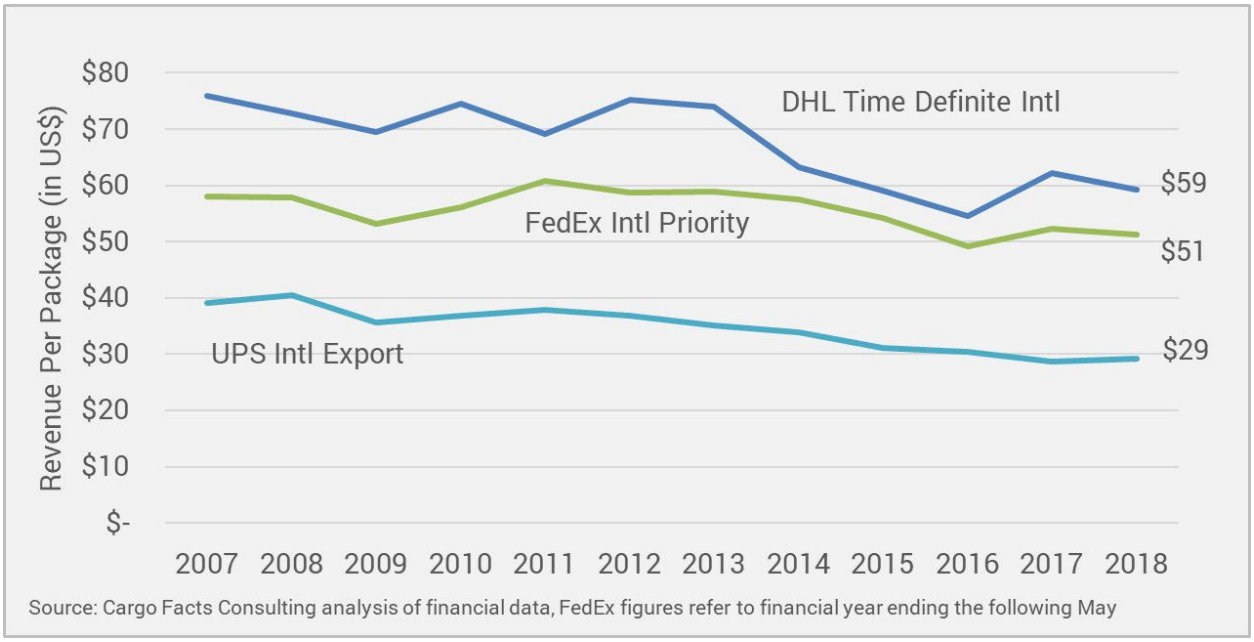
The market shares by geographical market should be interpreted with a degree of caution. While we are comfortable with our overall international shipment share estimate, none of the carriers provide a detailed geographical breakdown. As such we have combined statistical and verbal information on shipment counts, revenues and yields, air-ground split as well as analyzing how each of these carriers deploy their capacity around the globe. We welcome your feedback on these estimates.

Figure 18 – International Express Shipment Shares by Geographical Market 2018



Yields for the three main international express operators have followed a moderate downward trend over the past 10 years as competition and the share of business to consumer traffic has increased (see Figure 19). This analysis includes the main international products of each of the integrators.

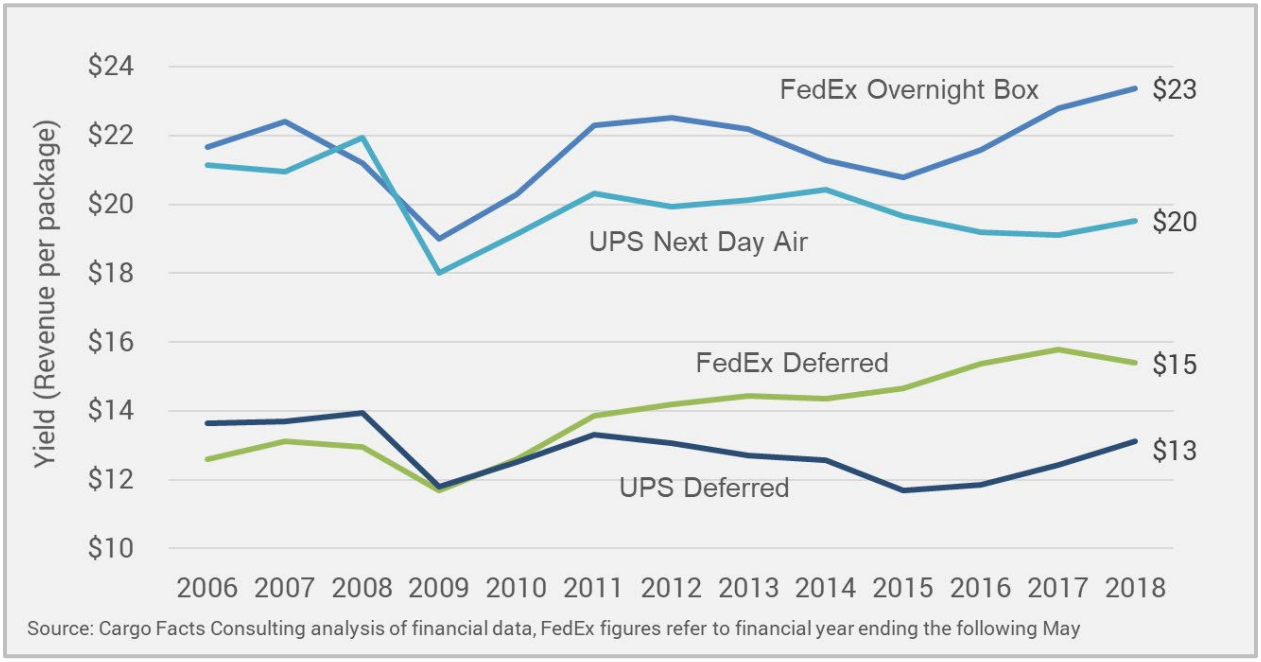
Figure 19 – DHL, FedEx, and UPS International Air Express Package Yields 2007-2018



Yields for international shipments have trended down over the past few years due to the impact of lower fuel surcharges and unfavourable exchange rates. Even though international shipments have increase, the yields cannot compete with the yields we have been observing up until 2017.

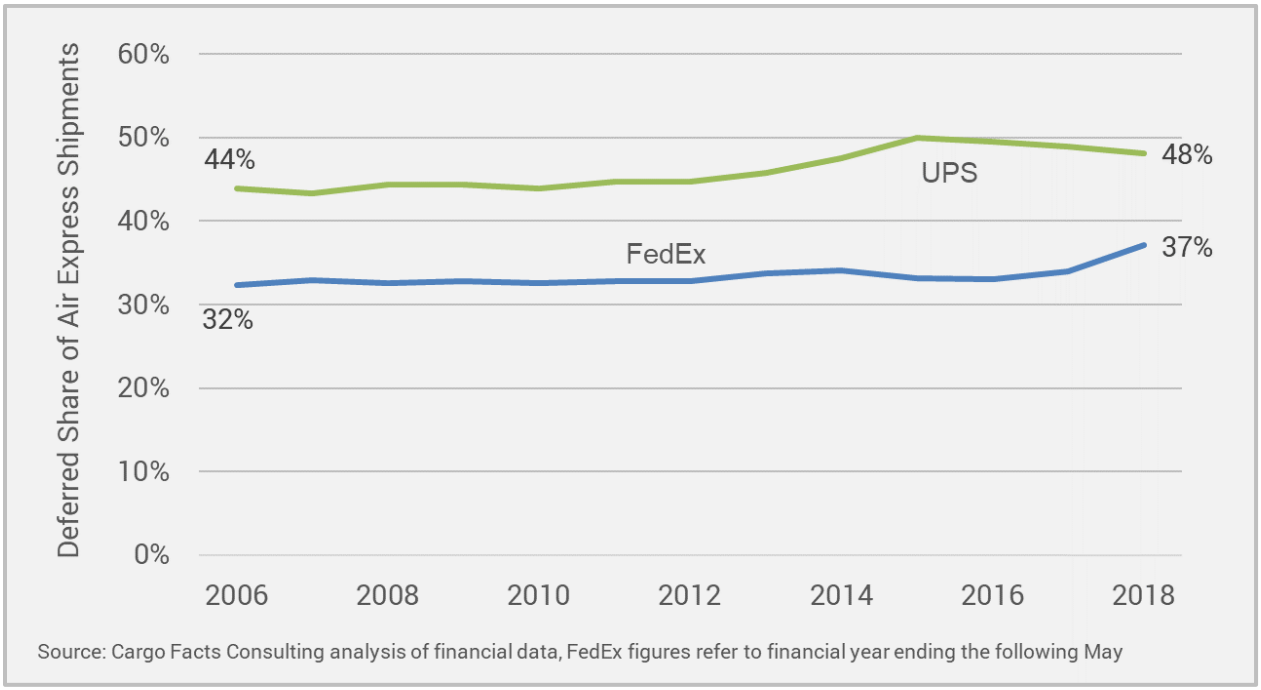
Meanwhile, US domestic yields for FedEx and UPS - at least until 2018 – have not followed the same downward trend. In the contrary, both premium and deferred have registered an increase in per package yields (see Figure 20).

Figure 20 – FedEx and UPS US Domestic Package Yield by Product 2006-2018



The recent increase of B2C traffic also implies more deliveries to residential addresses, which tend to be lower-priced deferred services. We have observed a tendency for shippers to move from high-priced expedited services down to lower-priced deferred services (second or third day delivery) and we have seen the share of deferred to total air express products has increased slightly for both FedEx and UPS (see Figure 21).

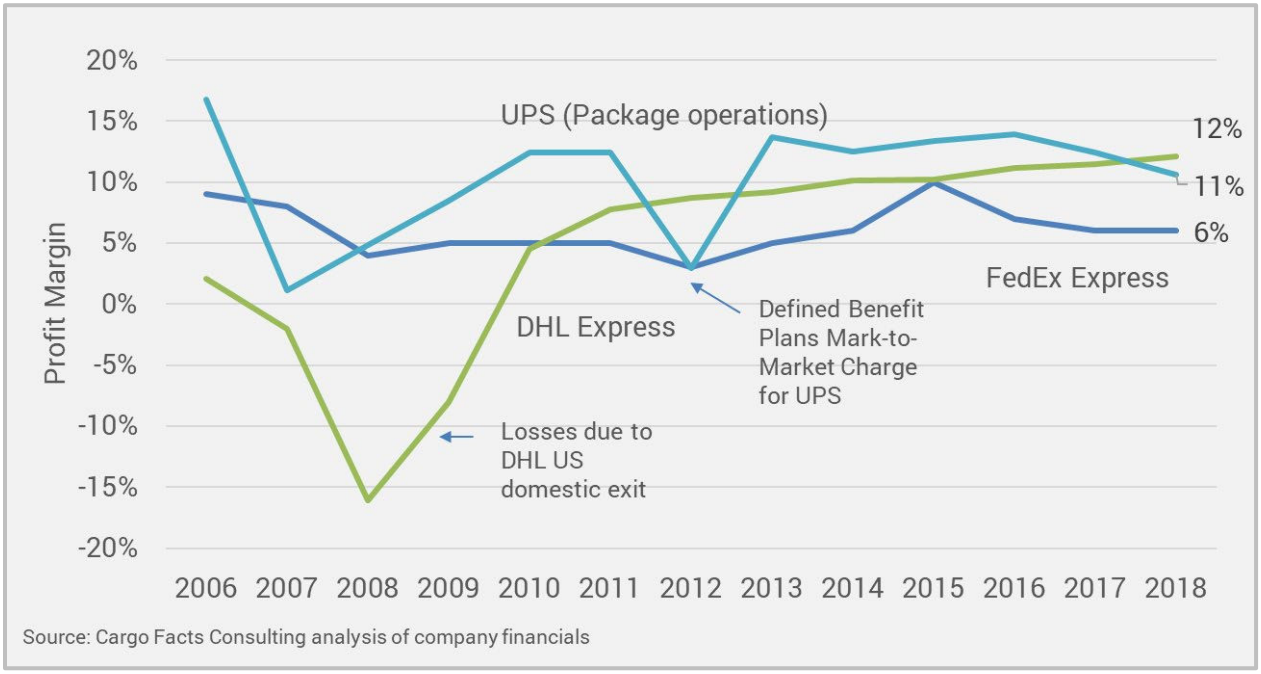
Figure 21 – UPS and FedEx Deferred Share of US Domestic Shipments 2006 - 2018



Source: Cargo Facts Consulting analysis of financial data, FedEx figures refer to financial year ending the following May

In terms of margins, DHL Express has outperformed both FedEx and UPS, although the latter does not report separate results related to its Express business (see Figure 22). Following the exit from the US, DHL Express has recovered and its profit margins have shown a steady upward trend.

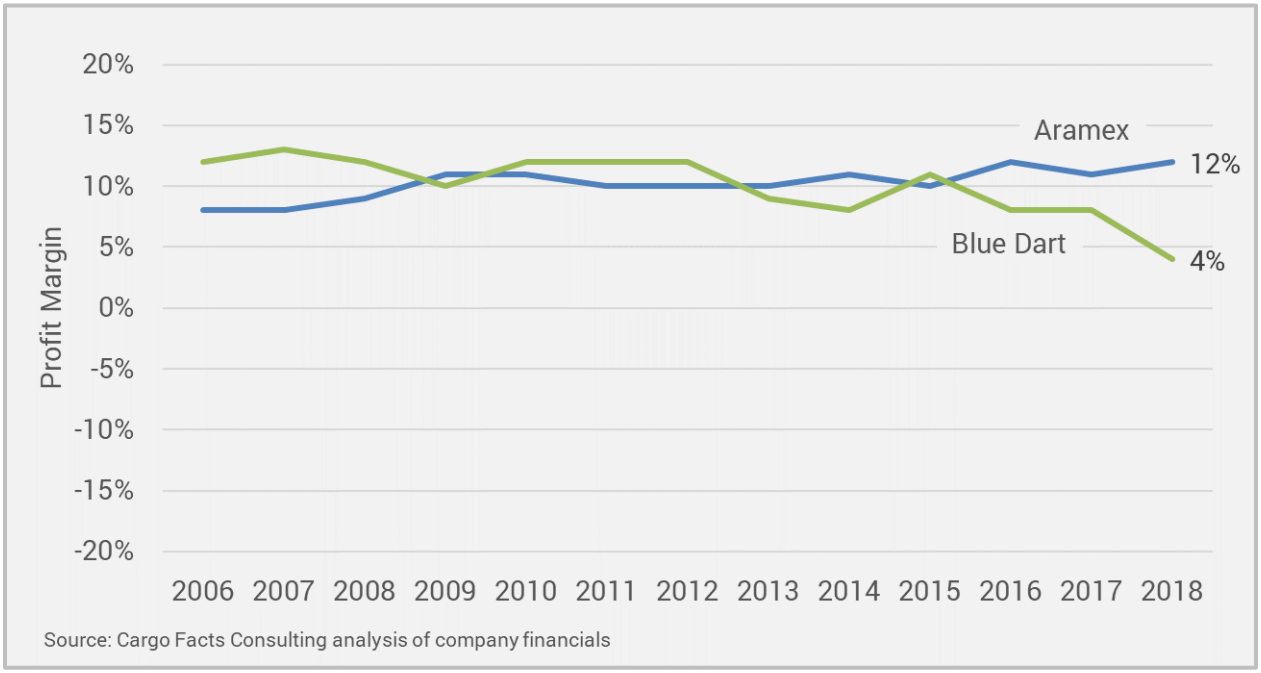
Figure 22 – DHL, FedEx and UPS Profit (EBIT) Margins 2006-2018



Source: Cargo Facts Consulting analysis of company financials

FedEx and UPS have shown no clear upward or downward trend, but in recent years there has been pressure on margins. By comparison, Aramex has also shown a steady trend of increasing margins, while Blue Dart has taken a hit in the last years (see Figure 23). SF Express (not shown due to insufficient time series data) generated operating margins of 9% in 2017 and 6.4% in 2018, but improved margins in the first half of 2019.

Figure 23 – Blue Dart and Aramex Profit (EBIT) Margins 2006-2018



Source: Cargo Facts Consulting analysis of company financials

4.2 At a Crossroads – Recent Developments in 2019

Looking at the results of the big three global integrators and SF Express, the first nine months of 2019 have seen a continuation of past trend in international and Chinese Domestic air express markets. Meanwhile, in the US domestic air express market we are witnessing what appears to be an inflection point. Table 1 provides an overview of international and domestic volume and yield development for each of these companies.

Table 1 – 2019 Air Express Yield and Volume Development: DHL, FedEx, UPS, SF Express

Company	International Volume	International Yield	Domestic Volume	Domestic Yield
DHL (Jan-September 2019)	+ 6% ↑	-0.9% (-7% in USD) ↓	n.a.	n.a.
FedEx (Mar-August 2019)	+ 3% ↑	- 4% ↓	+ 7% ↑	- 1% ↓
UPS (Jan-Sep 2019)	- 0.7% ●	- 0.5% ●	+ 17% ↑	- 5% ↓
SF Express (Jan-June 2019)	n.a.	n.a.	+ 9% ↑	+ 8% ↑

Source: Cargo Facts Consulting analysis of company financials

While the US domestic market has seen both an overall increase in volumes as well as a shift from FedEx to UPS (thanks to the cancellation of the Amazon contract in June 2019), yields have dropped – particularly for UPS.

The operators we have included in this report have continued to benefit from the steady growth global in e-commerce volumes but they have started to see pressure in their International Express segments due to more competitive pricing and a shift to lower yield services. Express revenues will keep increasing in 2020, primarily associated with higher international volumes but we expect operating income to start declining due to trade conflicts and global economic weakness.

4.3 Aramex

Based in Dubai, UAE, Aramex is a global asset light provider of logistics and transportations solutions. Their strategic location in the Middle East serves as a logistics connection between East and West, operating in more than 65 countries and employing over 15,000 professionals. Aramex claims to have dozens of alliances with leading international express and logistics providers as part of the Global Distribution Alliance (GDA), reaching more than 230 countries and territories worldwide.

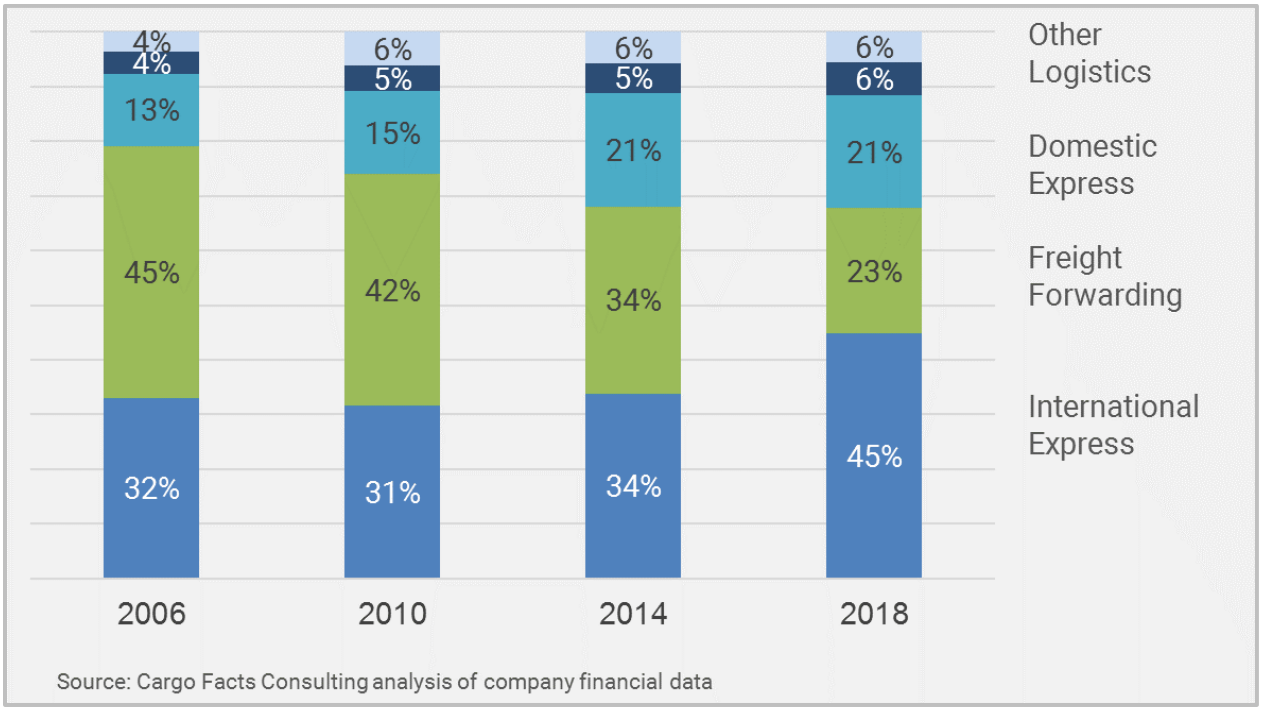
Aramex posted a net profit of AED 624 million (US$134 million) in 2018, an increase of 13% year-over-year while revenue was also up by 8% to AED 5,086 million (US$1,385 million) recording the highest figure to date. Aramex has focused on strengthening their core position in the Middle East by optimizing costs and improving operational efficiency and by also growing their B2B customer base while developing their freight forward offerings and capabilities. Aramex International Express segment has shown a 13% growth in 2018, mainly driven by their network alliance expansion. Aramex has also reported e-commerce volumes for 2018 growing by 35% compared to the previous year and it remains as a major strategic focus.

Aramex has also focused on developing digital solutions by introducing new service offerings and adding value added services to existing offerings with the goal of targeting new industries and customers. An example of this was the rollout of WhatsApp for Business and Aramex Fleet. The former is a delivery platform that offers flexible economic opportunities for local nationals in Saudi Arabia and Jordan to deliver shipments in the areas they select on their free time. The Aramex Fleet application intends to enhance customer experience and digitalize the end-to-end shipment journey.

Aramex divides its product offering into four main categories: International Express Services, Domestic Express Services, Integrated Logistics and Freight Forwarding. Other services include Healthcare, Information Management Solutions and Shop & Ship. The later three segments accounted for 5% of Aramex revenue distribution by segment as shown in Figure 24. Aramex International Express Services continues to be the company's core product, with a revenue share of 45% in 2018. Aramex is partnering with a leading service provider in the region to deliver priority shipments to all major cities in North America, South America and Europe, improving the average shipment transit time.

Figure 24 illustrates how the various business segments have changed their revenue share over time. Aramex had a larger focus on its Freight Forwarding operations back in 2006 but its dependency on this division has been offset by the growth in the Domestic and International Express sectors.

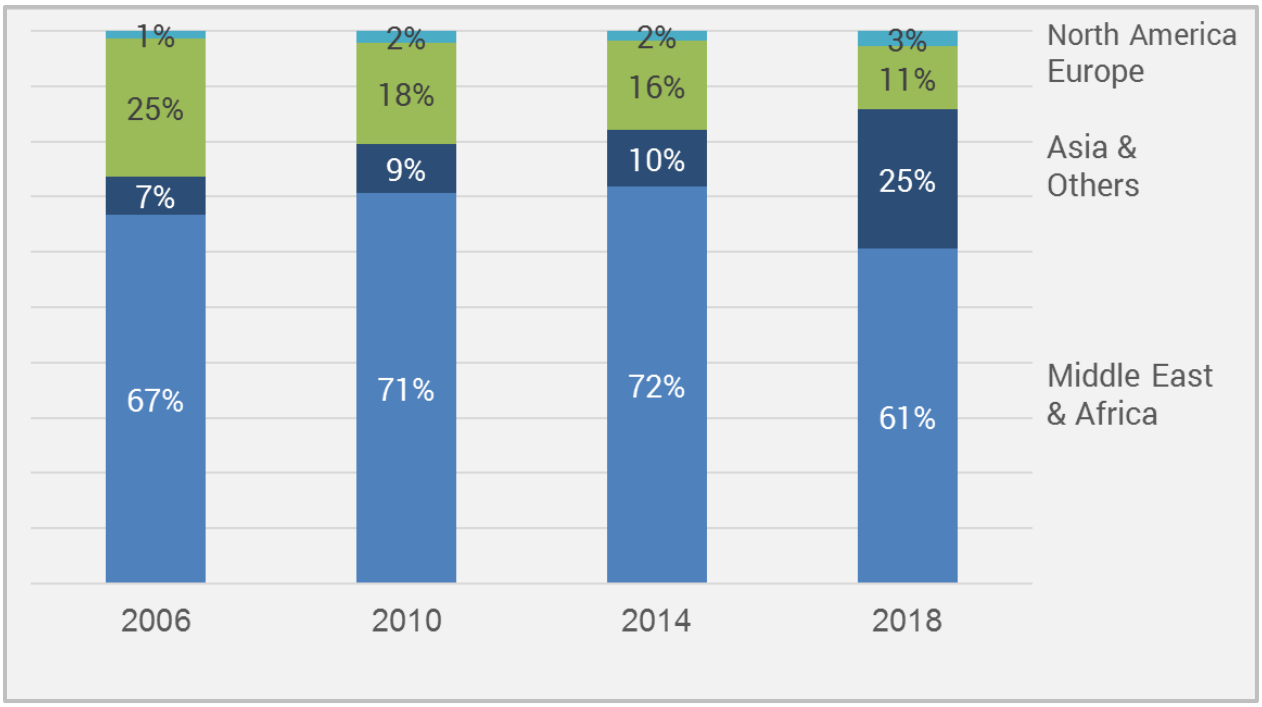
Figure 24 – Aramex: Revenues by Business Segment 2006-2018



In addition to the strong e-commerce focus, Aramex has targeted other industry opportunities in the Pharmaceutical, Oil & Gas, Aerospace and Fashion Industries. By investing in warehouse spaces and temperature-controlled vehicles, they are able to offer additional logistics and freight forwarding solutions in different regions. Aramex keeps growing its customer base and servicing online retailers in their core markets of the Gulf, Levant, Asia & Africa and in new markets such as Turkey.

Figure 25 shows the company's revenue share by region, with its core market accounting for 61% of the total revenue in 2018. The North American and Asian regions have experienced the highest growth in the last decade with Europe's share dramatically decreasing from 25% in 2006 to 11% in 2018. The North American region still represents a small 3% share of the total revenue.

Figure 25 – Aramex: Revenues by Region 2006 – 2018



Aramex delivered a total of 69 million shipments in 2018, a slight decline of 2.4% from the same period of 2017. Figure 26 shows the revenue per shipment development from 2006 to 2018. In 2018, this figure was AED 9.08 (US$2.45), an increase of 19% year-over-year. However, the chart demonstrates an unsteady trend with ups and downs especially in the last four years. Additionally, Figure 27 shows Aramex shipment volume over time.

Figure 26 – Aramex: Revenue per Shipment 2006-2018

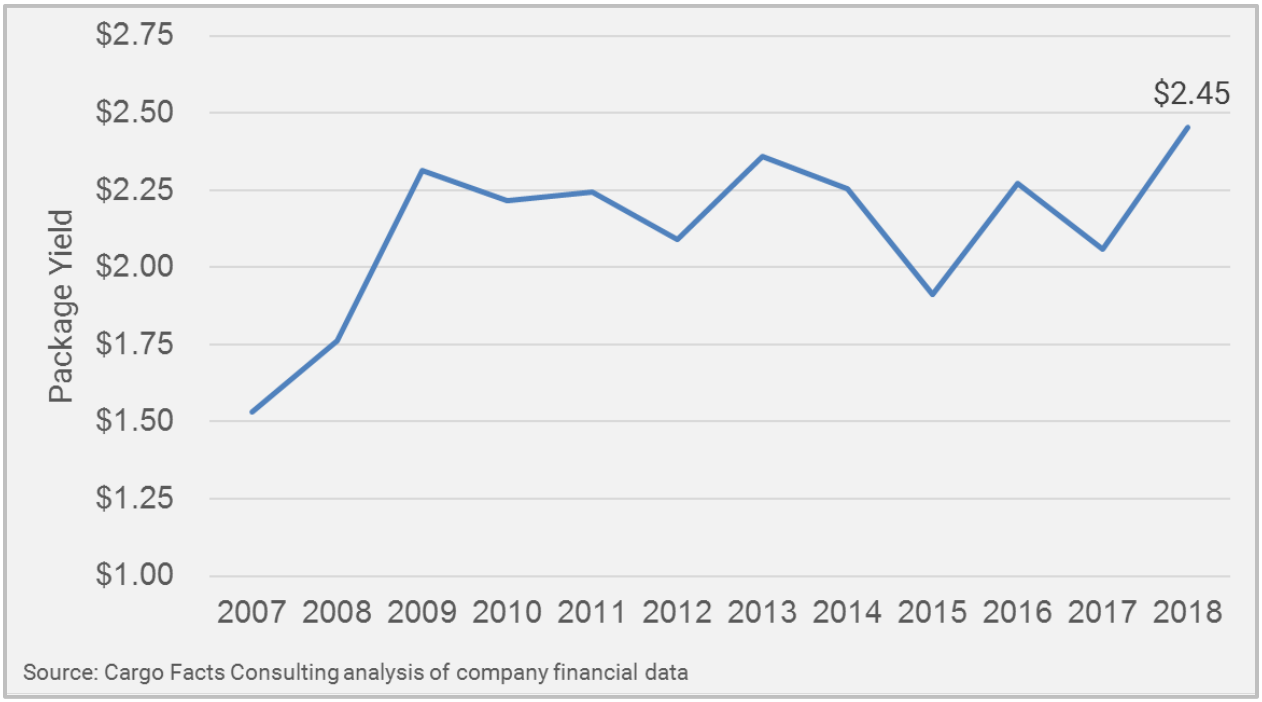


Figure 27 – Aramex: Shipments 2007 - 2018

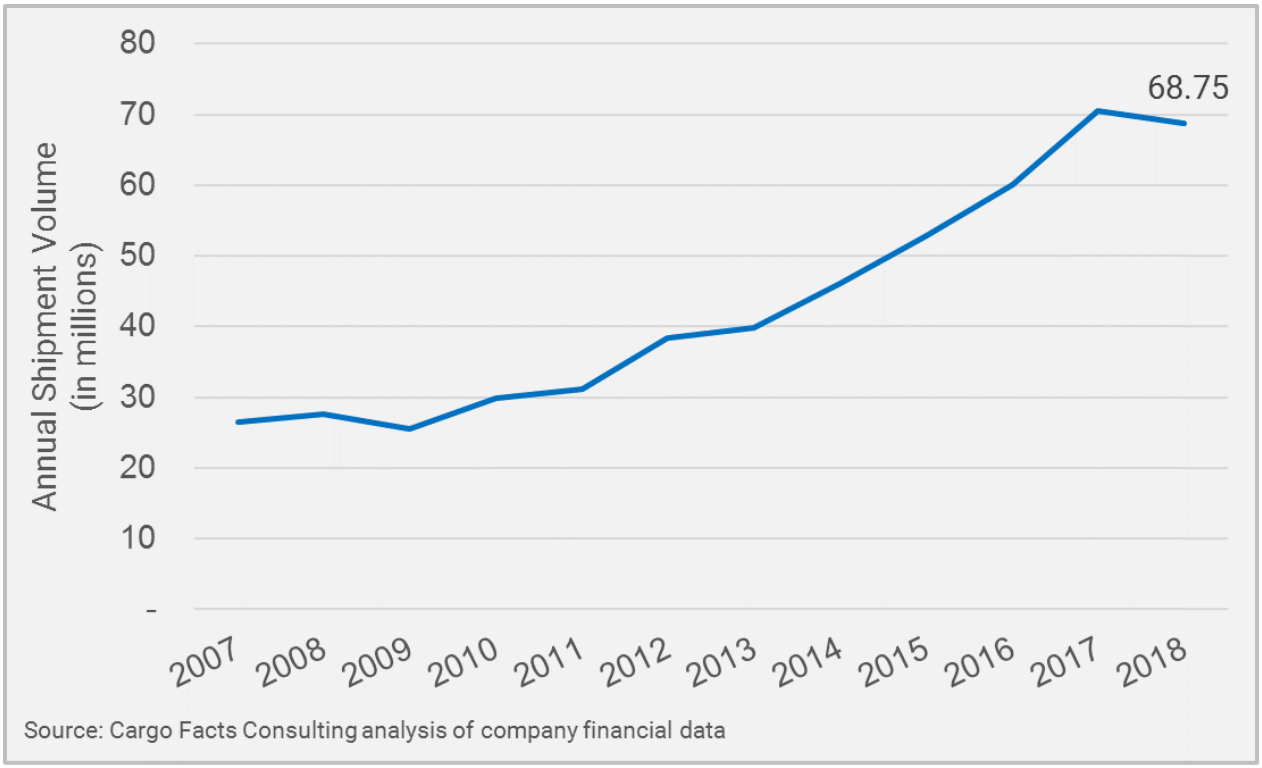
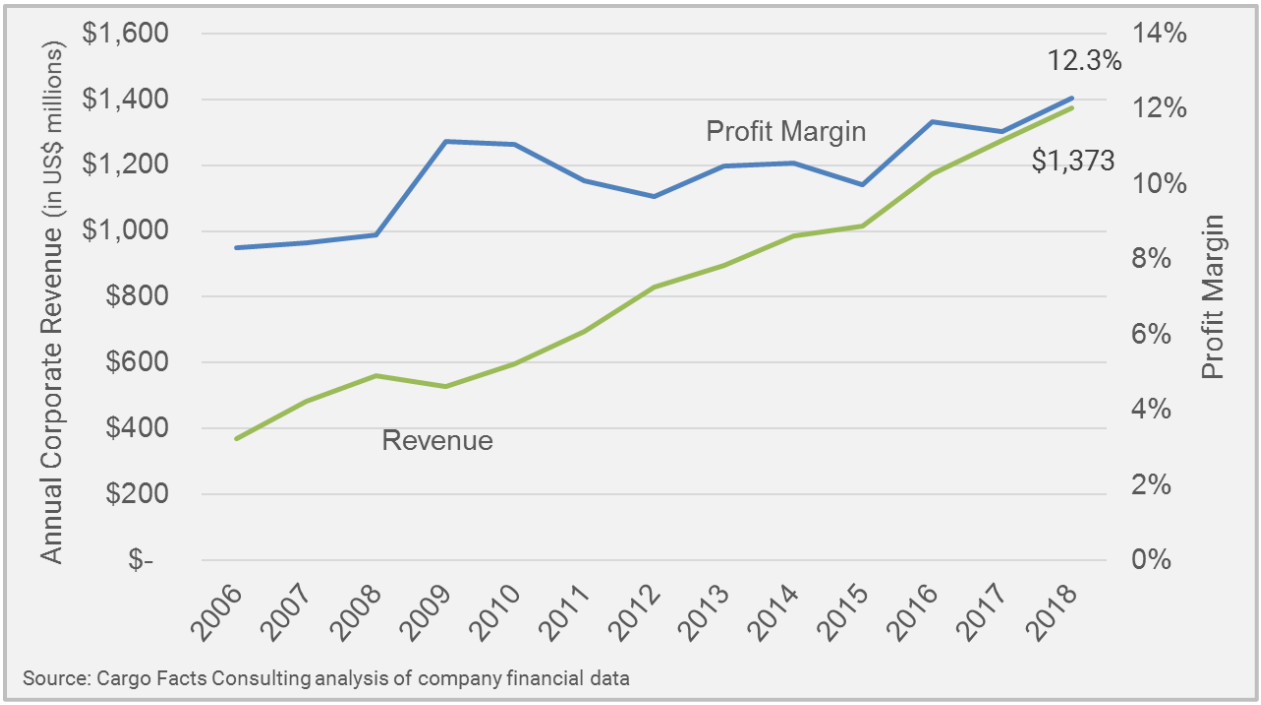


Figure 28 shows Aramex revenues and profit margin development for the past twelve years. Since 2006, EBIT margins are showing an upward trend. 2018 was its most profitable year, with a profit margin of 12.3% totaling $168.5 million before tax.

Figure 28 – Aramex: Corporate Revenue and EBIT Margin 2006-2018



Source: Cargo Facts Consulting analysis of company financial data

4.5 Blue Dart

Blue Dart Aviation, originally the air arm of Indian express company Blue Dart Express, was spun out as a standalone carrier in 2004 when DHL acquired majority ownership of Blue Dart Express. However, Indian ownership ended in late June 2015 when Blue Dart Express raised its stake in Blue Dart Aviation from 49% to 70%, effectively making Blue Dart Aviation a subsidiary of DHL Express. The airline currently operates six 757-200Fs with capacity of 500 tonnes per flight, serving the seven largest cities in India and flying at night, allowing late cut-off times and on-time early morning deliveries.

Under DHL's control there have been no major changes in Blue Dart Aviation's successful operation in the recent years. The Blue Dart operation was transferred at the beginning of 2014 from DP-DHL's DHL Express unit to the new Post-eCommerce-Parcel unit. Later it was disclosed that the PeP unit had chosen India as the pilot market in the Asia-Pacific region for its new e-commerce business strategy. Due to the restructuring within the DPDHL Group, Blue Dart is now part of the new DHL eCommerce Solutions division, effective January 1, 2019.

Blue Dart offers air freight, ground and air express, charters and trucking services through its partnerships with DHL Express, DHL eCommerce LLP, DHL Supply Chain and DHL Global Forwarding. This synergy allows Blue Dart to reach 220 countries and territories through its time-definite and day-definite delivery services. Moreover, the company offers specialized delivery services such as Freight on Delivery (FOD), Freight on Value (FOV), Point to Point (P2P) or Temperature Controlled Logistics (TCL).

In 2108, Blue Dart rolled out a plan to face the challenging business environment and focus on maintaining its strategic leadership in India. One of its initiatives, called DAWN (Deliver Any Where Now) was formed to expand its territory reaching over 14,000 pin codes from 6,000 and enable delivery to most Indian residents. Blue Dart is investing an undisclosed amount to develop fulfillment centers, several delivery options, and multiple payment options. Another example of this was the three new facilities recently opened in Chennai, Mumbai and Delhi airports with the goal of improving transit times and the efficiency of shipment transfers. Other key action areas include new product developments and an expanded use of road infrastructure.

Economy in India has faced challenges in the last decade, but Blue Dart has remained profitable since 2000 and it has been able to achieve excellent financial results while offering high customer service quality. During its latest fiscal year, Blue Dart revenues reached $459 million (32.5 billion INR), a 13% increase on a year-over-year basis and it posted profits of $18.5 million (1.3 billion INR), a 40% decline compared to 2017. The profit decrease was mainly due to an increase in operating costs associated with the spending on strategic programs such as territory expansion or infrastructure and technology improvements. Blue Dart expects that these initiatives will result a long-term value for its business operations and clients. Figure 29 summarizes the company's revenue and profit margin over time.

Figure 29 – Blue Dart: Revenue and EBIT Margin FY2006-FY2018

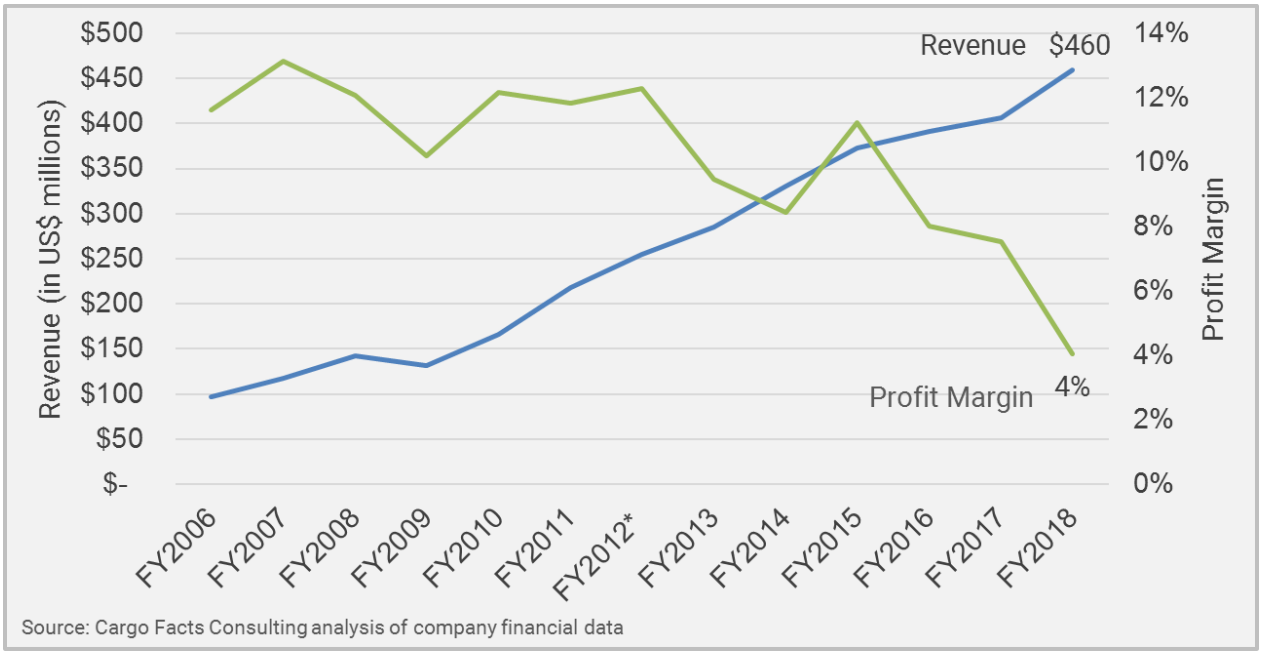
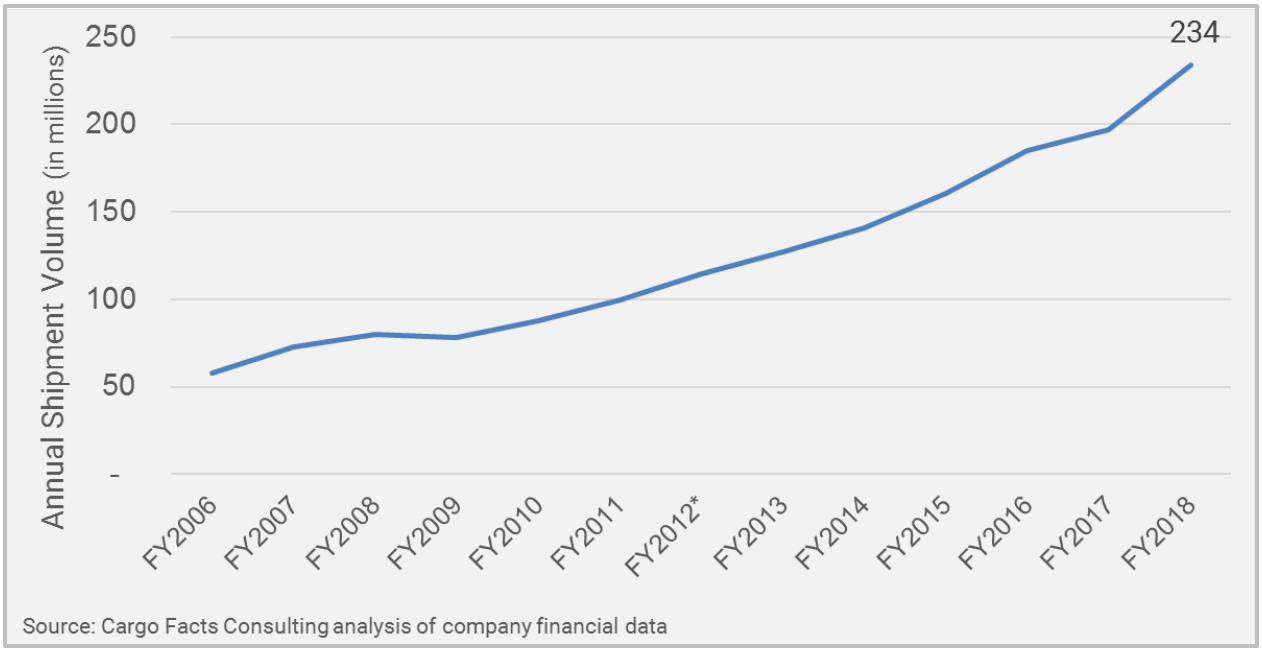


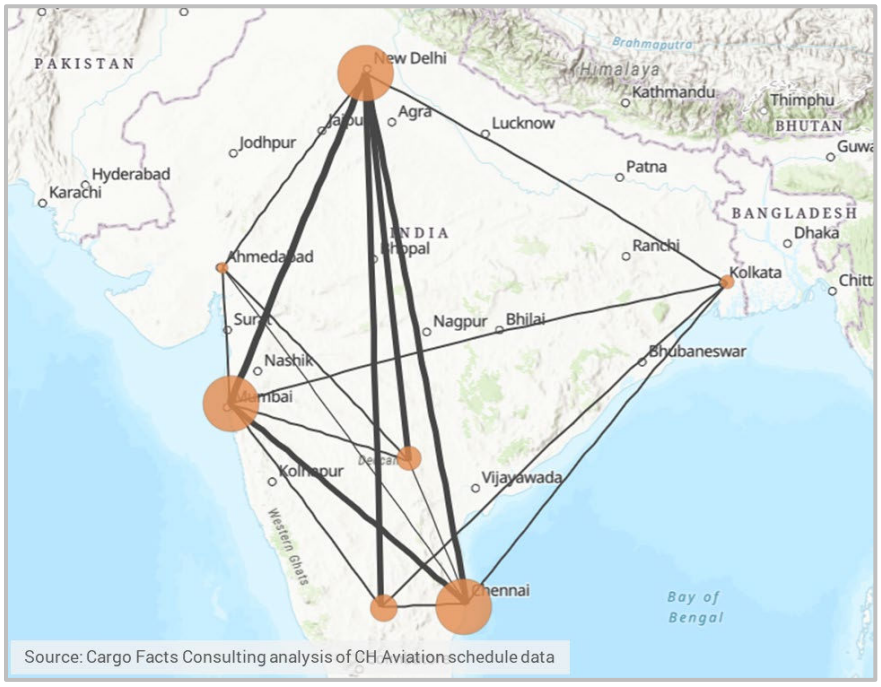
Figure 30 – Blue Dart Air and Ground Shipments FY 2006 – FY 2018



Blue Dart is primarily a domestic operation. In its most recent financial year, the company moved 233 million domestic shipments but only 916,000 international shipments, a total weight of 754,900 tonnes. The consolidated shipment count grew by 18% compared to the same period in the previous year. Figure 30 displays the consolidated volume development for Blue Dart.

Approximately 12% of Blue Dart's tonnage moves through its air network, with the remainder using ground transportation. It is worth noting that Blue Dart's Air network has not changed significantly over the last decade other than a transition from 737 to larger 757 freighter aircraft. Figure 31 provides an overview of Blue Dart's current air network.

Figure 31 – Blue Dart Air Network, October 2019



4.6 DHL Express

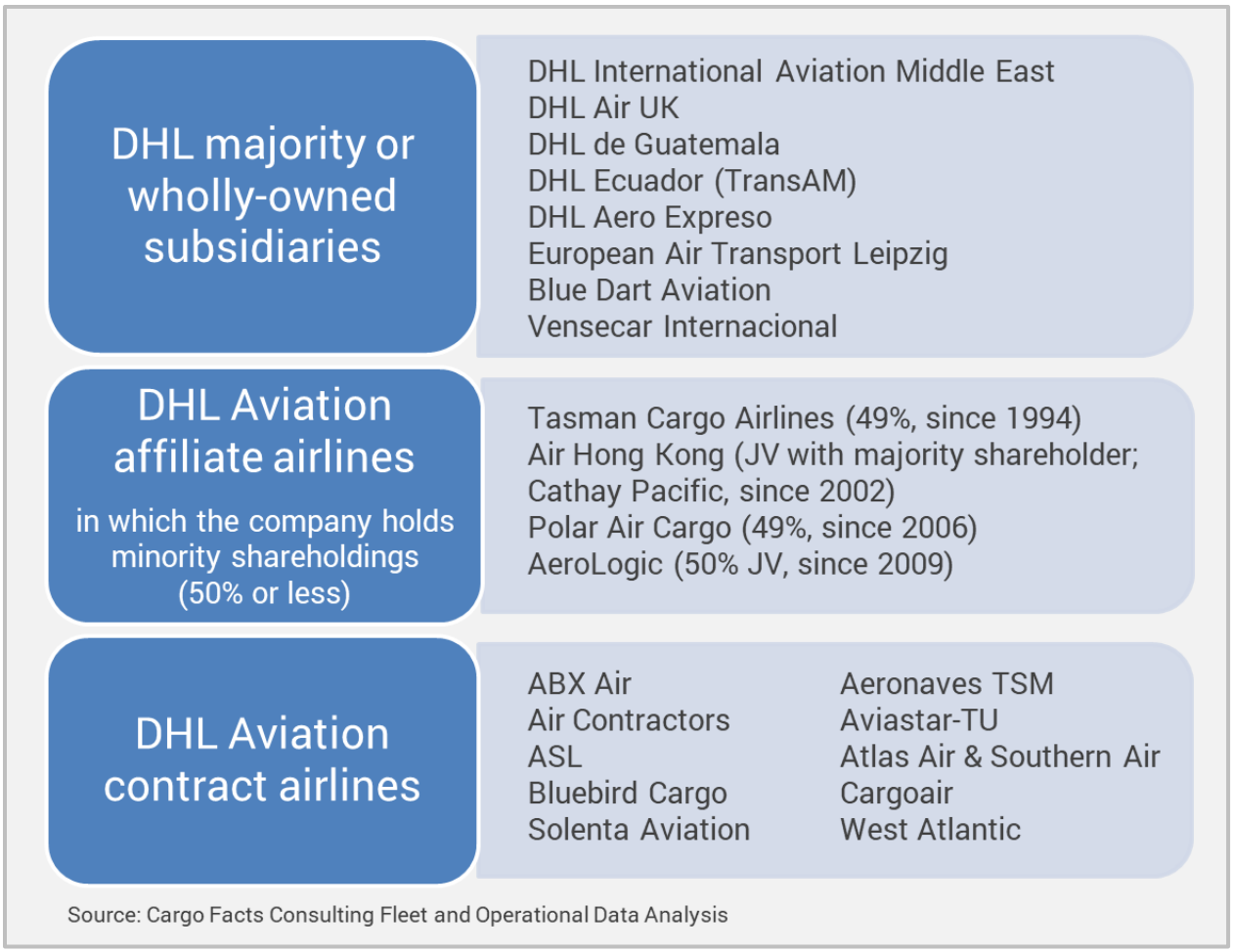
DHL Express is part of Deutsche Post AG, a German-registered corporation with headquarters in Bonn, Germany. Under its Deutsche Post & DHL brands, this group provides a range of international services including parcel distribution, express delivery, supply chain management, freight transport and e-commerce solutions. At November 2019, the group is organized into the four following operating segments: Supply Chain & Freight, Express, Post-eCommerce-Parcel and Global Forwarding. This report focuses on DHL's Express division but also reviews the operational performance of the other three divisions to place the relationship between the Express group and the rest.

DHL Express has a global network that spans over 220 countries and territories, providing services to 2.6 million customers. Its fleet of more than 250 aircraft makes DHL one of the largest air carriers in the world. DHL has developed a network of airline alliances that is very different from the single-operator business models of FedEx or UPS. In the past decade, DHL has expanded its own dedicated air operations by taking more direct control over freighter operations on high-demand routes supplying more reliable capacity and providing shorter delivery times. Its dedicated air freight fleet and over twenty partner airlines operate over 800 daily scheduled flights serving more than 500 airports across the world. Figure 32 provides a current overview of the international scope and scale of DHL Express' operations.

Figure 32 – DHL Express Hubs and Focus Cities 2019

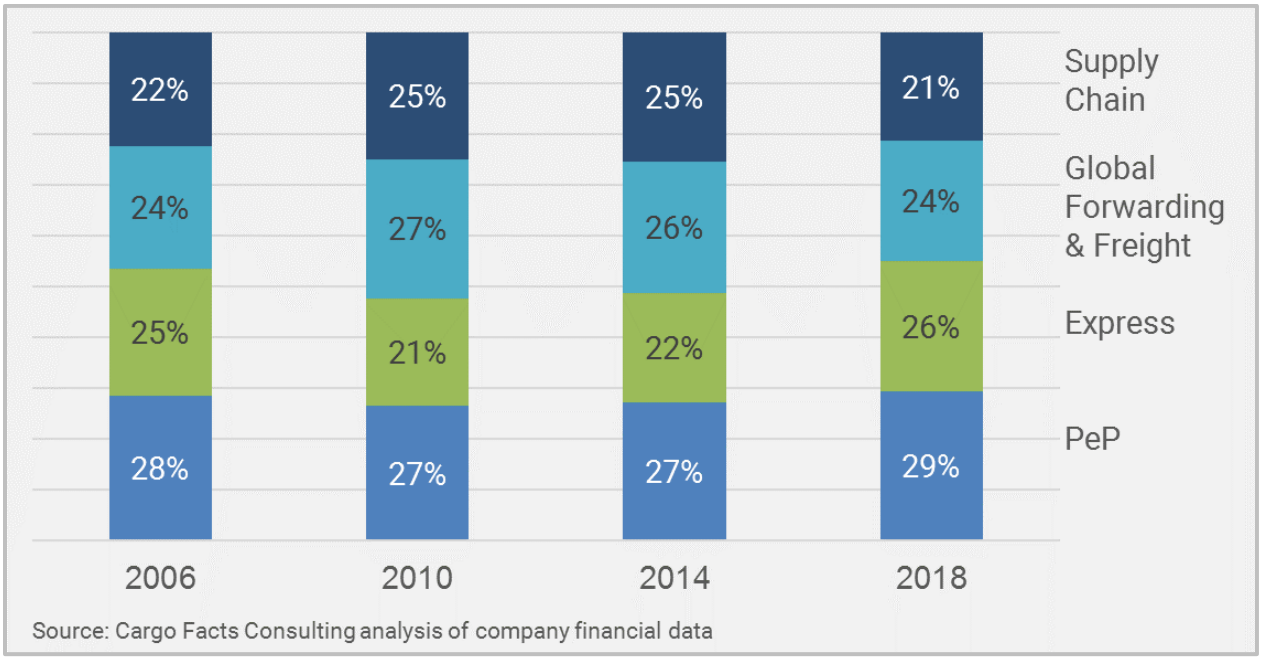
DHL Express has not pursued the single-operator business model used by rivals FedEx and UPS but has an extensive network of airlines with an ownership interest globally as it is shown in Figure 33.

Figure 33 – DHL Express Airline Network list



The DHL Express division continues its strong performance, with a high increase in revenue, up 7.3% for the year to €16,147 million (US$18,498 m) and a strong jump in operating profit, up 12.4% for the full year to €1,736 million (US$1,988 m). Figure 34 shows DHL's revenue distribution across its four divisions. The total revenue is almost equally divided between the segments but with a higher share for the PeP (Post - eCommerce – Parcel, now renamed Post and Parcel Deutschland following the spin out of the E-commerce product into a separate division as of the current financial year).

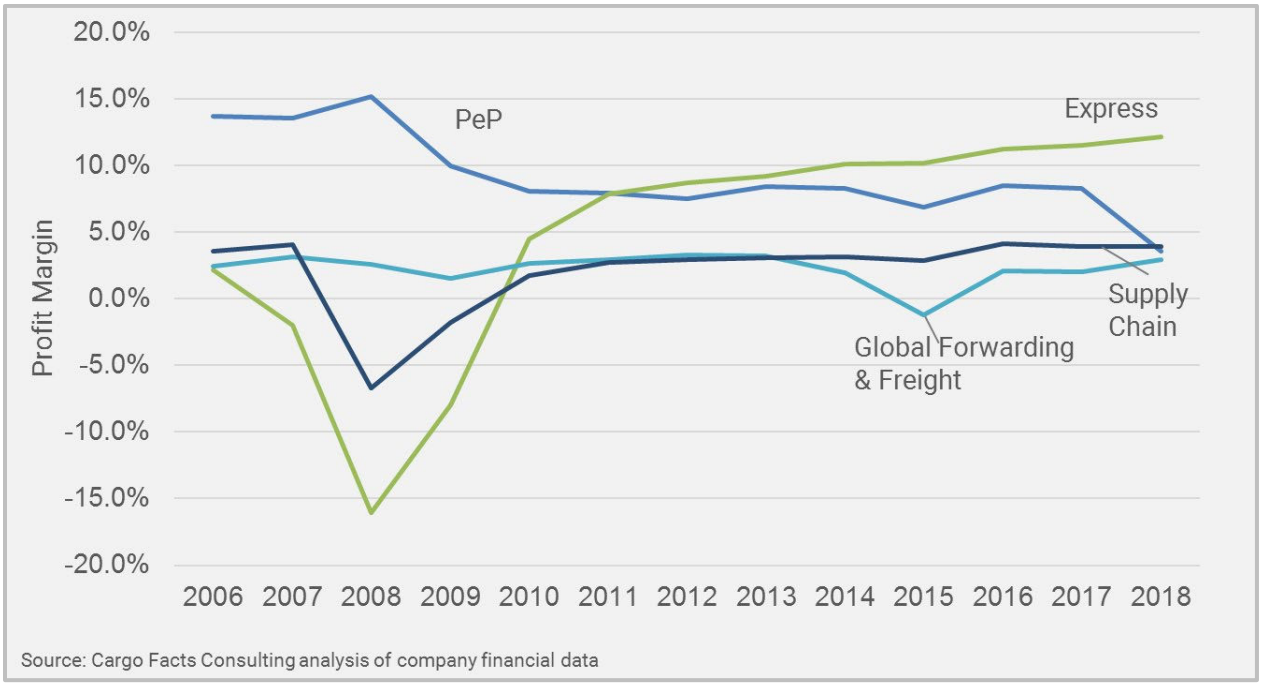
Figure 34 – Deutsche Post DHL Revenue by Segment 2006 - 2018



In 2018, the consolidated EBIT results decreased by 15.5% down to €3,162 million (US$3,622 m) compared to the previous year. The Express division continues to show its positive growth displaying the highest profit margin with 12% while the other divisions show margins between 3% and 4%. The strong performance in the Europe and the revenue and volume growth in Asia Pacific and the Americas have contributed to these positive results. Figure 37 illustrates the profit margin development by business division and it clearly shows how DHL Express leads this figure on a unit base. Since the years after the economic recession and DHL's exit of the U.S. domestic market, the Express division has experienced a stronger performance than the other units. PeP has also shown continuous positive EBIT results but 2018 resulted in a decline due to restructuring expenses in mid-2018, mainly associated with higher costs for material and labor along with multiple on-going investments in the parcel network.

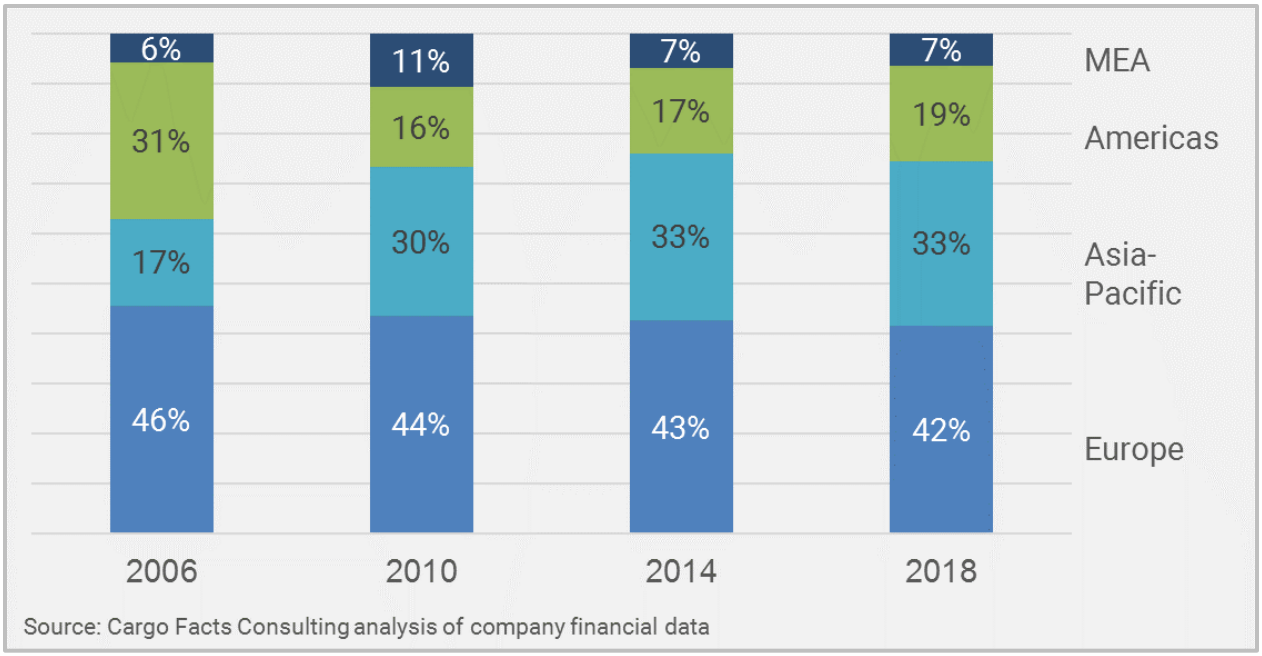
Within the Express unit, in 2018 about 75% of total revenue came from Europe (42% share) and Asia Pacific (34% share) with the Middle East and Africa (MEA) region and the Americas representing 7% and 19% respectively. Figure 36 shows the revenue distribution of DHL Express by region over the last twelve years. The share decline in the Americas region between 2006 and 2010 was due to the withdrawal of DHL from the U.S. domestic market in January 2009. DHL Express has not had other significant market share variations in the past eight years as it is shown in Figure 36.

Figure 35 – Deutsche Post DHL Profit Margin (EBIT) by Business Segment 2006-2018



Source: Cargo Facts Consulting analysis of company financial data

Figure 36 – DHL Express Revenues by Region 2006 - 2018



Source: Cargo Facts Consulting analysis of company financial data

DHL expansion plans include significant investments in the international express business fueled by the growth in cross-border e-commerce especially in Europe, Asia and the Americas. The recent expansion of its Brussels hub reinforces DHL's commitment in the European continent, and this is now one of its five largest hubs worldwide. The openings of the new Madrid and Barcelona hubs and the expansion of its Cologne center in 2019 are other examples in the region. In Asia, they have entered new markets such as Malaysia and Vietnam and added locations in Japan to support increased cross-border deliveries. The demand increase in the retail sector has allowed DHL to open over 1,500 service points in the Americas in addition to the addition of two logistics hubs in Mexico.

DHL Express's core product is the international time-definite shipments (TDI) which provides services with a pre-defined delivery time. The second main product is called time-definite domestic (TDD) and provides domestic services within a country or territory. TDD's revenue per day is about ten times lower than the revenue per day from TDI due to lower shipment volume and a much lower revenue per shipment for the TDD service. In 2018, TDI shipments accounted for 66% of the total volume and this product generated €52.70 (US$60.4) of revenue per shipment versus €9.30 (US$10.65) for each domestic shipment as displayed in Figure 37.

Figure 37 – DHL Express Time Definite International and Domestic Yields 2007 – 2018

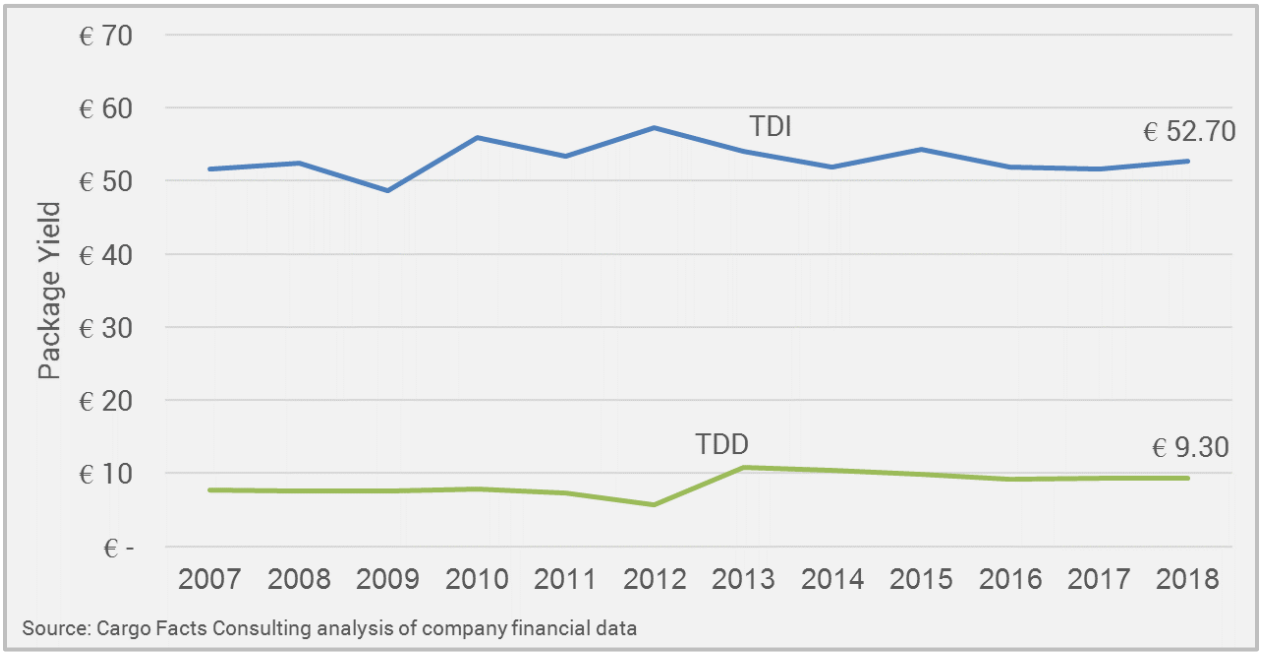
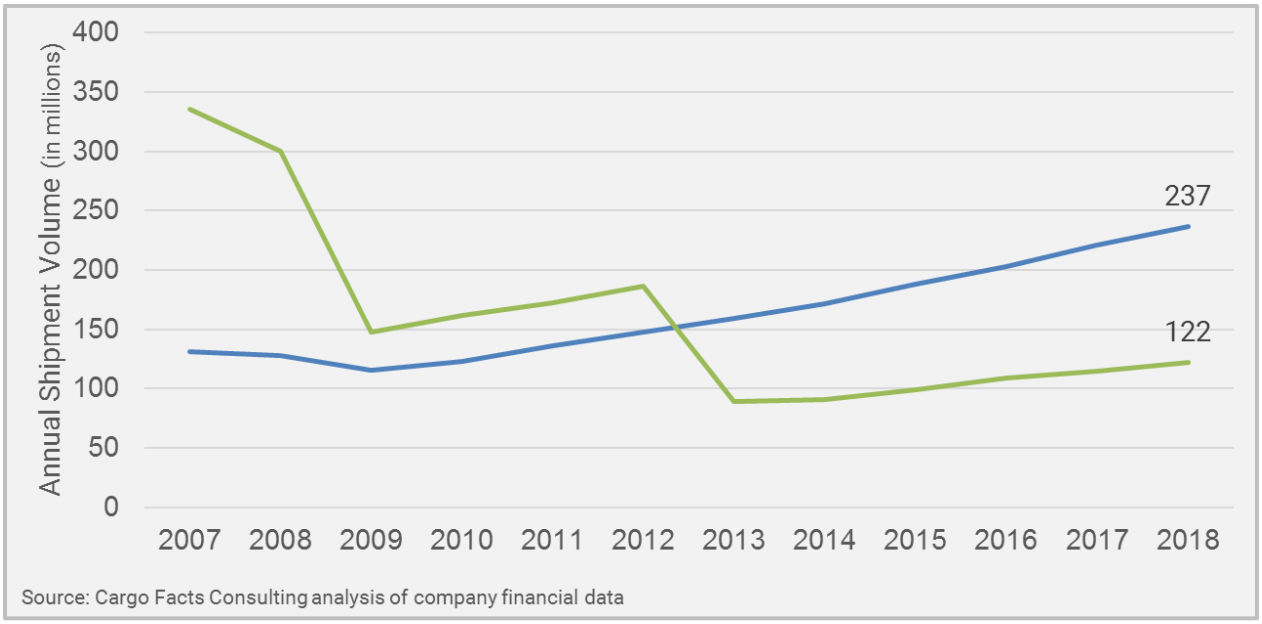


Figure 38 displays the shipment volume development for the TDI and TDD product lines. It is important to note how TDD shipment volumes reflect DHL's strategy to end domestic delivery operations with the goal of focusing on international operations. The shipment data reflect overall weakness in 2008 and 2009, including the impact of the global recession and the significant negative effects of DHL's withdrawal from the domestic market in the United States in early 2009.

Figure 38 – DHL Express Shipment Volume by Product Development



The drop of more than 50% in TDD shipment counts in 2014 reflects the shift of operations in several countries, from the Express unit to the PeP or Global Forwarding units. In the recent years, Blue Dart in India and the domestic express business in the Netherlands, Luxembourg, Belgium, Spain, Portugal and Poland were reassigned from Express to the PeP division while the Sky Courier subsidiary in the United States was transferred to the Global Forwarding/Freight division. DHL ended all domestic operations in China, Canada, Australia and New Zealand between 2011 and 2013; and some or all domestic operations were ended in prior years in the United Kingdom and France.

4.7 FedEx Express

Since commencing operations in 1973, FedEx has grown to become one of the world's largest integrated air express carrier in revenue terms, and a pioneer in the implementation of expedited services on a global basis. FedEx's Express division, which accounts for the majority of its international revenues, offers time-critical, door-to-door delivery in over 220 countries and territories, featuring customs clearance and money-back guarantees. FedEx Corp's four principal business segments are: FedEx Express (now including acquired TNT Express) the world's largest express transportation company; FedEx Ground, a leading North American provider of small-package ground delivery services; FedEx Freight, a leading U.S. provider of less-than-truckload operation; and FedEx Services, which includes FedEx Office. Figure 39 provides a current overview of FedEx hubs and focus cities across its network.

Figure 39 – FedEx Hubs and Focus Cities 2019

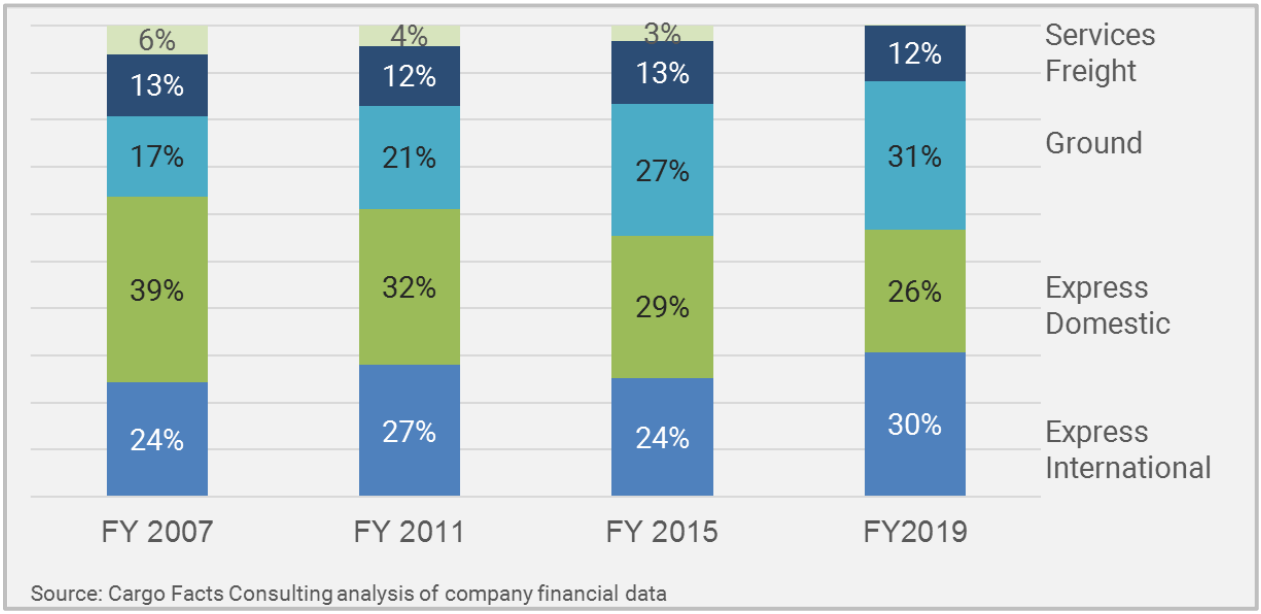
One of the most significant recent events at FedEx was the acquisition of TNT Express which took place in May 2016. Before the acquisition, the revenue share in Europe accounted for about 20% of all international revenues. This share has doubled, and it now accounts for approximately 40% of all international revenues. Starting fiscal year 2018 (period between June 1, 2017 and May 31, 2018), TNT Express and FedEx Express were combined in the FedEx Express reportable segment for financial reporting purposes. FedEx expects to finalize all integration activities by the summer of 2020.

The weak global economic conditions have had an impact in the volumes and revenues, especially within the International Priority product line. Additionally, FedEx had a less profitable mix of international package and freight that negatively impacted their results. FedEx claims to be benefiting from faster transit times as a result of the integration with TNT in Europe but they have also incurred significant expenses associated with the integration including legal fees, salaries, employee benefits and advertising.

A remaining challenge for FedEx is to successfully integrate TNT Express in their own Express operations in the scheduled timeframe and without incurring additional costs. In the recent years, FedEx growth initiatives have come in the surface freight and ground package segments of the US market, and in expanding its international operations.

FedEx reported revenues of $69.7 billion in FY2019, a 6% increase from FY2018. Operating income was also up 5% to $4.5 billion, an improvement due to higher volumes and the favorable impact of higher fuel surcharges in all their business segments. Express revenues also rose 3%. Figure 40 shows how in FY2007, approximately 63% of FedEx corporate-wide revenue came from the Express unit but as the Ground and Freight segments expanded, the Express share kept dropping to about 56% in FY20109. This trend mainly reflected much stronger growth in FedEx Ground unit revenues than in Express unit revenues, especially after the 2008/09 recession. Another clear trend is how the International Express revenue has risen and it is now larger than the Domestic revenue share within the division and the significant gain between FY2015 and FY2019 was partly due to the TNT acquisition.

Figure 40 – FedEx Revenue by Business Segment FY 2007-FY 2019



FedEx Express revenues increased by 7% in FY2019 due to the improvement of base yields and favorable exchange rates, despite the impacts from the NotPetya cyberattack.

Figure 41 shows the profit margin (EBIT) development by division where the Express unit has seen margins between 4% and 8% in the last twelve years. The growth has not been uniform among its business segments and FedEx Freight and Ground have grown at a faster pace than Express. Of note is the fact that the Ground unit profit margin continued to grow even during the recession period of FY09 and FY10 and to date, it still shows the best operating margin performance out of all divisions. FedEx Ground maintains

its competitive position thanks to their low structure and efficient use of automation systems and information technology.

Figure 41 – FedEx Profit Margin (EBIT) by Business Segment FY2006-FY2019

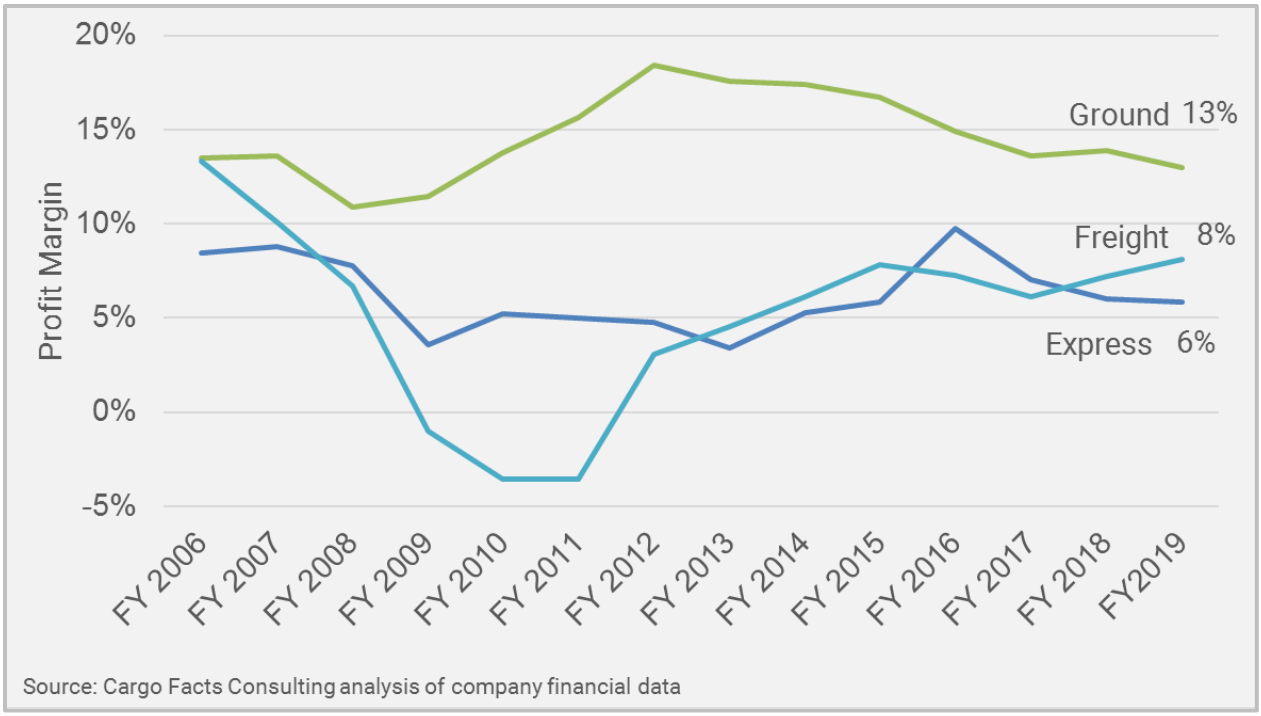
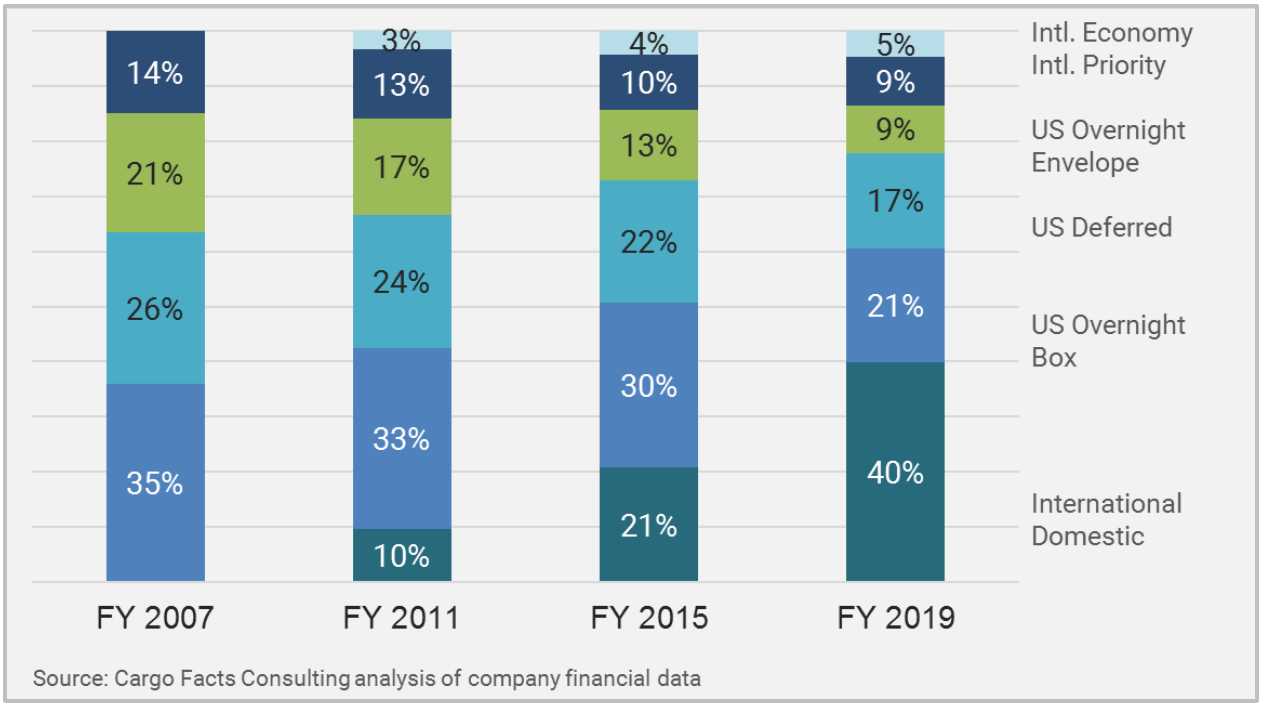


Figure 42 shows the volume share by product and how this has changed over time. FedEx introduced its International Economy product in 2011 and its International Domestic services in 2007, which consists of the transportation of packages within a country excluding the US. Over the years FedEx has increased its international domestic business through acquisitions, which have helped drive increases in international domestic revenues and volumes and in the last fiscal year, the International Domestic product represented a 40% share of the total annual shipments in the Express division. However, it is important to note that International Domestic shipments are often low-yield and are transported via ground.

Much of the recent International sector increase has come from acquisition-induced growth in the International Domestic category, in which FedEx handled almost seven-times as many shipments in FY2019 as in FY2008. The TNT acquisition disrupted FedEx Express product volume share and the International Domestic volumes grew considerably at the expense of the US domestic overnight and deferred services. However, international package (Economy & Priority) volume growth has slowed across most regions due to the weakening economic conditions.

Regarding FedEx international economy shipments, we know that these along with other less-urgent shipments are being moved to third party transportation providers (placing them in the bellies of passenger aircraft), granting FedEx a better leverage capacity within its international network.

Figure 42 – FedEx Express Volume Distribution by Product FY2007-FY2019

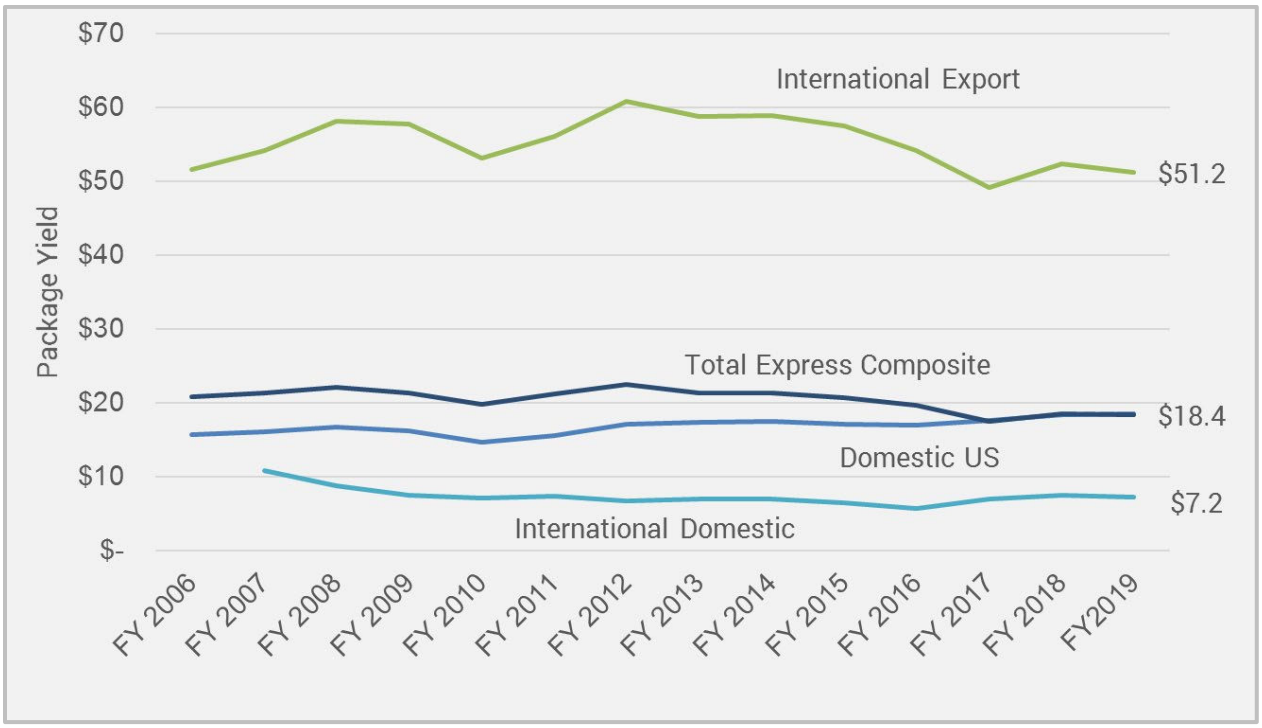


Source: Cargo Facts Consulting analysis of company financial data

The recent global economic conditions and trade uncertainties have negatively impacted International Export (Priority & Economy) revenue per package yields at FedEx Express and these resulted in a contraction of 2% in FY2019 driven by unfavorable exchange rates and base yield declines, partially offset by higher fuel surcharges. International Domestic revenue per package yields showed a decline of 3% while the US Domestic product line increased by 1%. Within the US Domestic segment, the US deferred line showed a decline of 3% while the US overnight box and US overnight envelope increased by 3% and 4% respectively. These figures are a clear indication that the Express product mix has shifted to lower yielding services due in part to an increase in e-commerce traffic.

Figure 43 summarizes the revenue per package development by Product Line. The composite package yield for all products at $18.40 is almost equal to the US domestic composite package yield at $18.54. Historically, the overall composite yield for the Express division was higher than the US Domestic but the yield drop that we have seen in the International segment in the last few years has resulted in a decline of the overall composite product yield. The highest yield comes from the International Export shipments, at $51.21 each.

Figure 43 – FedEx Express Yield by Product FY 2006 – FY 2019



Even though its profit margins are lower than the other two integrators, FedEx Express continues to be an established profitable business and it is now implementing a series of initiatives to reduce cost and therefore, reduce the impact of the global macroeconomic conditions and uncertainty. An example is the post-peak reductions to the global FedEx Express Air network to better match capacity with demand. In 2020, FedEx plans to keep working on the TNT Express integration and will focus on improving the interoperability between the TNT and FedEx stations. These activities are complex since integration activities across different countries in Europe require discussions with numerous councils and employee representatives.

As part of its international plans, in early 2019 FedEx acquired Flying Cargo (FC) Express, which used to be a FedEx Global Service Express provider in Israel, resulting in a more robust transportation network in the region. Furthermore, its establishment of their Asia-Pacific hub at Guangzhou in China and North Pacific regional hub in Osaka are other cases of how FedEx has added capabilities in key international markets.

4.8 SF Express

SF Express is China's largest air express operator and second largest express company behind China Post. The company was founded in 1993 and began operating its own aircraft in 2010. The company has been listed on the Shenzhen Stock exchange since mid-2017.

In 2018, the company generated revenue of RMB 90.9b ($13.6b), 98% of which is from Express and Logistics. During the same year, SF moved 3.9 billion packages, or about 75% of what UPS moved in the same year. For the time being SF Express remains primarily a Chinese domestic operation, with flight activity focused around its main hubs in Shenzhen and Hangzhou (see Figure 44).

Figure 44 – SF Express Hubs 2019

Between 2015 and 2018 overall annual revenues grew by 24% per year. During the past four years, SF has seen a fundamental change in the product mix, with economy express products outgrowing time definite express services (see Figure 45). During this period time definite express revenues grew by 10%, while economy express revenues grew by 85% per year. International express and heavy cargo grew by 114% and 89% per year, respectively. Cold chain products (shown as part of "Other" in Figure 45) grew by 82% per year and now account for 5% of total revenues.

Despite this change in product mix, revenues outpaced shipment growth in 2017 and 2018, growing at 27% vs 26% and 24% vs 28%, respectively. Yields per shipment increased from 22 RMB (US$3.33) to 23

RMB (US$3.49). This trend has continued throughout 2019, with Jan-Jun 2019 shipments growing 8.5% and revenues 12.9%.

Figure 45 – SF Express Revenue Distribution by Product: 2015-2018

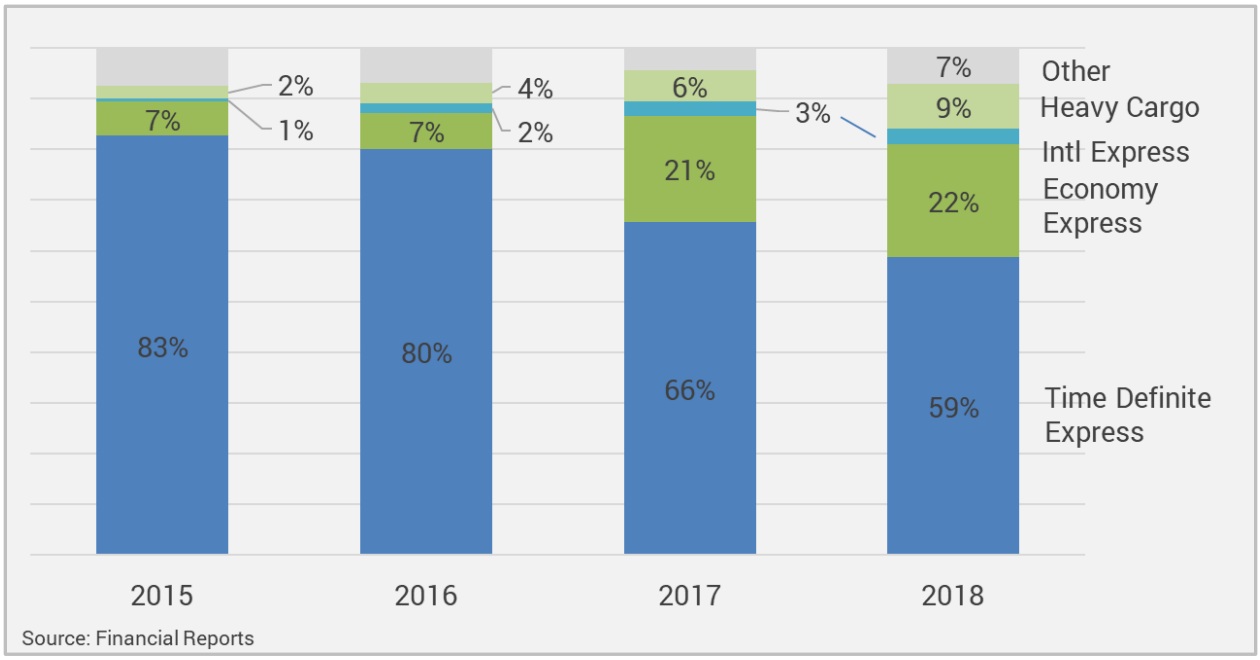
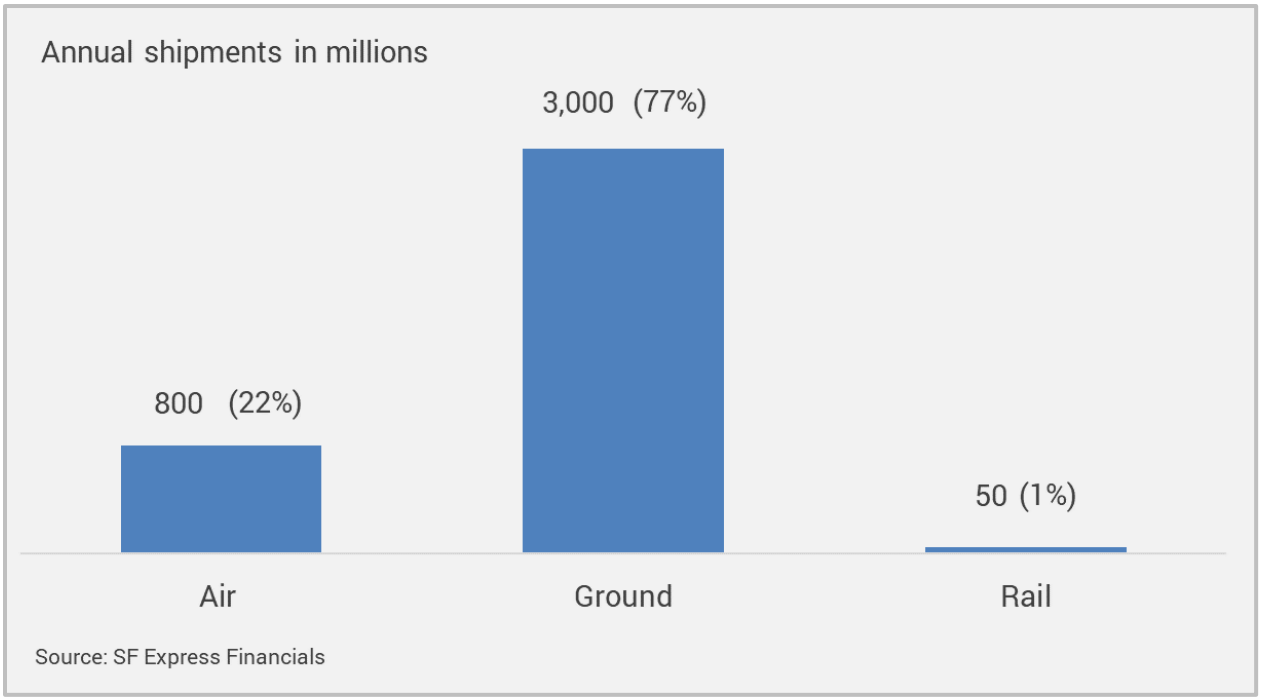


Figure 46 – SF Express Shipment Share by Mode 2018



In terms of profitability there is insufficient data available to conduct an analysis of long term profitability. We note, however that operating profit margin dropped from 9% in 2017 to 6.4% in 2018. Operating margins for the first half of 2019 higher than in 2018, increasing from 6.7% to 7.7%.

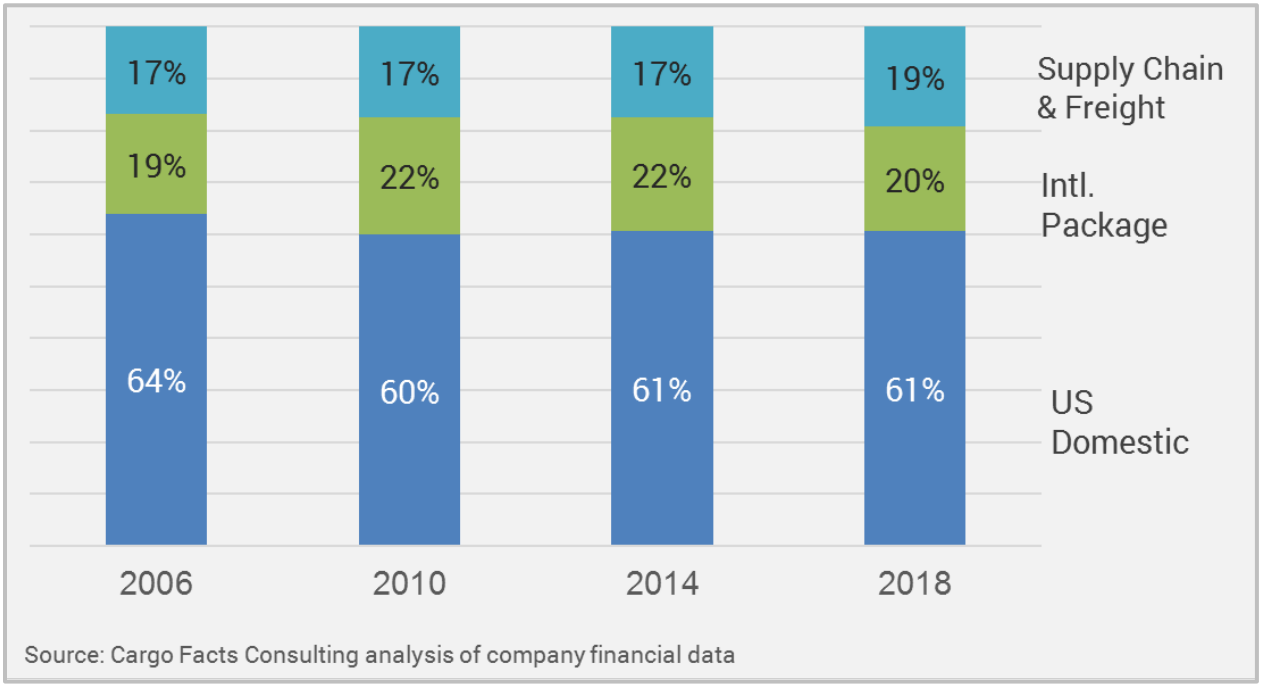
Air accounts for 22% of total shipment volumes, with ground and rail accounting for the bulk of the rest (see Figure 46). SF expects high speed rail to take a higher share of shipments over time at the ultimate expense of air shipment growth. SF has states that over time it plans to shift volumes from air to high speed rail. The company is also pioneering the development of an unmanned feeder aircraft.

4.9 United Parcel Service (UPS)

UPS is the world's largest package delivery company measured in terms of shipments, a provider of global supply chain management solutions and a leader in the domestic US LTL (less-than-truckload) market. In 2018, UPS delivered an average of 20.7 million pieces per day or 5.2 billion packages. UPS is more than 100 years old; for most of that period it was a ground delivery company. It maintains a dominant position in the US ground delivery market, but from the 1980s has evolved to also become one of the leading providers of air express services both in the US and internationally. The majority of UPS's package volume remains business-to-business (B2B); however, the share of business-to-consumer (B2C) shipments is rising quickly due to the rapid expansion of e-commerce, which is impacting both US domestic and international shipment volumes.

UPS reports its results in three segments: US Domestic Package, International Package, and Supply Chain & Freight operations. The company reported a record $71.86 billion in consolidated revenue in 2018, up 7.9 % from 2017's $66.58 billion. Consolidated operating profit declined by 6.7% to $7.02 billion, a figure that includes the impact of $360 million pre-tax transformation strategy costs.

Figure 47 – UPS: Revenues by Business Segment 2006 – 2018



Source: Cargo Facts Consulting analysis of company financial data

Figure 47 shows the shares of revenue UPS gets from its three reportable business segments. Interestingly, the share of total revenue that UPS gets from its International Package operation (including both Domestic and Export components) and from its Supply Chain & Freight segment were on the rise before the recession but have been stable recently. Together, they represented 36% of all corporate revenues in 2006 while the US package segment (air and ground) represented 64% of revenue at that time. The combined share from International and Supply Chain & Freight has since then remained in the

37%-40% and the US Domestic package segment has a 61% share of the total revenue in 2018 and the distribution is not likely to change in the short-term.

Figure 48 provides the profit margin development by business segment where the International business segment grew its operating profit and leads the industry with a 18% margin. This wide margin is driven by the strong export shipment growth in the last year. The Supply Chain & Freight division has the lowest profit margin of the three units, with a 6% and has remained very stable over the last five years. The US Domestic segment has shown declining profits in the recent years primarily associated with higher pension expenses, new facilities and technology implementation projects related to planned costs as part of UPS's transformation strategy.

Figure 48 – UPS Profit Margin (EBIT) by Segment 2006-2018

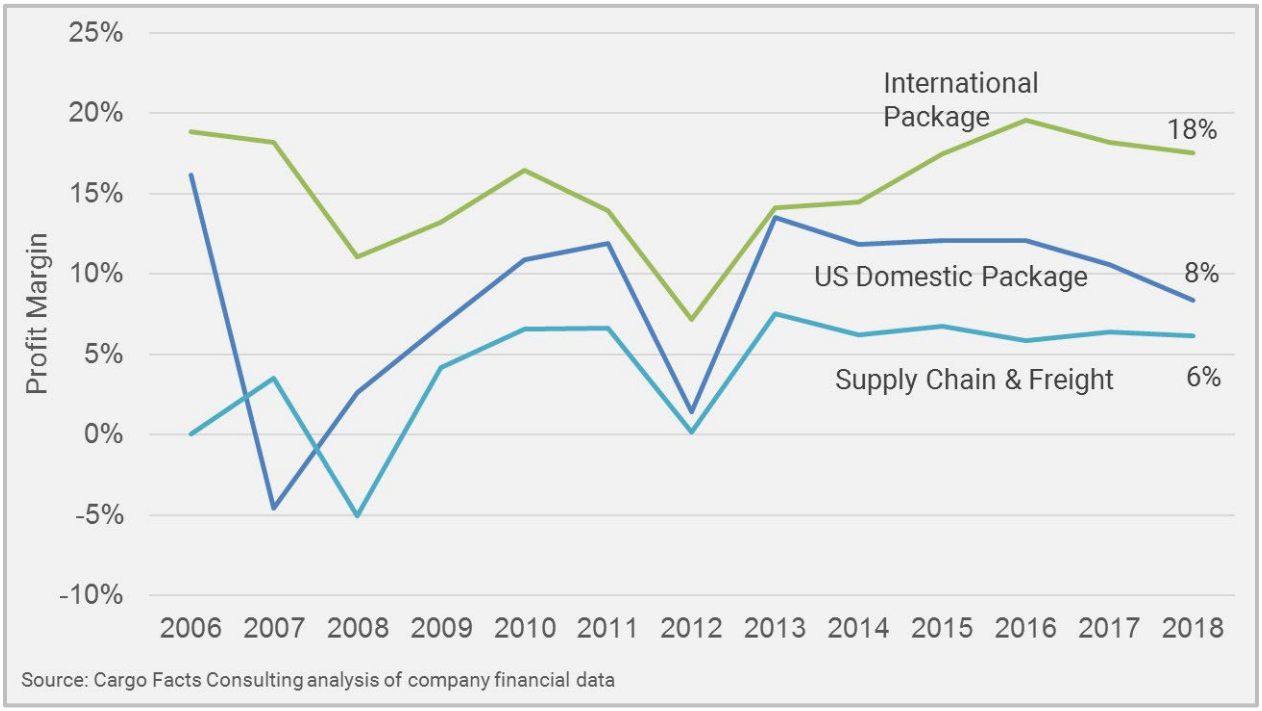


Figure 49 shows the volume distribution development by product for UPS. At the moment, the largest portion of all shipments is attributed to the International Domestic with a 28% share. This is followed by the US Domestic Next Day service with a 25% share, which has remained stable since 2014 and it only has lost a 2% market share since 2010. Figure 49 demonstrates how the International Export segment has increased its share over time and it is now equal to the US Domestic Next Day Air product with a 24% share of shipment volume in 2018. The remaining share goes to for the US Domestic Deferred, a component that has remained stable since 2006 with a share in between 21% and 24%.

Figure 49 – UPS Volume Share by Product 2006-2018

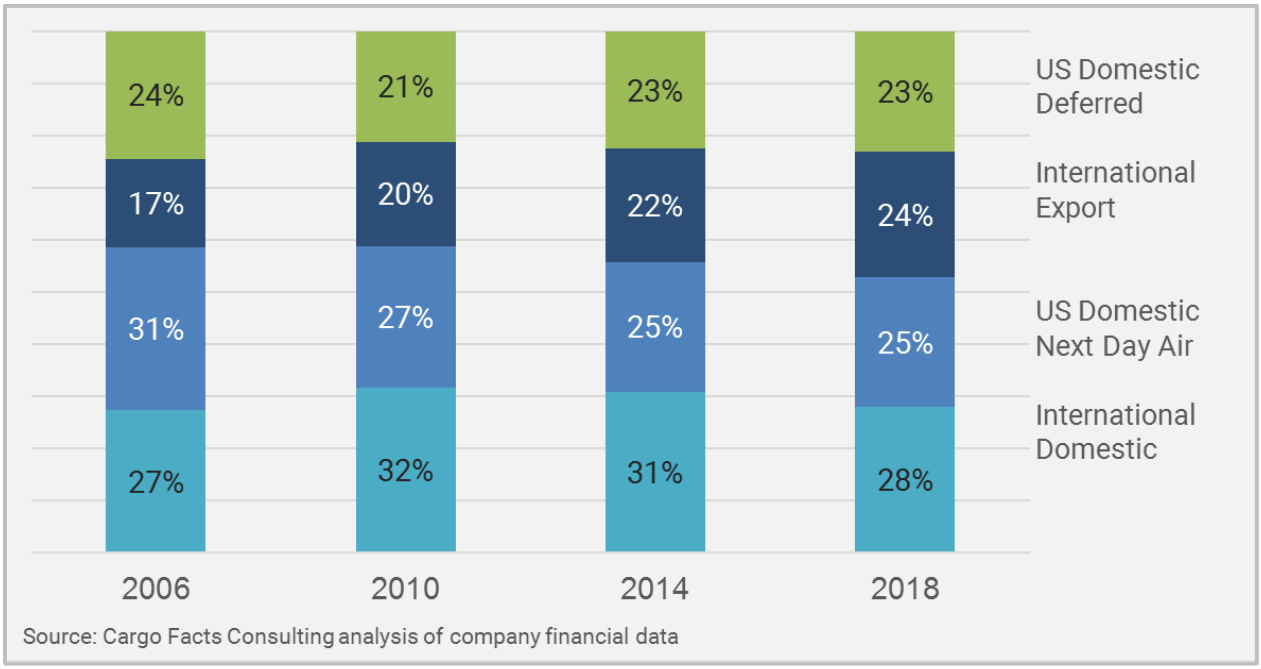
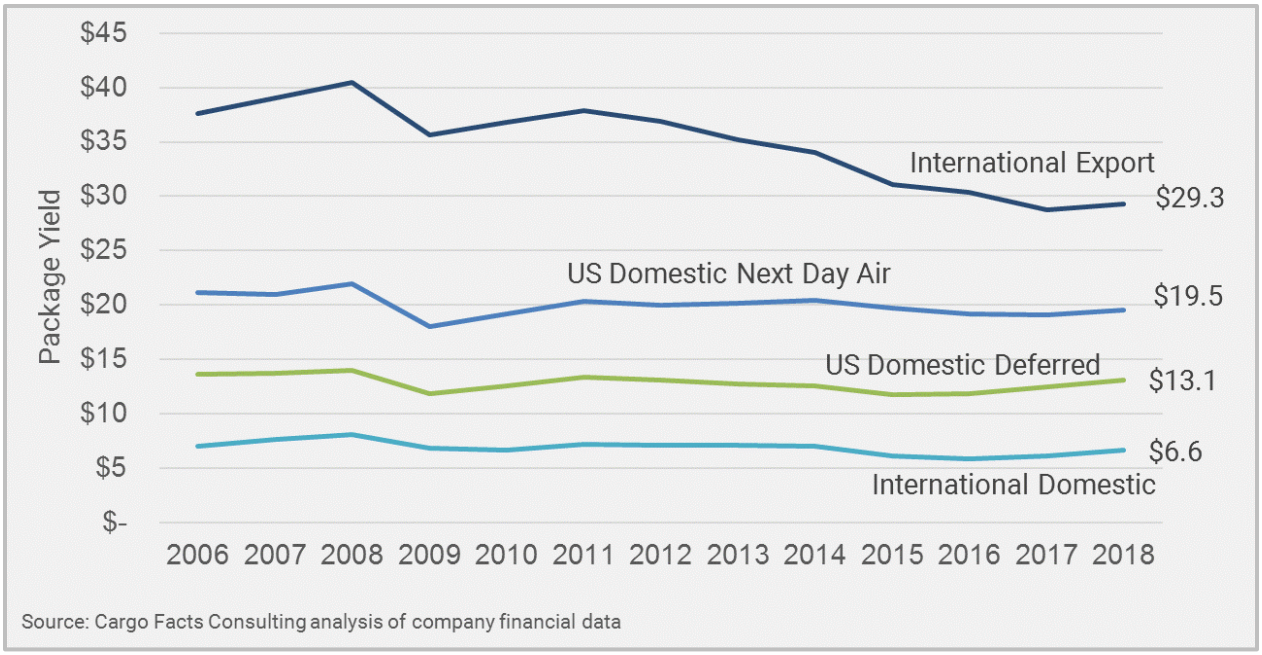


Figure 50 – UPS Yield by Product 2006-2018



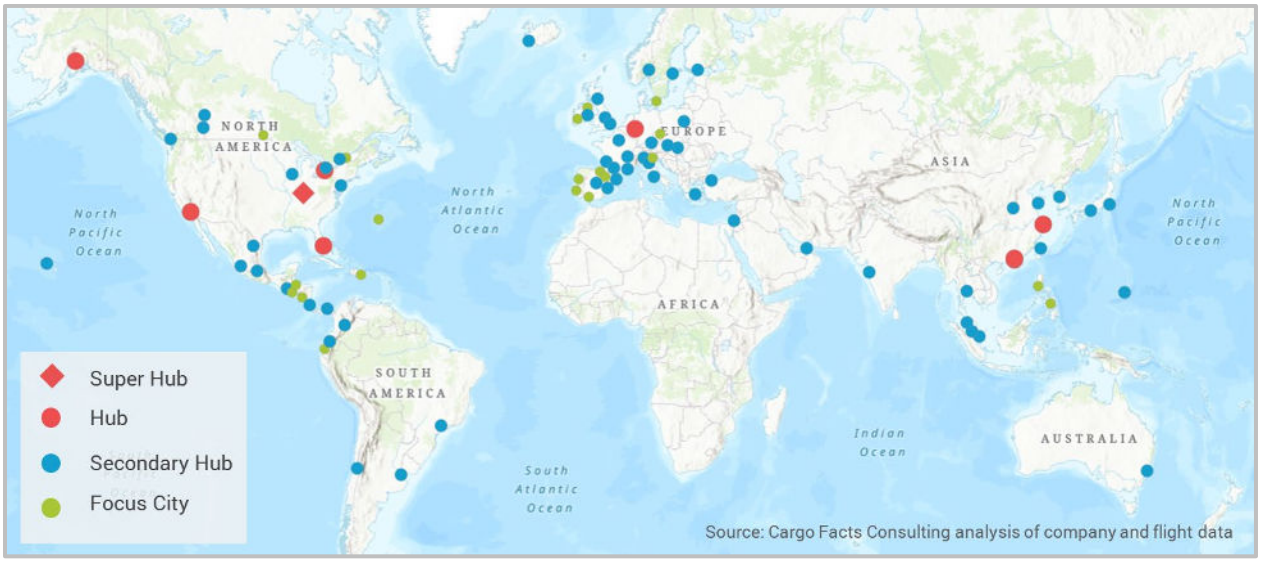
It is important to note that most International Domestic products are often surface and since UPS does not have a dedicated "Express division", the services related to UPS "Air Express" are: US Next Day, US Deferred and International Export. Figure 50 above displays the package yield for the main UPS components in the Domestic and International market.

The average revenue per piece varies by type of service provided with Next Day Air shipments generating about $19 each, significantly higher than Deferred (air) shipments at $13.12 or International Domestic at $6.59 (mostly surface). The highest yield comes from International Export shipments at about $29.27 each.

UPS continues investing in the expansion of its services and capabilities across the industry. In 2018, UPS added almost 400,000 pieces per hour of automated sort capacity worldwide in addition to other technologies to effectively manage staff and resources. In the cross-border ground package delivery, UPS now offers standard delivery services within Europe, between the U.S. and Canada and between the U.S. and Mexico.

Even though UPS does not split its revenue by geographical region, we know that Europe accounts for about 50% of its international revenue and it is currently one of their primary drivers for shipment growth. UPS has invested nearly $2 billion in infrastructure improvements in their Paris and London hubs as well as other facilities such as Eindhoven in the Netherlands. These recent developments are part of the ongoing UPS goal to be able to reach 80% of the European population within two business days. Figure 51 provides an overview of the geographical distribution of UPS's global network. While the company is obviously strong in the North and Central America, Europe and East Asia, its footprint in other regions is smaller.

Figure 51 – UPS Hubs and Focus Cities 2019



5. Emerging Competitors, Disruptors and the Express Response

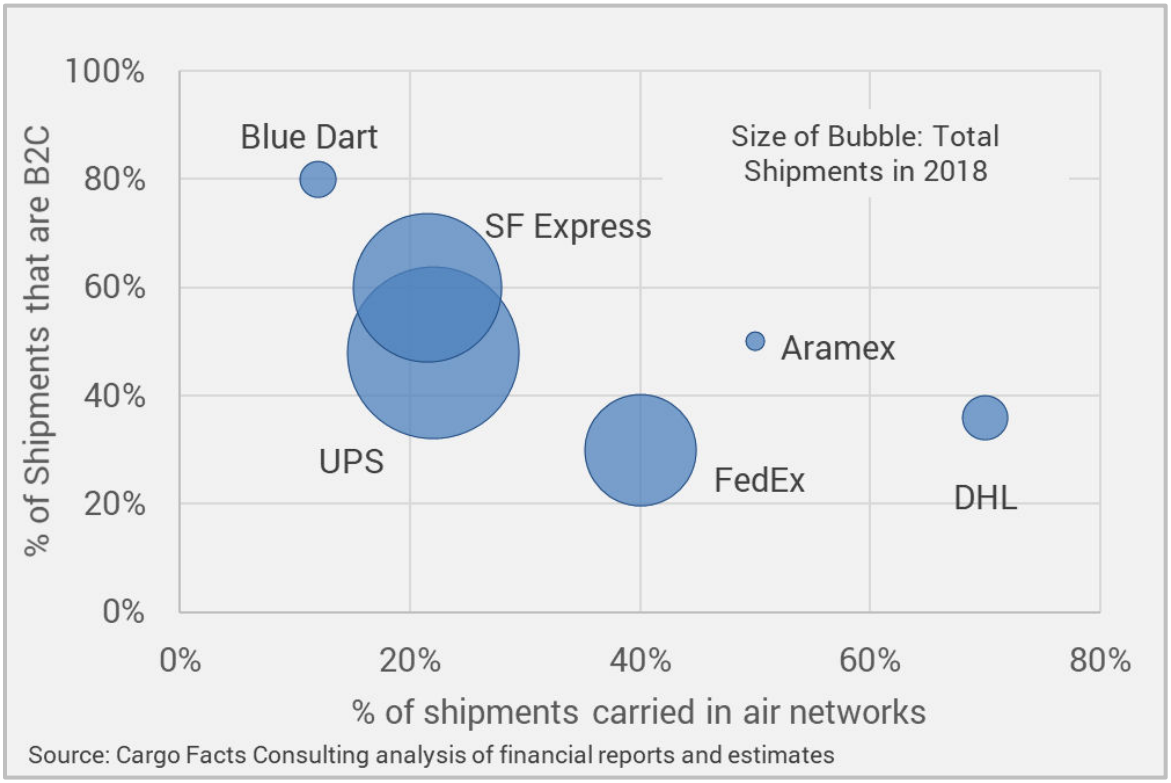
Key Findings:

- Across the express business, the share of business-to-consumer shipments increasing faster than business-to-business shipments and currently stand at approximately 48% of shipment volumes.
- Express carriers risk being cut out of part of the business as e-commerce platforms insource their regional distribution networks, and as postal companies become more active in cross-border fulfillment.
- Express carriers are investing heavily in capacity and service improvements to counter this threat. This strategy will only work if unit costs go down.

5.1 From B2B to B2C – Disrupting the Express Business Model

Express services have traditionally been geared towards pick up from and delivery to businesses, but in the last five years business to consumer shipments have accounted for most growth. The share of business to consumer (e-commerce) shipments in global express networks stands at just under 50% today (see Figure 52).

Figure 52 – Integrator share of B2C vs Air Shipments 2018



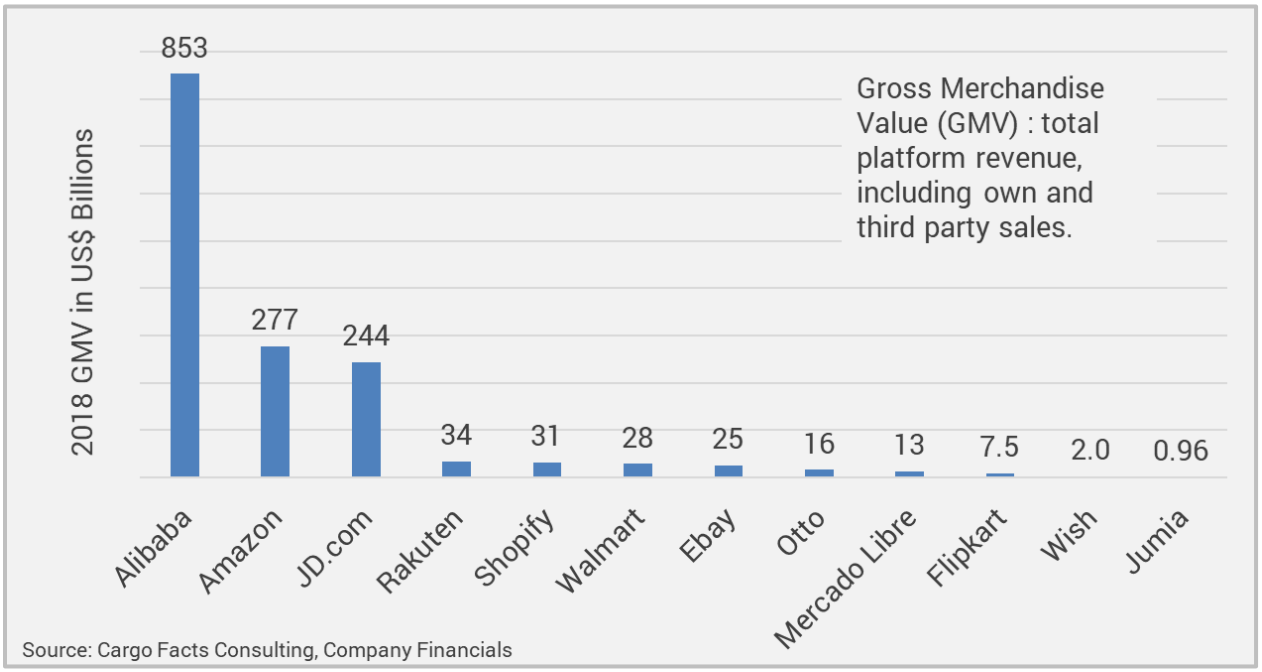
Source: Cargo Facts Consulting analysis of financial reports and estimates

For example, DHL Express has noted that its share B2C share of its flagship Time Definite International (TDI) has increased from 10% to over 30% between 2013 and 2018. And these figures only include medium to large B2C customers in their top 30 countries. While there are differences between express operators, the general rule is that that the bigger the ground network, the higher the share of business to consumer shipments This change in business mix is having a profound effect on express networks. On the one hand the increase in volumes has been good for utilization of air networks, but this has increased ground distribution costs. Home deliveries are less efficient due to lower number of packages per courier run and a larger share of missed deliveries.

5.2 E-Commerce Platforms – the integrators of the future?

The top global as well as regional e-commerce platforms continue to reshape the express industry. These platforms control so much traffic that they can profoundly affect carrier market share (witness the surge in UPS volumes following the cancellation of the FedEx Express contract with Amazon in June 2019). Figure 53 provides an overview of 12 of the most important e-commerce platforms. Collectively, they account for 44% of global e-commerce, with the top three Alibaba, Amazon and Jd.com alone making up 40% of worldwide sales.

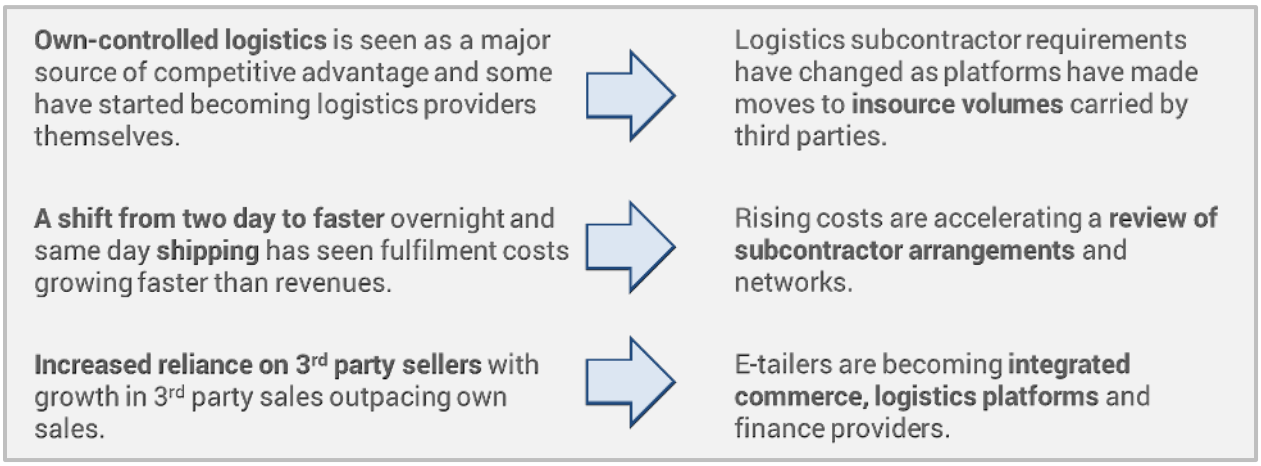
Figure 53 – Key Global and Regional E-Commerce Platforms



All of the above platforms (with the exception of Spotify and Wish) have their own logistics networks that are key to their sourcing and fulfillment strategy. Some, such as Otto (through Hermes) and Jd.com provide services to the general public and in direct competition to postal and express companies.

Figure 54 focuses on the three key e-commerce platform trends that we feel are important in driving the need for express companies to redefine their relationship with what has hitherto been a source of revenue growth, but which may become full-fledged competitors.

Figure 54 – Three E-Commerce Platforms Trends and their Consequences

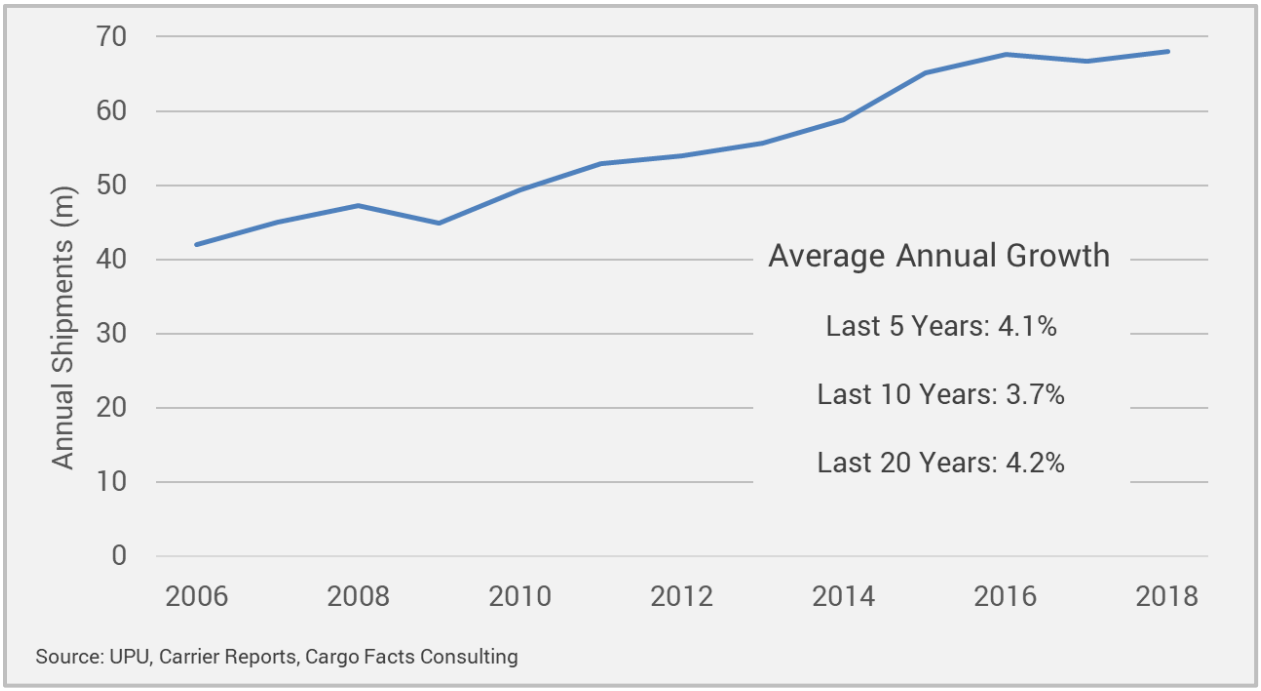


5.3 EMS – Rise of the Virtual Integrator?

About 13% of international express traffic moves as Express Mail Service (EMS). EMS is not a company but a cooperative of postal authorities that has operated for the last 20 years as part of the Universal Postal Union (UPU). 185 postal authorities are members of the EMS cooperative, although the main drivers of volumes on a global scale are China, Hong Kong, Japan and South Korea. The UPU claims that member volumes in this segment have grown 150% (or about 4.7% per year) over the last two decades. In 2018, EMS network revenues were estimated at $2.4 billion and a total of 70 million pieces. This equates to a revenue per piece of $34.50.

While EMS is stated as a key facilitator of cross border e-commerce, the lack of a true global integration in the services of postal operators has meant that actual EMS growth has underperformed overall express growth. Between 2008 and 2018 EMS shipments grew by 3.7% per annum compared to 5.7% for international express. There has not been an acceleration of EMS traffic over the past years despite strong cross border e-commerce traffic growth. Figure 55 provides an overview of the development of EMS shipments since 2006.

Figure 55 – EMS Shipment Growth 2006 - 2018



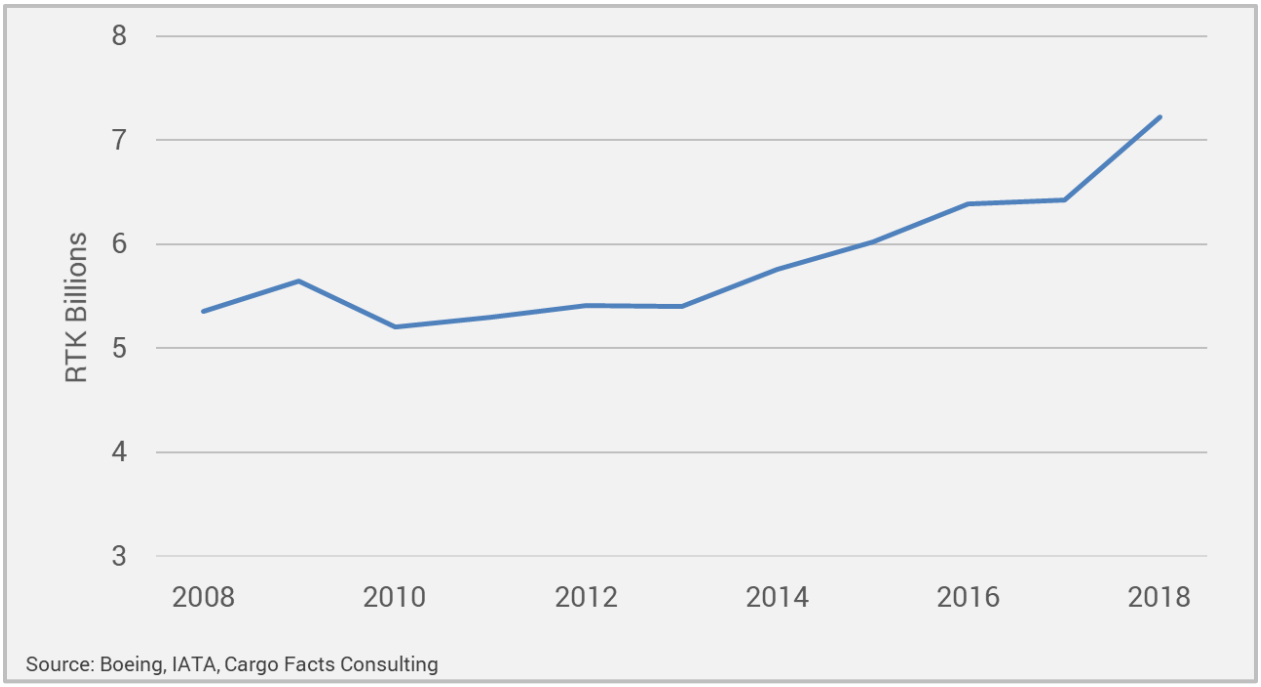
We do not believe that EMS will become a significant competitor to the global express business. However, individual postal companies are poised to play a much stronger role in cross border fulfilment.

5.4 Postal Companies – chipping away at valuable cross border business?

Over the past decade postal networks have morphed into e-commerce fulfillment networks. During this time, the share of postal revenues from logistics and parcels has increased from 15% to 25%, while traditional mail volumes have continuously declined and represent only 39% of postal revenues today compared to 46% in 2017, according to statistics collected by the Universal Postal Union (UPU).

The growth in cross-border as well as domestic parcel traffic has also driven renewed growth of global postal traffic carried by air. Figure 56 shows the global airmail traffic measured in billions of revenue tonne kilometers (RTKs) over the last ten years. In 2018 world airmail traffic grew by 12%, significantly faster than general air cargo traffic, which only increased by 4%. As cross border e-commerce traffic continues to grow strongly, we expect this trend to continue for at least the near term. However, there is also an increasing amount of cross border traffic destined for postal networks that travels as general airfreight and not under a CN 38 postal airwaybill.

Figure 56 – Global Airmail Traffic 2008 – 2018



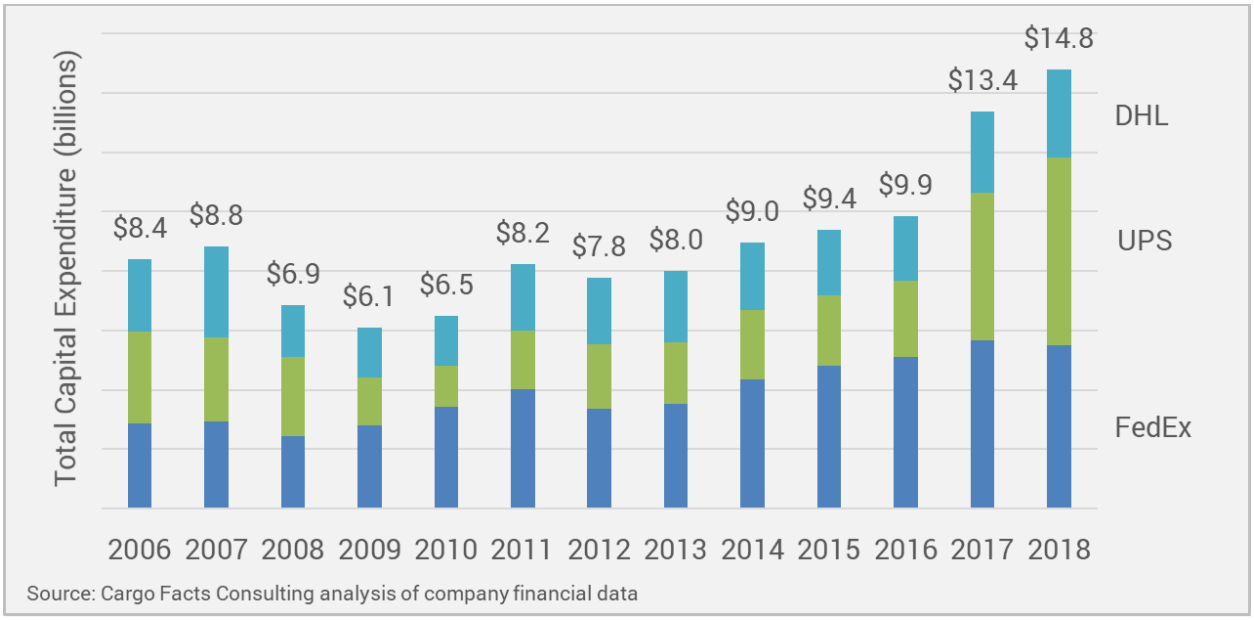
Through their last mile network delivery obligations, postal companies are in an ideal position to capitalise on the growth of both domestic as well as cross border e-commerce traffic growth. Between two thirds and three quarters of postal parcel volumes are business to consumer shipments. In general, postal networks act as last mile fulfillment networks for e-commerce platforms or so called e-commerce consolidators that bundle and customs clear shipments for injection into local parcel distribution networks.

However, rather than seeing themselves purely as last mile fulfillment agents some postal companies have begun moving upstream to provide a wider range of services ranging from consolidation, customs clearance and onward distribution to multiple countries (rather than just in the home country).

5.5 The Express Response – Investing Heavily in Capacity and Service

The most immediate response of the Express business to the changing market and competitive environment has been to invest heavily in capacity, service improvements, while also implementing measures to reduce last mile delivery costs. In 2018 and 2017, combined capital expenditure of the big three integrators reached almost $15 billion and $13 billion, respectively, substantially higher than the $7-$9 billion a year that was customary for much of the last decade (see Figure 57).

Figure 57 – DHL, FedEx and UPS Capital Expenditure 2006-2018



Much of this increase in Capex has been driven by UPS, which has increased its share of capex as a percentage of revenue increase from 5% in 2016 to 9% in 2018. Most of FedEx and UPS investments are in infrastructure improvements, sorting facilities and technology. These investments are facilitating increased capacity as well as improved service levels.

The key areas of improvement include:

- **Service Expansion**: 7-day deliveries and pick-ups, same day capabilities, later cut offs
- **Infrastructure investments**: new sorting and fulfillment facilities to reduce unit costs as well as cater for increased volumes.
- **IT Investments**: for example, to allow residential customers to choose delivery times, saving the costs associated with missed deliveries.
- **Alternative Last-Mile Channels**: through retail outlets or other pick up points.
- **Cost Reductions:** shift from air to road, realignment of their own networks
- **SME and cross border e-commerce offerings:** going back to the roots of the express business.

FedEx capital expenditures for 2020 are estimated to be $5.9 billion and this mainly includes investment in the expansion and modernization of the Memphis and Indianapolis hubs in the US as well as its aircraft fleet modernization. UPS has committed to purchase aircraft, vehicles and real estate to replace the current capacity and prepare for future growth. This also includes projects to automate facilities and expand their sorting centers as well as capitalize on software and technology enhancements.

6. The Demand for Aircraft Capacity and Contract Services

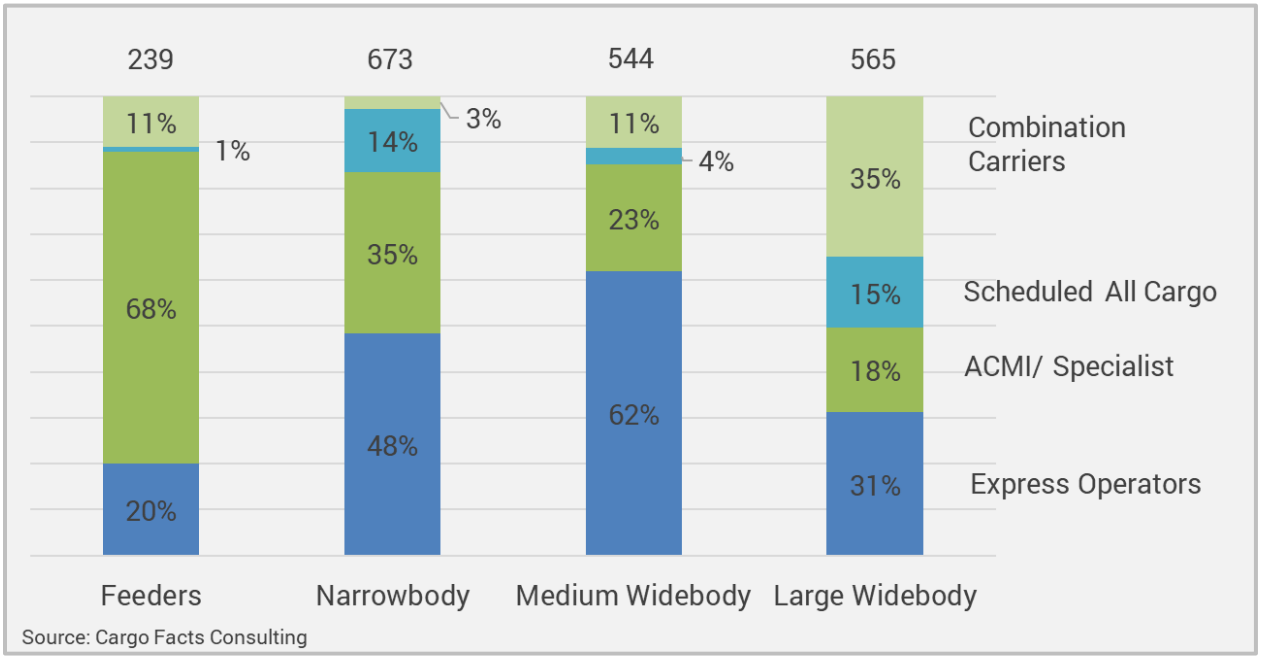
Key Findings

- Almost two thirds of the world's jet freighter and 90% of the world's feeder freighter fleet are operated by or for integrators.
- Approximately 2000 freighter aircraft will be required over the next 20 years to cater for retirements of older aircraft and growth in the air express business.
- Integrators make use of a mix of own operated, third party contracted and purchased cargo capacity on commercial flights, but only DHL Express is a large-scale customer of contracted capacity.

6.1 Aircraft Demand Today

Currently the world's freighter fleet comprises approximately 1800 jets and 240 feeder aircraft. Almost two thirds of the world's jet freighter fleet and almost 90% of the world's feeder freighter fleet are operated by or on behalf of integrators, and increasingly, also e-commerce. The share of aircraft operated directly by integrators or by contract ("ACMI") carriers on behalf of integrators varies by segment (see Figure 58)

Figure 58 – World Freighter Fleet by Operator Business Model (1Q 2019)

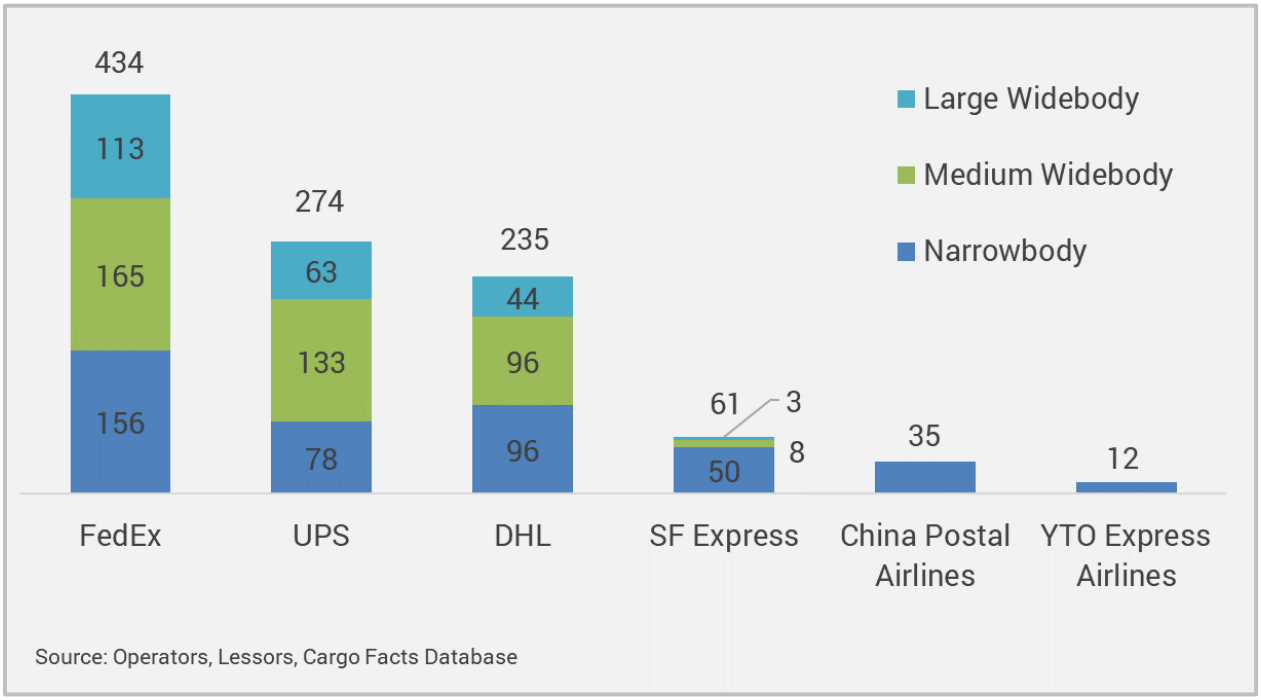


Most aircraft operated in express networks are primarily narrowbody and medium widebody jets. The most popular aircraft types in the narrowbody segment are the 757-200, 737-300/400, and increasingly

737-800. In the medium widebody segment, the most popular aircraft types are the 767-300, A300-600 and 767-200. In the large widebody segment, the most popular aircraft are the MD-11, 777-200F and the 747-400F/8F. In the feeder segment, ATR42 and ATR72 aircraft are the most commonly used types. In our definition of feeder aircraft, we exclude aircraft smaller than Saab 340s.

Most of the world's freighter fleet operating for express operators is flying for either FedEx, UPS, DHL or SF Express. Figure 59 provides an overview of the jet fleets operated by and for integrators. Aircraft operated by Blue Dart are included in the DHL fleet count. Toll Express operates a fleet of feeder aircraft (ATR 42 and Metro) and accesses capacity operated by Express Freighters Australia, a Qantas subsidiary.

Figure 59 – Integrator Own and Third-Party Operated Jet Fleets October 2019

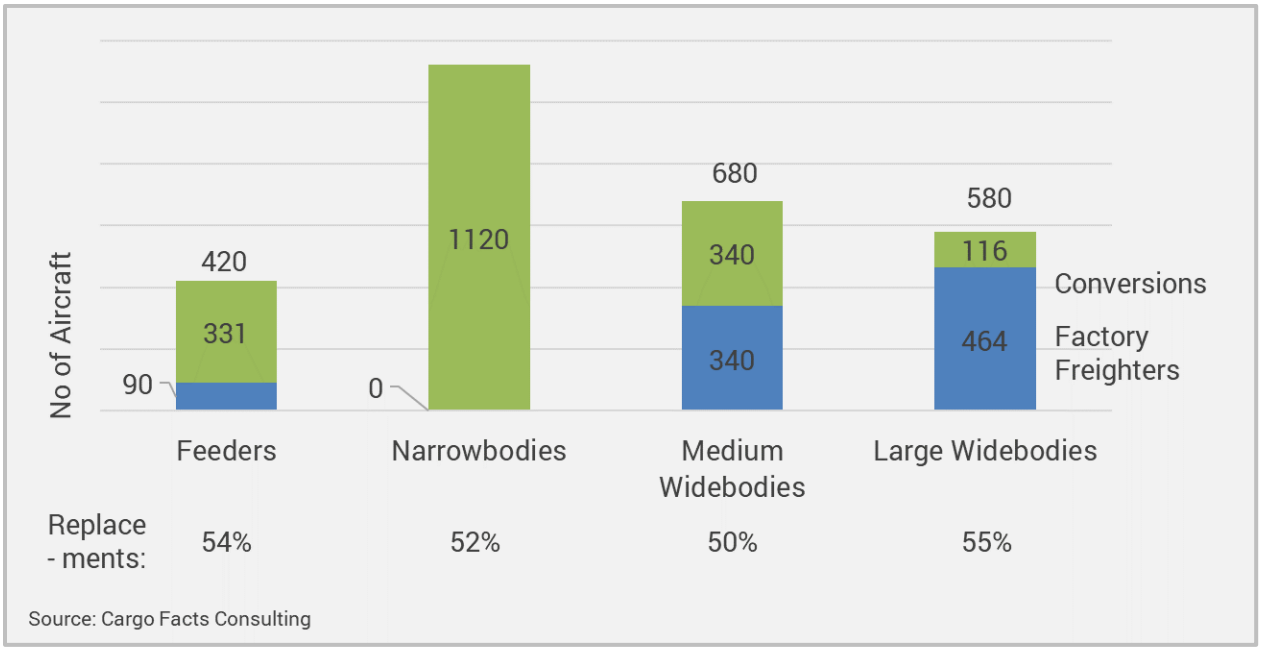


Aircraft operated Purolator Courier (91% owned by Canada Post), Express Freighters Australia (operating for Australia Post and for Toll) as well as capacity operating for La Poste (France), Royal Mail (UK), Post Italiane (Italy) or other postal companies have not been included in this overview. China Postal Airlines we have chosen to include because of the large-scale express service offering in China. As indicated in Chapter 2 the lines between different segments freight, express and mail are often blurry.

6.2 Forecast Aircraft Demand

Over the next 20 years, we forecast the need for 2800 new and converted freighters to cater for growth and retirements of older units (see Figure 60). Over the next 20 years, we expect to see the retirement of about 70% of the current jet freighter fleet and almost the entire feeder fleet. Roughly half of the new and converted aircraft added over the next 20 years will be to replace these retired aircraft and the other half to cater for freight market growth. Factory-built freighters are forecast to make up 34% of aircraft additions in the jet freighter segment, albeit with large differences across individual categories. Forecast aircraft demand in the narrowbody segment is likely to be met entirely by conversions, whereas we expect the share of conversions in the medium- and large-widebody segments to be 50% and 20%, respectively. We foresee 21% of new additions in the feeder segment will be satisfied by production freighters.

Figure 60 – Forecast Freighter Aircraft Demand Forecast 2019 - 2038



Across all categories we expect that 75% of fleet additions and replacements will be to serve the express and e-commerce business. This equates to over 2000 aircraft, including almost 380 feeders, 890 narrowbody aircraft, 540 medium widebody and 230 large widebody aircraft. Of these aircraft we forecast 550-650 aircraft required to move domestic, intra-regional and cross border e-commerce, albeit with only 150-200 aircraft under direct control of e-commerce platforms. Due to the rigid nature of hub sort windows, integrators tend to achieve much lower aircraft utilization than general cargo carriers, particularly in regional networks. Although this would favour lower capital cost passenger to freighter conversions, integrators continue to be a major source of demand for production freighters.

In the near term we expect the net increase of jet aircraft operating for FedEx and UPS to be small. Most near term growth will come from SF Express, DHL and Amazon (see Table 2 for more detail).

Table 2 – Integrators' Planned Near to Medium Aircraft Fleet Growth

Company	Near – Medium Term Growth Plans
FedEx	• Small net increase of jets and larger increase of feeder aircraft expected. • Plans to take delivery of 55 767-300F and 13 777F over the next 6 years. 31 older widebodies will be retired. However, a total of 37 aircraft (mainly MD-11 and A300-600) will come off lease over the next 6 years. • A further 79 feeder aircraft (50 Cessna 408 and 29 ATR 42-600) will be added over five years starting in 2020.
UPS	• Small net increase of jets expected. • 30 aircraft on order, including 15 747-8F to be delivered over the coming 2-3 years and 15 767-300 freighters (including 5 conversions). • FedEx does have further options for additional 767-300, ATR-72 and Cessna 408 aircraft.
DHL	• DHL has 11 777-200 aircraft on order plus a further 7 options. • Additions of additional 767-300 and A330-300 freighter aircraft are expected to cater for phase out of older units.
SF Express	• Plans to growth aircraft fleet from approximately 70 aircraft today to 100 aircraft by 2022.
Amazon	• Current fleet of 47 aircraft is expected to increase to 70 aircraft by 2020, including 20 737-800BCF and 50 767 aircraft.
Total	Net increase of approximately 80 jet aircraft.

6.3 Demand for Contract Flying Services

Large scale jet flying opportunities for express companies is limited to DHL Express. Approximately 60% of the company's dedicated fleet is operated by approximately 25 third party carriers. The largest are ABX Air, Atlas Air (including Polar Air Cargo and Southern Air), ASL Airlines (Group), West Atlantic, Air Hong Kong and Aerologic, a 50:50 joint venture with Lufthansa Cargo. While FedEx and to a lesser extent UPS make use of ASL Aviation, West Atlantic and Star Air capacity in Europe, among others, the ability to make use of third party capacity on US routes is severely limited by the so called "scope clauses" in their contracts with their pilots. The contracts are based on the principle that all company traffic must be carried by aircraft flown by company pilots. DHL does not have any restrictions of this sort. Table 3 provides a comparative analysis of the scope clauses in current FedEx and UPS pilots contracts.

Table 3 – Comparison of Scope Clauses in FedEx and UPS Pilot Contracts

Item	FedEx (CBA 2015)	UPS (2016 Agreement)
Definitions	• Trunk flying: all aircraft over 60,000 lbs (27.5 tonnes) Maximum Take Off Gross Weight (MTOGW), e.g. somewhat above a CRJ200 or ATR 72. • Feeder flying: all aircraft at or under 60,000 lbs MTOGW	• Trunk Flying: aircraft with a payload of more than 12,899 lbs (5,851 t) on domestic and 19,000 lbs (8,618 tonnes) on international. The 727-100 is used as a reference value. • Feeder flying: all aircraft below this figure.

Item	FedEx (CBA 2015)	UPS (2016 Agreement)
	• Domestic: flights within or that start or terminate in the contiguous 48 States • International: flights that start and terminate outside the contiguous 48 States, but which may transit the us.	• Domestic: all flights within, as well as which originate or terminate in the US. • International: all flights within and between foreign countries.
Trunk Flying	• To be flown by FedEx pilots	• To be flown by company pilots, although within Europe non-UPS pilots may fly on some routes.
Feeder flying	• Feeder flights cannot replace trunk flights if they reduce flying opportunities for FedEx pilots. • Exceptions in circumstances outside the company's control (e.g. FAA grounding fleet) • Multiple feeder flying shall not be deployed in the domestic system to eliminate or reduce overall flying of a certain aircraft type. • However, in peak periods multiple feeders may assume some flying	• No combination of feeder aircraft on a domestic route to exceed the payload capacity of a 727-100 • Up to 10 Convairs (payload of 15,800 lbs.) in domestic feeder system. • Requirement to provide monthly report on feeder flying.
Purchase of Commercial Air Capacity	• Interline, co-loading, code-sharing, part charters or block space agreements with other carriers to move freight and serve international markets • Within the domestic system is only allowed to expedite freight or when „economically necessary "	• "Common Carriage" limited to five containers per flight in domestic flights and weekly aggregate limits on international city pairs depending on the frequencies. Breach of weekly limits is considered subcontracting. • Codesharing and schedule coordination with other carriers is allowed, provided it is not used as a way to outsource flying.
Wet Leasing/ Sub Contracting	Allowed only in exceptional circumstances: • In case of a lost or damaged aircraft until replacement • Two trunk aircraft for up to 4 months per year, but if traditionally operated by FedEx pilots then compensation is due. • Where international routes cannot be served by trunk aircraft, for example because traffic rights are not available, regulatory requirements (e.g. age limit) preventing use of FedEx pilots or emergency events. • Where freight characteristics require an aircraft not available in FedEx' fleet.	Allowed only in exceptional circumstances: • During peak periods (between Nov 15 and Jan 1) and in emergencies (AOGs, weather related, a.o). With restrictions: • Max 45 days during peak and 30 days during other periods • Outsourced international operations are limited to flights within foreign countries or between two or more foreign countries • On international operations subcontractors can only be used where there are traffic rights limitations or where it is not operationally feasible to use UPS crews. Cost reasons shall not be used to justify subcontracted operations-

Item	FedEx (CBA 2015)	UPS (2016 Agreement)
		• UPS will pursue new route authorities for crew members. If a new route authority is gained, then transition to UPS flying shall not be more than 12 months • Company will not include a cabotage route segment on an international route unless there is a legitimate operational or service reason for doing so • Limitations are also placed on UPS Supply Chain Solutions (SCS).This includes the requirement that no more than seven wet leased aircraft may be operated by a non UPS carrier and that SCS can only enter into blocked space agreements on other carriers as long as the aircraft is not also used by UPS.
Acquisition	• If Fedex buys another airline, then all trunk routes shall be operated by FX pilots. The other company's pilots would be integrated into the Fedex Master Seniority List. • In the case of an overlap between routes flown by both companies, the other airline's pilots should be furloughed first	• In case of a merger with another carrier, UPS may not run separate operations for longer than 12 months

Source: Cargo Facts Consulting Analysis of FedEx and UPS Pilot Contracts

By its own count, SF Express operates a fleet of 72 aircraft, of which 15 are chartered capacity from other (mainly Chinese) airlines. Toll Express operates a fleet of turboprop aircraft and previously operated a fleet of 737 freighters, but now buys capacity on services operated by third parties. Aramex generally relies on commercial air capacity and charter flights on some routes.

Feeder flying opportunities are available with all express carriers in all regions and most feeder aircraft are operated by third parties, although the integrators may actually own the aircraft asset. Both FedEx and UPS each operate a contracted fleet of about 280 feeder and smaller turboprop aircraft ranging from Cessna 208 Caravans to ATR-72 and Convair 480s.

Going forward, we do not expect significant leasing opportunities to emerge with FedEx and UPS outside the feeder segment, but DHL continues to pursue a global aviation strategy focused on a mix of own operated and contracted air capacity as well as purchasing general cargo capacity on key routes where passenger and freighter schedules support required service levels. The believe the largest growth in contracting opportunities will continue to come from e-commerce support flying.

7. About Cargo Facts Consulting

Cargo Facts Consulting is a specialised air logistics advisory and research firm. Formerly also known as Air Cargo Management Group, we have been in business since 1978. Since 2019, we are based in Luxembourg, with offices in New York and Seattle.

Our clients turn to us for deep advice, data and insights on key aspects that effect product development, marketing, fleet planning and strategy in air logistics. These clients come from across the whole air cargo and express business and include financial institutions and investment firms, leasing companies, government, aircraft manufacturers and conversion companies, airlines, express companies, airports and other service providers.

Our consulting experience spans projects that encompass airline network planning, fleet planning, due diligence, route development, investment assessment, air cargo and express market analysis, and aircraft technology. Our data and forecasts populate financial models related to many facets of the business, and our analysis is used in product development by a wide range of company. We also provide deep analytics for the type of data- and mission-related marketing in the aviation sector.

We strive to be the most knowledgeable and highly valued provider of strategic advice to the global air freight transportation and logistics industry. We provide actionable solutions, not just data and research based on critical needs and business objectives. We facilitate business evolution that yields greater profits and efficiency. And we do so often through long-term relationships that create a deep and more-meaningful dialogue with our customers.

Through Cargo Facts and Air Cargo World, our sister media organizations, we have a unique and high-visibility insight into industry trends and market developments as they happen

Appendix A - Express Carrier Profiles

Appendix A contains e-commerce focused profiles of the top three and selected regional express companies. In general, data refers to the most recent full financial year, but where specified has been updated to reflect most recent available quarterly filings.

The profiles include a description of the activities of each company and key metrics relating to revenue, profitability, number of shipments, and information on the geographical scope of operations, main competitors, and their air and ground networks. In relation to E-commerce, we have included a summary of each company's relevant product offering, percentage of business linked to e-commerce, relationship and exposure to key e-commerce platforms and our assessment on how e-commerce will impact each company's business going forward.

Profiles are displayed in alphabetical order for ease of reference. These include:

- Aramex
- Blue Dart
- DHL
- EMS/China Postal Airlines
- FedEx
- SF Express
- UPS

Data included in the profiles has been compiled from a range of public and semi-public sources as well as being based on our own assessment and analysis. While we have taken great care in preparing these profiles, we take no responsibility for their accuracy. We welcome your feedback and suggestions, including broadening the scope to include additional profiles

Subscribers of the report will have access to periodic updates to these profiles through the Cargo Facts Consulting Insights analytics platform (www.cfcinsights.com) for the first six months following publication of the report.

Table 4 – Aramex profile

Company	Aramex (2018)
Description	Middle East focused Express, Freight Forwarding and Logistics company, founded in 1982
Headquarters	Dubai
Revenue	AED 5.086b ($1.39b). Express accounts for 45% of total revenue
Profitability and growth	8% overall revenue growth in 2018 (8.9% 2013-2018), with Express and Logistics growing at 13% and 16% respectively. 1H 2019 growth 4%, with Express and Logistics growth at 9% and 20%, respectively. Net profit margin approximately 8-10% last 6 years. Express has increased its share of total business from 51% to 65% since 2013 while the freight forwarding share has decreased. Q1 2019 revenues of $336m, a 4% increase y-o-y. Profits of $32m, a 4% increase from Q1 2018. Q2 2019 revenues of $348m, a 4% increase y-o-y. Profits of $33.5, a 4% increase from Q2 2018. Q3 2019 revenues of $343m, a 2% increase y-o-y. Profits of $30.7, a 1% increase from Q2 2019
Main geographical markets	Middle East (primarily GCC) and Africa (61%), Asia and Others (25%), Europe (11%), North America (3%)
Main competitors	DHL Express, UPS
Shipments and tonnage	68.6m shipments
Air Network Overview	Air capacity provided by third parties. No dedicated air network
Ground Linehaul Network Overview	Not available
First and Last Mile Network Overview	Own controlled and third-party franchisee fleet. Vehicle maintenance and running expenses accounted for 12% of operating expenses
Product Offering	International express: includes delivery of small packages across the globe to both, retail and wholesale customers.

Company	Aramex (2018)
Other business segments	Freight forwarding: includes forwarding of loose or consolidated freight through air, land and ocean transport, warehousing, customer clearance and break-bulk services. Domestic express: includes express delivery of small parcels and pick up and deliver shipments within the country. Logistics: includes warehousing and its management distribution, supply chain management, inventory management as well as other value-added services. Other operations: includes catalogue shipping services, document storage, airline ticketing and travel, visa services, and publication and distribution.
Aircraft capacity	Some dedicated charter activity
E-Commerce Strategy and product offering	Focus on micro brands across the Gulf, Levant, Asia and Africa. E-commerce consolidation through shop and ship product providing physical addresses in 24 countries to deliver global online shopping. Fulfillment services to e-commerce platforms. Also operates e-commerce fulfillment centers. Previously operated a joint venture with Australia Post (Aramex Global Solutions)
% of business linked to e-commerce	E-Commerce is the main growth driver of express and logistics business. Focuses on sellers who want a full package or just fulfillment, as well as customers who purchase e-commerce
Relationship and exposure Key E-Commerce Platforms	Not available
E-Commerce Outlook and impact on business	E-commerce growth is central to business expansion. Lower yields on E-commerce vs traditional business expected to depress margins

Reflects financial data up to quarter ended in June 2019

Table 5 – Blue Dart profile

Company	Blue Dart (FY ended March 2019)
Description	South Asia's premier express air and integrated transportation & distribution company, offering secure and reliable delivery of consignments. It is part of the DHL Group
Headquarters	Mumbai, India
Revenue	$432 million in 2018 (FY ended in March 2019) Q1 (Mar-Jun 2019) revenues of $109 million and profit of $636k Q2 (Jul-Sept 2019) revenues of $111 million and profit of $1.94 million
Profitability and growth	$18 million in 2018, 37% lower than profit in 2017
Main geographical markets	India
Main competitors	FedEx, Gati LTD
Shipments and tonnage	233 million domestic and 900,000 international shipments handled and 755,000 tonnes transported in 2018. Of this figure 88,000 (12%) was transported on its air network.
Air Network Overview	Fleet consisting of 6 aircraft providing a network payload of 504 tonnes across 74 route connections each night. Air hubs in Chennai, Mumbai, Delhi
Ground linehaul network overview	11,000 vehicles connecting 86 ground connections across India
First and Last Mile Network Overview	11,000 vehicles supporting 3,171 facilities and servicing over 35,000 locations
Product Offering	Express Mail & Express Delivery
Other Business Segments	Freight Forwarding, Third-Party Logistics
Aircraft Capacity	Blue Dart operates with 6 Boeing 757 freighter aircraft offering a payload of 500 tonnes per night
E-Commerce Strategy and product offering	Primary focus on express delivery only
% of business linked to e-commerce	Not available
Relationship and exposure Key E-Commerce Platforms	Amazon's introduction in India has fueled Blue Dart's growth
E-Commerce Outlook and impact on business	Blue Dart has launched a logistics firm (Ecom Express) that will focus exclusively on Indian's e-commerce support.

Reflects financial data through to 31 August 2019

Table 6 – DHL Express profile

Company	DHL Express (2018)
Description	Express division of the DHL Group, it provides urgent documents and goods in over 200 countries and territories serving 2.6 million customers
Headquarters	Bonn, Germany
Revenue	16,147 million € ($18 b) in 2018 for the Express division, 25% of DHL's total revenue of 62,951 million € ($70.3 b)
Profitability and growth	1,957 million € ($2.2 b) in 2018 for the Express division, 62% of DHL's total profit of 3,162 million € ($3.5 b) H1 2019 revenues of EUR 8.2b ($9.03b), up 5% y-o-y H1 2019 EBIT of EUR 974m ($1b), down -0.4% y-o-y Q3 2019 revenues of EUR 4.2 b ($4.6), up 8.7% y-o-y Q3 EBIT of EUR 454m ($500 m), up 11% y-o-y
Main geographical markets	Germany, Western Europe, Latin America, Africa, Middle East & Asia-Pacific
Main competitors	FedEx, UPS
Shipments and tonnage	1.5 billion express shipments per year of which 70% are time definite international (TDI) shipments.
Air Network Overview	DHL's global air network is present in 500 airports worldwide with 22 major hubs connected through. Their dedicated air network includes a fleet of 250 aircraft with 17 owned and partner airlines with over 600 daily flights. Additionally, DHL Express has agreements with 300 airlines, operating around 1,800 daily flights. Air hubs in Miami, Singapore, Leipzig, East Midlands, Chennai, Bahrain, Panama City, Hong Kong
Ground linehaul network overview	DHL continues investing in its vehicle fleet and in the expanded production of StreetScooter electric vehicles
First and last mile network overview	17,000 vehicles servicing over 120,000 destinations in all continents. DHL is focused on developing solutions to help e-commerce companies reach their end-costumers quickly and efficiently, from using machine learning to route shipments to adding automation to delivery networks
Product offering	Time definite international (TDI) Time definite domestic (TDD)

Company	DHL Express (2018)
Other Business segments	Not available
Aircraft Capacity	234 aircraft, including 39 737Fs, 55 757Fs, 38 A300-600Fs, 8 A330Fs, 49 767Fs, 21 777Fs, 23 747Fs
E-Commerce Strategy and product offering	In 2019, DHL is redesigning their cross border portfolio of e-commerce services and international parcel shipping. DHL has established a new eCommerce solutions division which is separate to DHL Express
% of business linked to e-commerce	30% of Time definite international volumes are B2C (comarped to 10% in 2013). We estimate 50% of time definite domestic (TDD) volume are B2C.
Relationship and exposure Key E-Commerce Platforms	Limited, but are a key provider to Mercado Libre in LATAM
E-Commerce Outlook and impact on business	Experience shows that growth in the international express market is highly dependent upon the economy. DHL believes that the steadily growing cross-border e-commerce sector will continue to drive growth in the international express market in 2019

Reflects financial data through to Q3 2019

Table 7 – EMS (China Postal Express & Logistics Company)

Company	EMS (China Postal Express and Logistics Company, 2018)
Description	Largest integrated express and logistics provider in China. Encompasses China Postal Airlines and China Post Logistics. Service offering covers international and domestic express, contract logistics and trucking.
Headquarters	Beijing, China
Revenue	China Post Group overall: RMB 566.4b ($84b)
Profitability and growth	Net profit in 2018 was RMB 44.917billion, a yoy increase of 0.27%; Profit margin in 2018 was RMB 46.211 billion, decreased by 4.63%.
Main geographical markets	Domestic China, Taiwan, Hong Kong, Macau, and international to Japan and Korea
Main competitors	YTO, SF Express, Yunda, ZTO, 4PX, Best, STO, Deppon, TTK
Shipments and tonnage	Estimated Air Shipments 600 million in 2018.
Air Network Overview	489 flights every week between 39 city pairs and 30 cities. Main hub in Namjig (NKG)
Ground Linehaul Network Overview	Not available
First and Last Mile Network Overview	45,000 business outlets
Product Offering	Not available
Other Business Segments	Not available
Aircraft Capacity	Not available
E-Commerce Strategy and product offering	Domestic e- Commerce product (e-EMS and eYoubao) and added services including warehousing, sorting, delivery and payment
% of business linked to e-commerce	Not available
Relationship and exposure Key E-Commerce Platforms	Not available
E-Commerce Outlook and impact on business	Not available

Table 8 – FedEx Express profile

Company	FedEx Express (Financial Year ended 31 May 2019)
Description	US based express and ground operator. Largest subcontractor to the United States Postal Service.
Headquarters	Memphis, TN
Revenue	$37.3 billion (Express) and $20.5b (Ground)
Profitability and growth	Operating income of $2,58 billion in 2018 (FY2019), -6.8% lower than in FY 2018 due to higher TNT Express Integration expenses
Main geographical markets	United States, Europe, Middle East, Latin America, Africa, Asia-Pacific
Main competitors	DHL Express, UPS
Shipments and tonnage	2.2 billion Express shipments (US + International), 10.5 billion lbs.
Air Network Overview	Fleet of 681 aircraft and 12 air hubs in their air network (Paris, Narita, Cologne, Newark, Guangzhou, Indianapolis, Oakland, Miami, Liege, Dubai, Toronto). Plans to shift more FedEx express volumes to former TNT ground network.
Ground linehaul network overview	91,000 vehicles (including approximately 27,000 owner-operated vehicles that support TNT Express) in its global network
First and last mile network overview	85,000 vehicles, 52,250 access points (offices, authorized shipping centers, lockers and drop box locations). By end of 2020 adding 8000 Dollar General stores to ground already consisting of 9000 Walgreens and Walmart outlets. This will replace the SmartPost arrangement with USPS which FedEx announced in May 2019 that it would cancel. FedEx
Product offering	International Priority: door-to-door, customs cleared products (1-3 business days), delivery by 15:00 International First: door-to-door, customs cleared products (1-3 business days), delivery by 9:00. Available from the US to major key points in 20 global markets International Economy: door-to-door, customs-cleared product (2-5 business days) US Overnight Box, US Overnight Envelope, US Deferred

Company	FedEx Express (Financial Year ended 31 May 2019)
Other Business segments	FedEx Services provides sales, marketing, information technology, communications, customer service, technical support, billing and collection services, and certain back-office functions that support FedEx transportation segments.
Aircraft Capacity	434 aircraft including 36 737Fs, 120 757Fs, 3 A310Fs, 68 A300-600Fs, 77 767Fs, 57 MD11Fs, 30 MD-10s and 43 777Fs
E-Commerce Strategy and product offering	FedEx Express is focused on e-commerce growth with a new division dedicated to infrastructure improvement across offices and sorting locations. Actions to improve service offering include extending Ground deliveries to 7 days per week beginning January 2020. SameDay bot services to support instant deliveries from companies such as AutoYone, Lowe's, Pizza Hut, Target, Walgreens by Summer 2020. Through FedEx Cross Border Technologies and P2P Mailing Ltd offers cross border e-commerce fulfillment. FedEx Extra hours to allow later cut offs.
% of business linked to e-commerce	Not available
Relationship and exposure Key E-Commerce Platforms	Previously FedEx generated less than 1.3% of total revenues with Amazon. In 2019, FedEx cancelled its Express and Ground contracts with the US E-tailer. However, Fedex carries substantial Amazon volumes through its contract with the USPS to move priority mail and priority mail express.
E-Commerce Outlook and impact on business	FedEx believes that the Asia-Pacific region will lead the e-commerce growth in the immediate future with China, India and Indonesia being the fastest-growing markets. FedEx plans to expand their footprint in these geographical areas, choosing the right partners and investing in infrastructure In connection with the TNT integration, FedEx Express will incur approximately $275 million of integration expenses in 2020.

Reflects financial data through to August 2019

Table 9 – SF Express profile

Company	SF Express (2018)
Description	2nd largest Chinese Express operator, mainly focused on the domestic Chinese market. Operates both a warehouse and distribution network. SF has the largest domestic air network which is approximately 2x the scale of China Postal Airlines. 24% share of Chinese domestic air cargo market.
Headquarters	Hangzhou, Zhejiang, China
Revenue	RMB 90.9b ($13.6b), 98% of which is from Express and Logistics. Average revenue per shipment RMB 23.18 ($3.55). Express and Economy products accounted for 59% and 22% of total revenue, respectively
Profitability and growth	Overall revenue growth of 28% in 2018 and 23% in 2017. Economy product has growth faster than its express product (37.6% vs 14.3% in 2018). Intra city instant delivery revenue grew by 172% in 2018 (to $149m). Net profit margin last three years between 5% and 7%. International express volumes increased 28.3% in 2018. 1H 2019 Revenue growth +17.7%.
Main geographical markets	Domestic China. International express accounted for less than 3% of revenue in 2018
Main competitors	China Postal Airlines (EMS), YTO Express are the only other Chinese integrators with dedicated air networks, but there are a multitude of courier operators in the market including Yunda, ZTO, 4PX, Best, STO, Deppon, TTK, US, Sure, 2JS and GTO. SF states that is has a 23% share of total Chinese cargo and mail volumes. Has a JV with UPS for international services.
Shipments and tonnage	Air: 800 million shipments/ 1.24m tonnes (21.5% of total) Ground: 3 billion shipments (77% of total), Rail: 50 million shipments (1.2% of total). 2019 expected air tonnage 1.4m tonnes (+13%)
Air Network Overview	43 cities in China (including in Hong Kong, Macau and Taiwan) and 11 international cities. Total of 65 routes and 97 flights per day. Main hubs in Hangzhou (HGH) and Shenzhen (SZX). 40% of volumes are carried on own and dedicated charter flights. Pioneering the development of unmanned feeder aircraft.
Ground Linehaul Network Overview	9 hub level transit depots. 35,000 directly-operated and outsourced vehicles for more than 90,000 long-haul and branch routes. 81 high-speed railway lines and 121 standard railway lines have been launched.
First and Last Mile Network Overview	15,600 directly-operated service points and 2,600 franchisee network points for Shunxin Express. 286,400 Couriers. The total number of vehicles for terminal collection and delivery was 72,000 (excluding motorcycles and electric vehicles)

Company	SF Express (2018)
Product Offering	Express same day (by 20:00), next morning (by 12:00), Next day (by 18:00), cold chain express, economy express (2 day), instant delivery (30 min – 1h), international standard express, economy express, e-parcel (for cross border e-commerce).
Other Business Segments	Heavy parcels (20-100kg), heavy cargo, LTL, cold chain and pharmaceutical delivery.
Aircraft Capacity	Fleet of 61 aircraft (Oct 2019), including 20 737-300/400F, 30 757-200F, 8 767-300F, 3 747-400F. Based on own information (Sep 2019) operates a fleet of 74 aircraft of which 15 are chartered.
E-Commerce Strategy and product offering	Offers B2C delivery services in China and abroad. Operates e-commerce warehouses across China. International E-Parcel product which provides customs clearance and delivery for cross border e-commerce
% of business linked to e-commerce	Not available
Relationship and exposure Key E-Commerce Platforms	Not available
E-Commerce Outlook and impact on business	Not available

Reflects financial data through to 2Q 2019

Table 10 – United Parcel Service (UPS) profile

Company	United Parcel Service (2018)
Description	Multinational package delivery and supply chain management provider
Headquarters	Atlanta, Georgia
Revenue	$71.8 billion, $43.5 b US Domestic Package, $14.4 b International Package, $13.8 b Supply Chain Freight. 78% or $56 b from total revenue is US
Profitability and growth	UPS annual net income was $4.8 billion, a 2.32% decline YOY. UPS Supply Chain division grew by 16% in 2018 while US Domestic and International segments grew by 7%. UPS International segment operating margin of 18% leads the industry Q1 2019 revenues of $17.2b, up 0.3% from Q1 2018. Profit down 17% down to $1.28b. Q2 2019 revenues of $18b, a 3.4% increase from Q2 2018. Net income of $1.7b, up 1% y-o-y. Q3 2019 revenues of $18.3 b, a 5% increase y-0-y. Net income of $1.8 b, up from $1.8 y-o-y
Main geographical markets	North America, Europe, Asia-Pacific, Latin America, Middle East & Africa
Main competitors	DHL Express, FedEx
Shipments and tonnage	5.2 billion packages and documents annually, serving more than 200 countries and territories
Air Network Overview	Aircraft fleet of 248 aircraft and 2,300 daily flight segments Air hubs in Louisville, Cologne, Shanghai, Hong Kong, Shenzhen, Hamilton, Miami, Rockford, Philadelphia, Dubai, Anchorage, Dallas
Ground linehaul network overview	123,000 vehicles in delivery fleet. UPS wholly-owned and partnered global network offers roughly 150,000 entry points where customers can tender a package to at a location or time convenient
First and last mile network overview	1,800 operating facilities, 28,000 access points and 14,000 stores, customer centers and outlets. Around 130,000 vehicles
Product Offering	Express Critical; same day delivery Worldwide Express Plus: 1-3 business days by 9:00 Worldwide Express: 1-3 business days, delivery by 10:30 or noon Worldwide Express Saver: 2-5 business days, delivery by end of the day

Company	United Parcel Service (2018)
	Worldwide Expedited: 2-5 business days, delivery during the day Standard: day definite by date scheduled, delivery during the day US Next Day Air: guaranteed next-business-day by 10:30
Other business segments	International air and ocean freight forwarding, customs brokerage, distribution and post-sales services, mail and consulting service. UPS Freight offers a variety of LTL and TL services to customers in North America. Coyote offers truckload brokerage services primarily in the United States. Marken is a global provider of supply chain solutions to the life sciences industry.
Aircraft capacity	274 aircraft, including 3 737Fs, 75 757Fs, 52 A300-600Fs, 81 767Fs, 37 MD11s and 26 747Fs
E-Commerce Strategy and product offering	UPS rolled out a new integrated transportation fulfilment solution for small business e-commerce merchants, enabling them to expand and grow their offerings without additional investments
% of business linked to e-commerce	Business-to-consumer shipments represented over 50% of the total US Domestic Package volume
Relationship and exposure Key E-Commerce Platforms	UPS is retaining close ties to Amazon, one of its largest customers. UPS gets close to 10% of its revenue from Amazon and this number could increase after Amazon and Fedex cut ties in August 2019
E-Commerce Outlook and impact on business	UPS recently unveiled a transformation strategy to handle the package handling growth and cross-border e-commerce volumes including renovated facilities and new aircraft

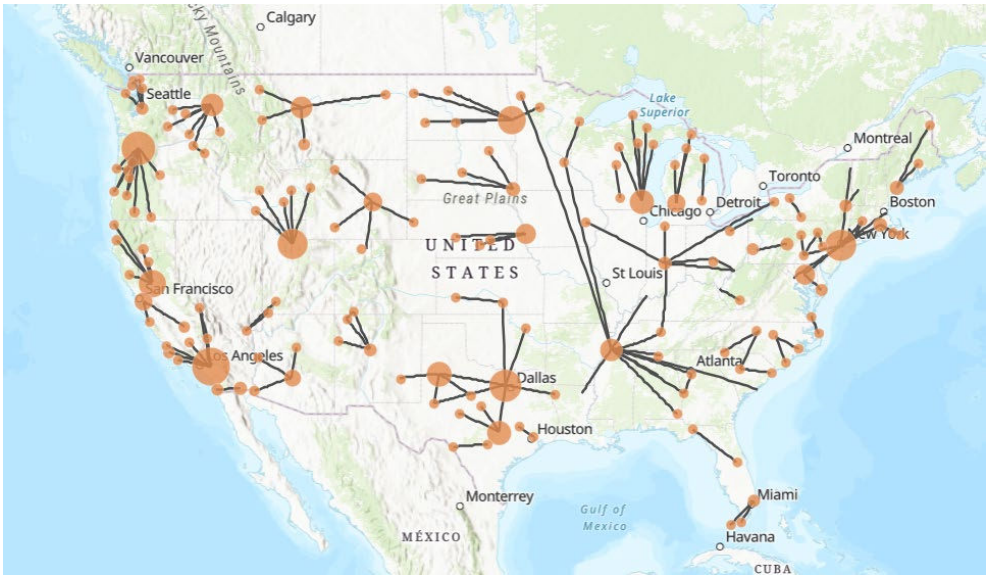
Reflects Financial Data Through to Q3 2019

Appendix B - Interactive Map Overview and Tutorial

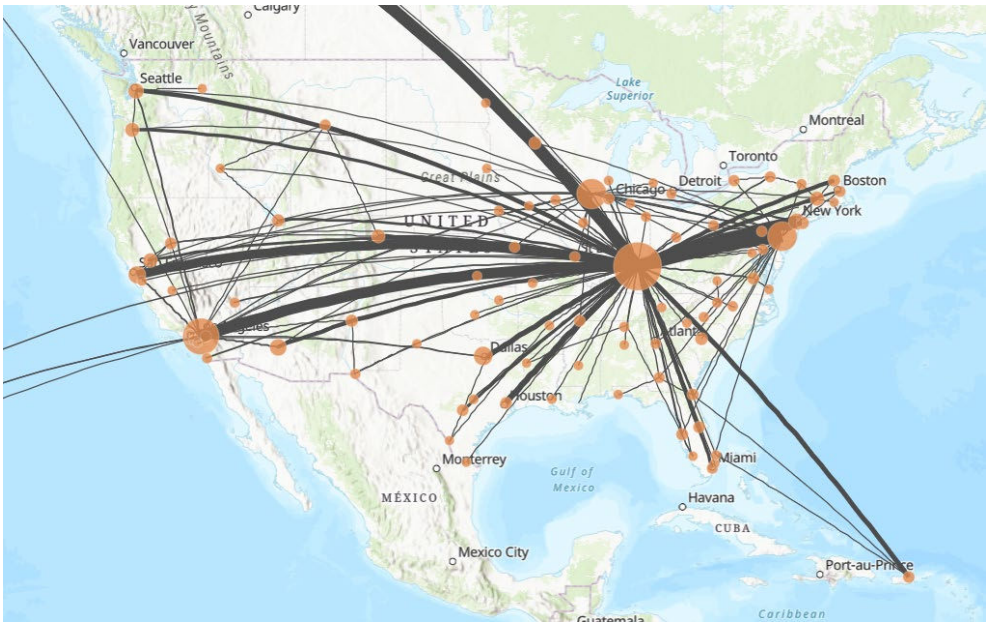
This report is complemented by an interactive map, which can be accessed via the Cargo Facts Consulting Insights Platform. The map allows you to explore integrator express networks. The data is organised in different layers, which can be turned on or off. Clicking on individual points or features opens a pop up with more information. Below is a description of each layer and its contents.

Hubs and Focus Cities - hubs, regional hubs and focus cities within DHL Express', FedEx' and UPS' own and subcontracted air networks. Source: analysis of Form 41 t-100 segment data.

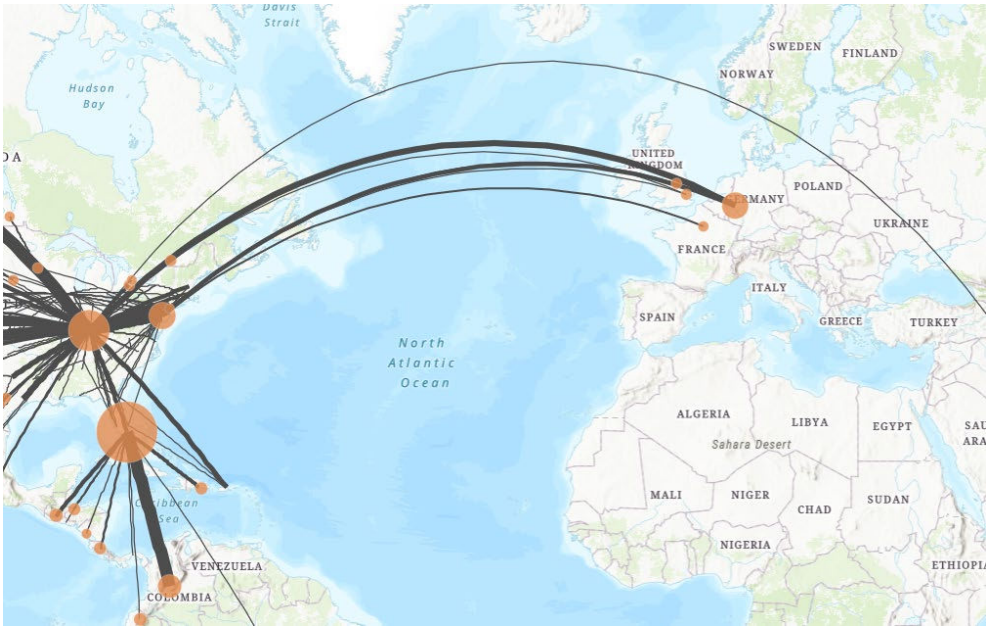
US Domestic Feeder Network Layers – feeder aircraft routes operated on behalf of FedEx and UPS, respectively, within as well as to and from the US. Source: analysis of Form 41 t-100 segment data.



US Domestic Trunk Network Layers – trunk aircraft routes operated on behalf of Fedex and UPS, respectively within the US. Source: analysis of Form 41 t-100 segment data.

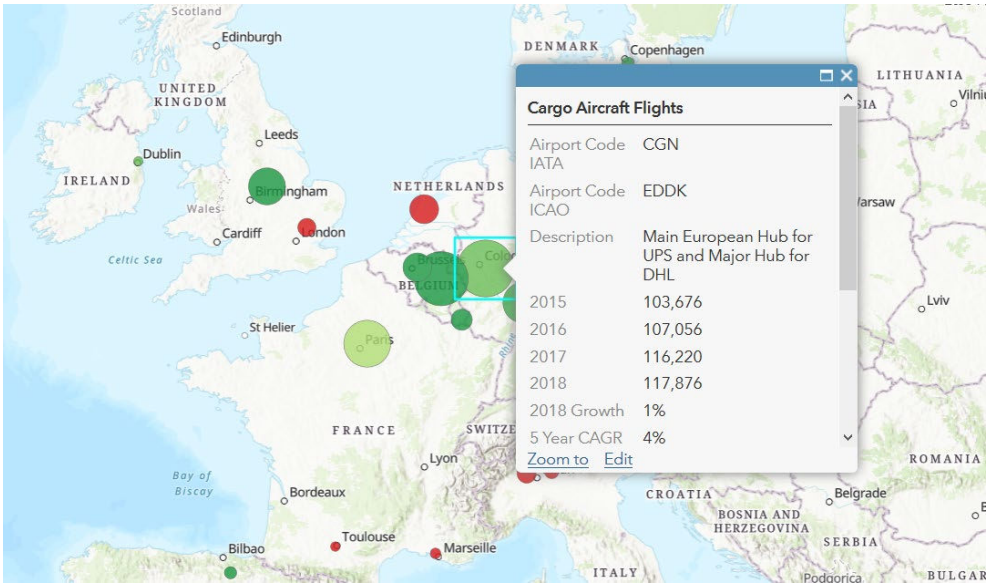


US International Network Layers – international routes operated on behalf of Fedex and UPS, respectively, to and from the US. Source: analysis of Form 41 t-100 segment data.

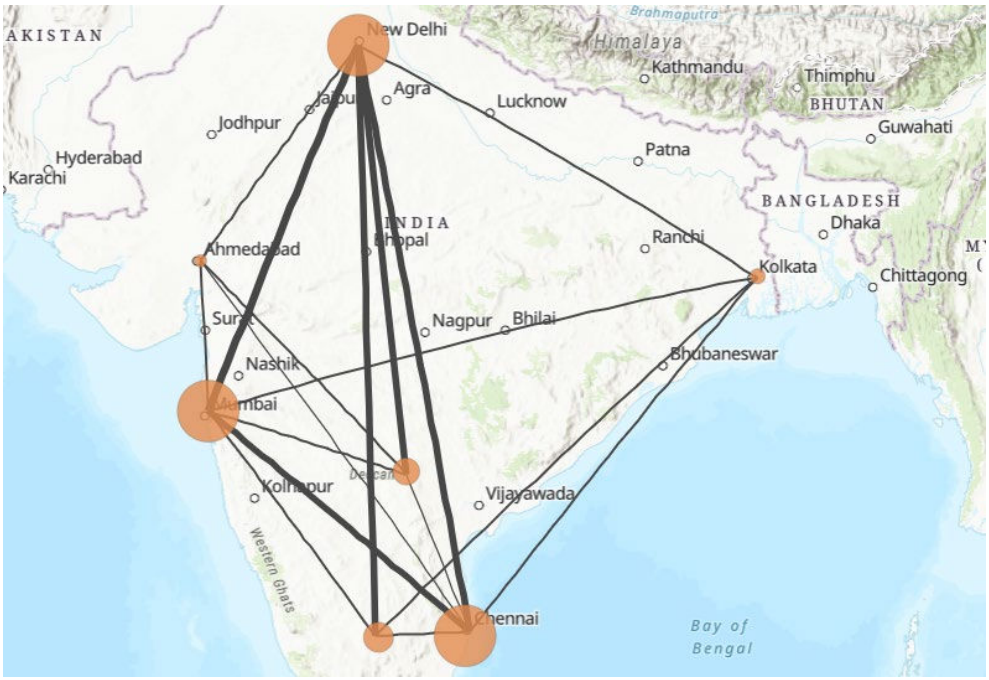


European Express Layers – flights operated out of six key European express hubs: East Midlands (DHL, FedEx, UPS), Cologne (UPS and DHL), Paris (FedEx), Brussels (mainly DHL), Liege (FedEx) and Leipzig (DHL). Source: analysis of Eurostat airport level data.

Top European Hubs Cargo Movements. Growth in movements and overall traffic between 2015 and 2018. Source: analysis of Eurostat airport level data.



Blue Dart – Weekly Departures and Network. Overview of Blue Dart's Indian Air Express Network. Source: analysis of schedule data.



YTO, China Postal, and SF Airlines weekly departures and networks. Chinese express carrier networks. Source: schedules data.