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AIR EXPRESS OUTLOOK 2021-2025

More Volumes, Lower Yields and Greater Volatility from Global E-Commerce

CFCInsights.com

Air Express Market Outlook 2021 - 2025

More Volumes, Lower Yields and Greater Volatility

from Global E-Commerce

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Executive Summary

Global air express has consistently grown faster than air cargo volumes overall. However, there have been fundamental changes in traffic and revenue mix over the past years as business-to-business documents and packages make way for more business-to-consumer e-commerce. By our estimate, approximately 50% of express traffic is online shopping. While this has been good for volume growth, package yields have dropped. Surprisingly, this has not necessarily led to lower profit margins as increased operational efficiencies have provided some compensation.

- DHL, which has focused on higher yield international products has shown an upward trend in profitability since its exit from the US domestic business over 10 years ago.
- UPS, which in 2019 generated 11.6% of its revenue with Amazon and has seen a big drop in domestic yields has kept margins constant as it invests in greater throughput efficiency.
- Meanwhile, FedEx has seen a downward trend in operating margins since 2015 even though its drop in domestic yields is not as high as UPS.
- SF Express, for which we have less history than the big three, has experienced strong volume growth and lower yields but managed to increase operating margins slightly in 2019.
- Aramex has kept margins constant despite strong revenue growth off the back of business to consumer e-commerce.

For 2020 we expect volumes and costs to grow faster than revenues, which will affect margins. This is partly due to more B2C and loss of B2B shipments, but also increased operating costs because of the pandemic.

In terms of shipments, there are three main express markets worldwide – *domestic US, domestic China and international express*. By our estimates, the domestic Chinese Air express market is now bigger than the domestic US market and generated some 1.655 billion shipments in 2019. This compares to about to about 1.630 billion shipments in the United States. But therein ends the similarity between the two markets – the US domestic market supports a much larger jet fleet than China. UPS and FedEx together operate over 700 jet aircraft, while SF, China Postal Airlines and YTO together operate less than 130 planes. DHL has a dedicated fleet of about 240 aircraft operated by a mix of inhouse airlines and subcontractors.

International air express volumes in 2019 totaled about 822 million shipments, of which about a quarter is within Europe. While distances are smaller and more moves by road, intra-European express supports a wide network of subcontractor airlines and groups including ASL Aviation, West Atlantic, Avia Solutions group, and a whole array of smaller airlines operating feeders and narrowbody jets.

Looking beyond 2020, we forecast international shipment growth of about 4.9% per year between 2021 and 2025, with intra-European volumes to increase by about 3% per year. For the US domestic market, we note that since 2018 volumes are no longer in line with underlying growth drivers, with business-to-consumer e-commerce traffic effectively creating a new market that did not exist before. This is akin to what low cost carriers Southwest or Ryanair did in the air travel space. There is a great risk that this business with eventually disappear and be subsumed into (Amazon's) vertically integrated inhouse logistics network. As such we predict that underlying express market growth is more likely to be in the order of 1.6% per year. We have declined to prepare a forecast for the Chinese domestic market – primarily because statistical forecasts in a market that has on average grown by 35% per year over the last five years will invariably be wrong. We tend to view the development of the Chinese domestic market through the lens of SF Express, which grew air shipments by 8.8% in 2019 and whose growth trajectory would imply growth of 10% per year for at least the next three years.

Business-to-consumer e-commerce provides volume growth opportunities for express operators in all markets, but the big question will always be who pays how much for shipping, especially when shipping is mainly free. Express operators are also not operating in an uncontested space – on international markets they compete against postal companies and logistics providers expanding their cross border e-commerce offering and in domestic networks they compete against inhouse logistics arms of the big e-commerce platforms as well as regionally strong courier companies.

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 2025. 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, among others. 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 *2020 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. Our *2020-2039 Freighter Forecast* focuses on the demand for feeder, narrowbody and widebody freighter forecast, including by the express business.

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. We have also prepared five-year forecasts through to 2025 for international, US domestic and intra-European air express.

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 2020 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 changing 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.

An Appendix (starting on page 80) includes profiles of each of the express operators analysed in the report. Subscribers will receive periodic updates to these profiles. The report is complemented by 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

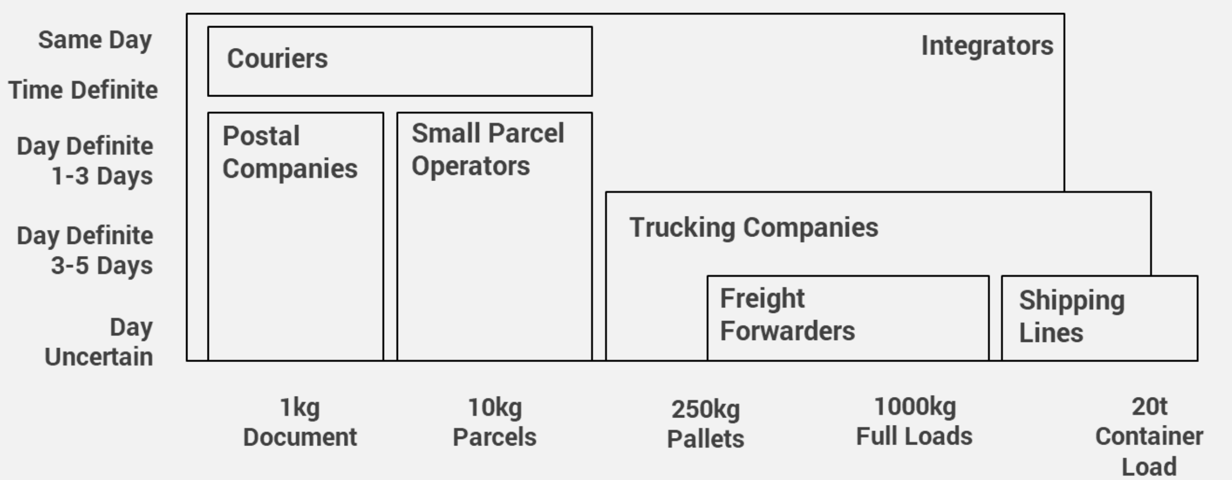
Key Findings:

- Air Express accounts for approximately 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, but networks are evolving to offer seven day and same day deliveries.
- Contrary to the air freight business, express companies tend to have a more diverse customer base, although concentration has been increasing thanks to the big three e-commerce platforms.

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).

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.

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



Source: Cargo Facts Consulting

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.

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 2 – Typical Intercontinental Express Shipment from Europe

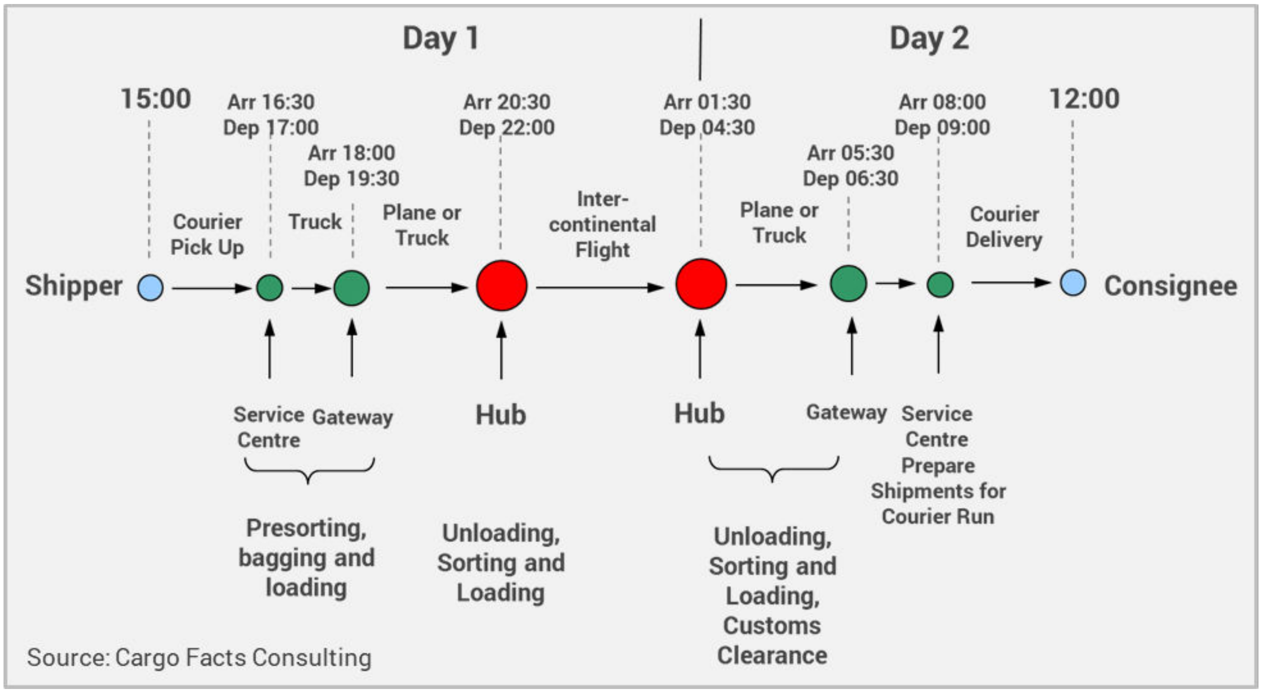
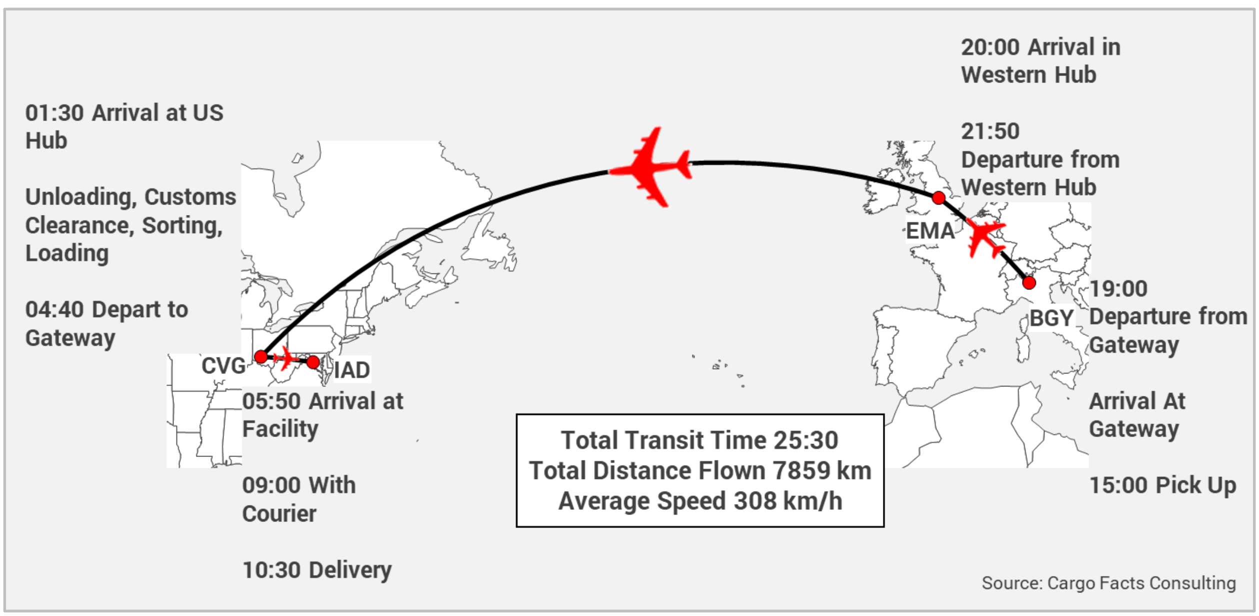


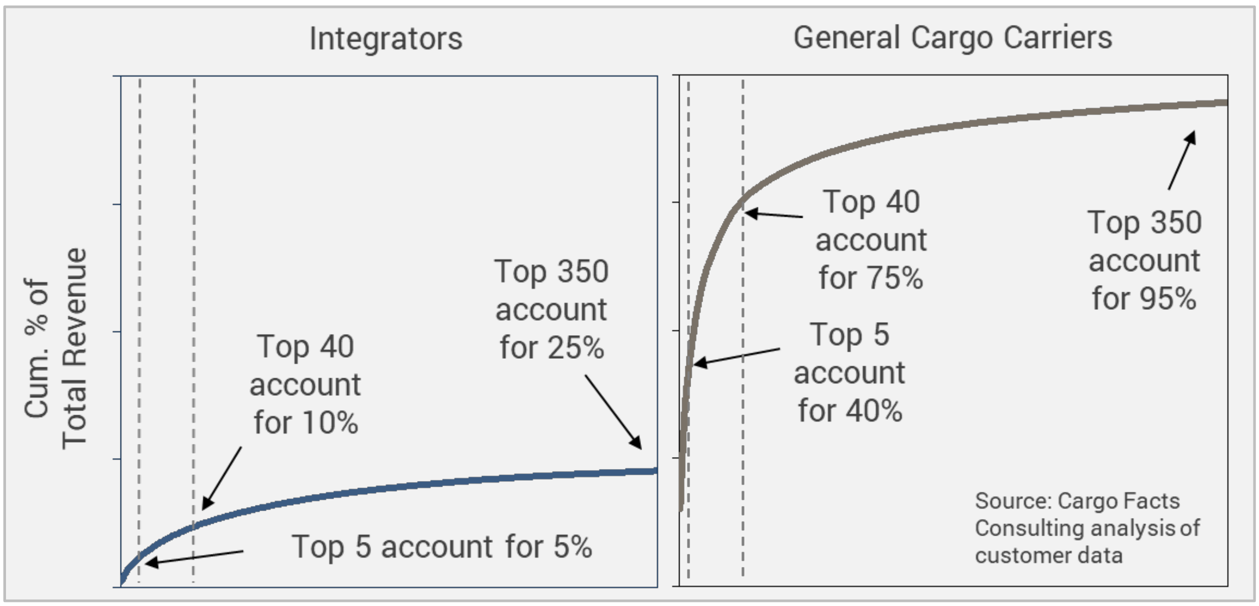
Figure 3 – Example of an Intercontinental Shipment from Milan to Washington DC



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. Exceptions have been developing though and there are differences between operators. In 2019, FedEx cancelled both its Ground and Express contracts with

Amazon to focus on a future without the e-tailer and platform while UPS generated 11.6% of its total revenue from Amazon in 2019. We estimate that SF express generates a large part of its volume with the three big Chinese e-commerce platforms. 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. Due to increased online shopping activity during the pandemic, the express business has been operating at higher than normal activity levels over a longer period.

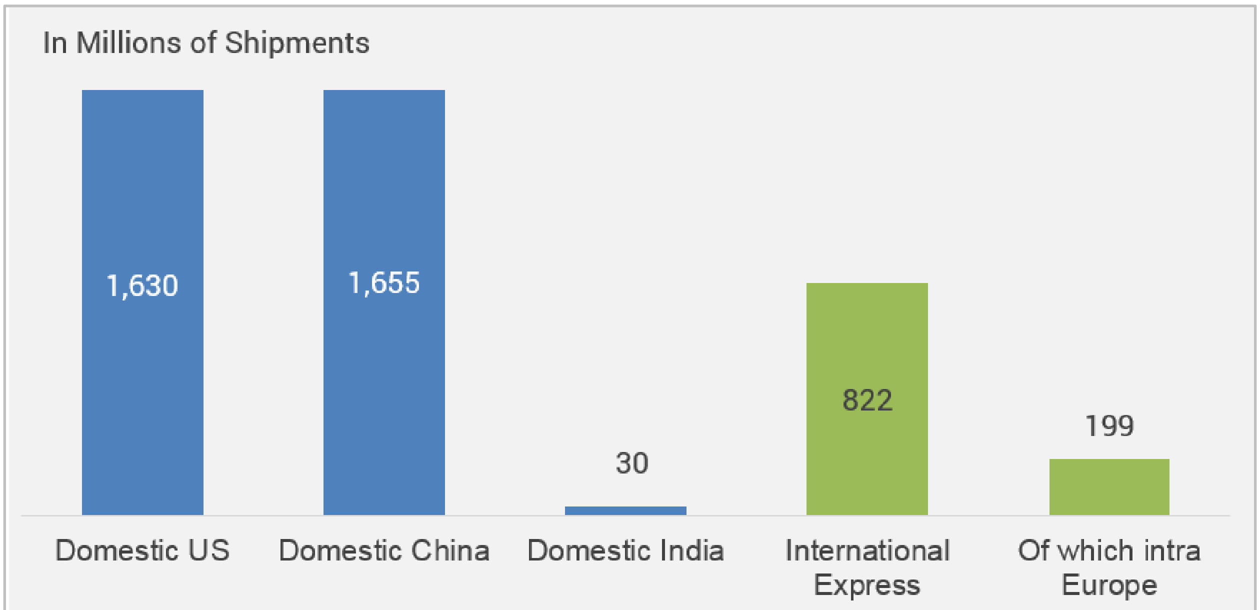
3. The Main Express Markets – History and Forecast

Key Findings:

- Global air express traffic has consistently grown faster than general air cargo traffic.
- We expect international express shipment traffic to grow at around 6% in 2020 and increase by 4.9% per annum between 2021 and 2025.
- Fuelled by business to consumer e-commerce traffic, the world's largest domestic air express market in revenue terms grew at over 7% in 2019 and we expect over 9% in 2020.
- However, as Amazon makes moves to insource more volumes, this growth could evaporate. Underlying forecast growth is closer to 1.6% per year.
- Since 2019, Domestic China is the worlds largest air express market, but the air share has declined from 3% to 2.7% as ground grows faster.

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 2019



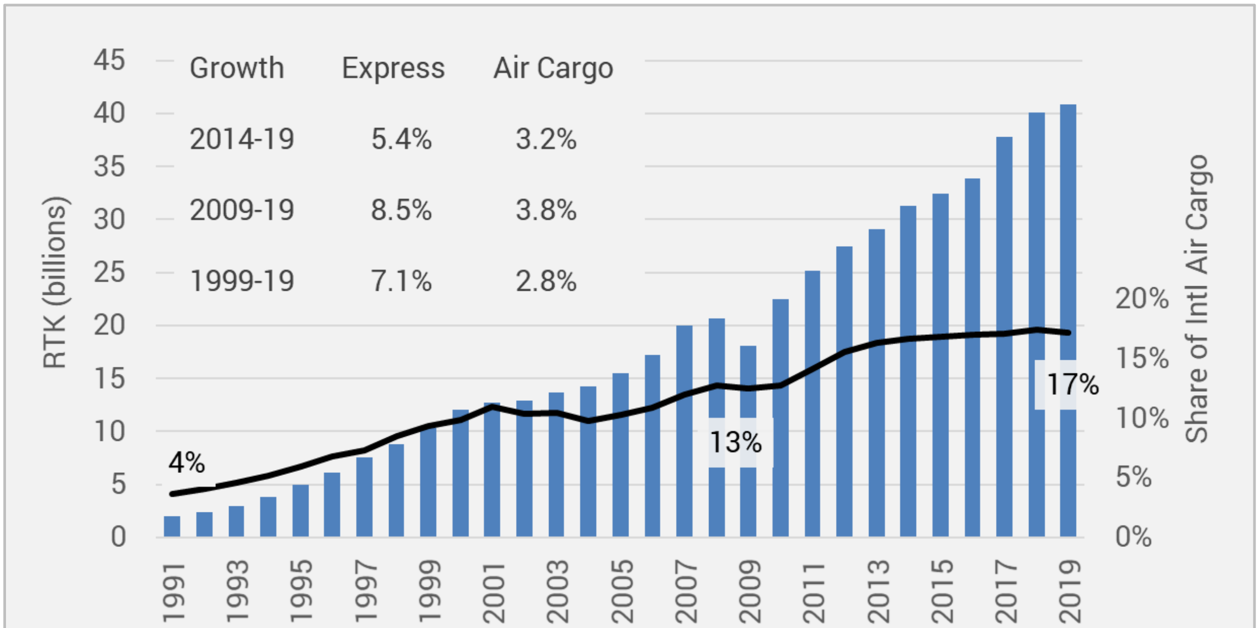
Source: Cargo Facts Consulting, Analysis of Express Operator and other statistical data

Note that we have chosen to exclude other domestic markets such as Australia, Canada, Japan, and some domestic and intra Latin American markets, among others, even though they are an important source of air express revenue and drive the demand for aircraft capacity. We will publish some additional analysis on these markets throughout the year which subscribers will have access to via our Insights platform.

3.1 International Express

Global air express traffic has consistently outpaced the growth of general cargo traffic, but we have witnessed a deceleration of growth rates. Growth over the last 5 years has been 5.4% 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).

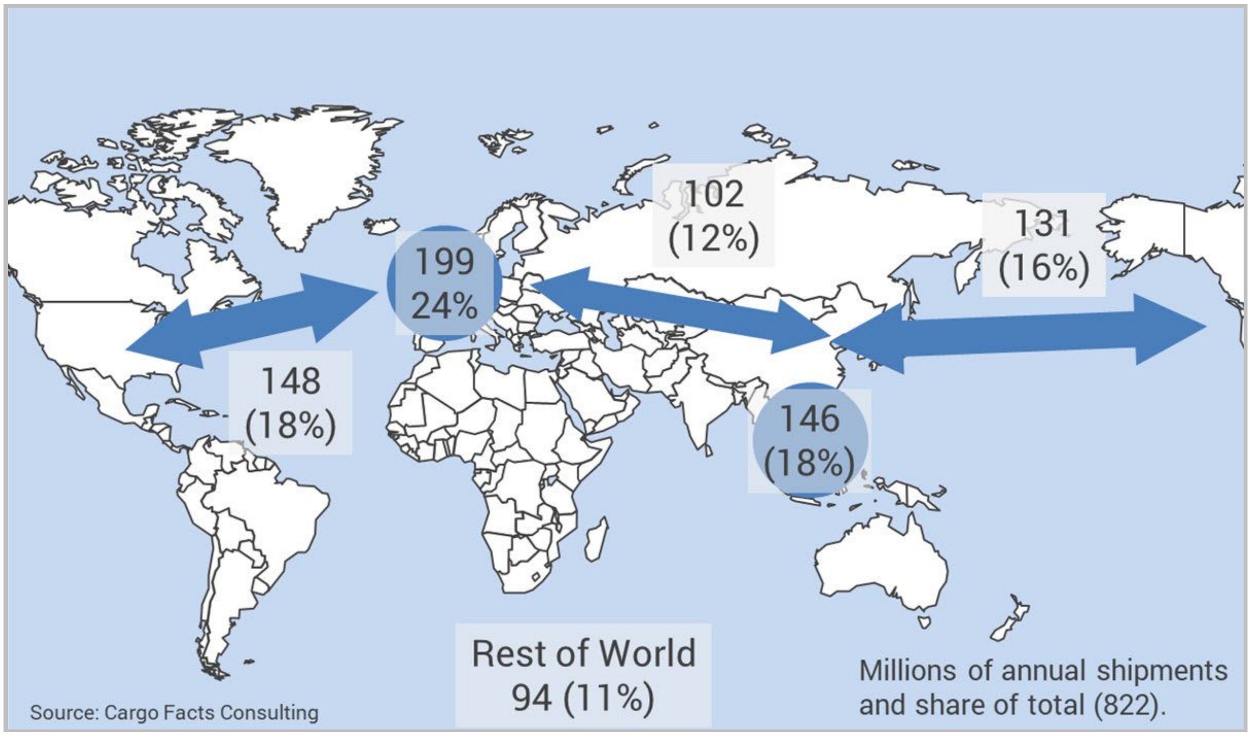
Figure 6 – International Air Express Traffic Growth 1991 - 2019



Source: Boeing WACF, Cargo Facts Consulting

Just under 90% of cross border air express traffic takes place in 5 intercontinental and intra- regional markets. Intra Europe is the largest regional market. In terms of shipment volumes, Intra-Asia, Transpacific and Transatlantic are roughly the same size, each accounting for between 16-18% 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.

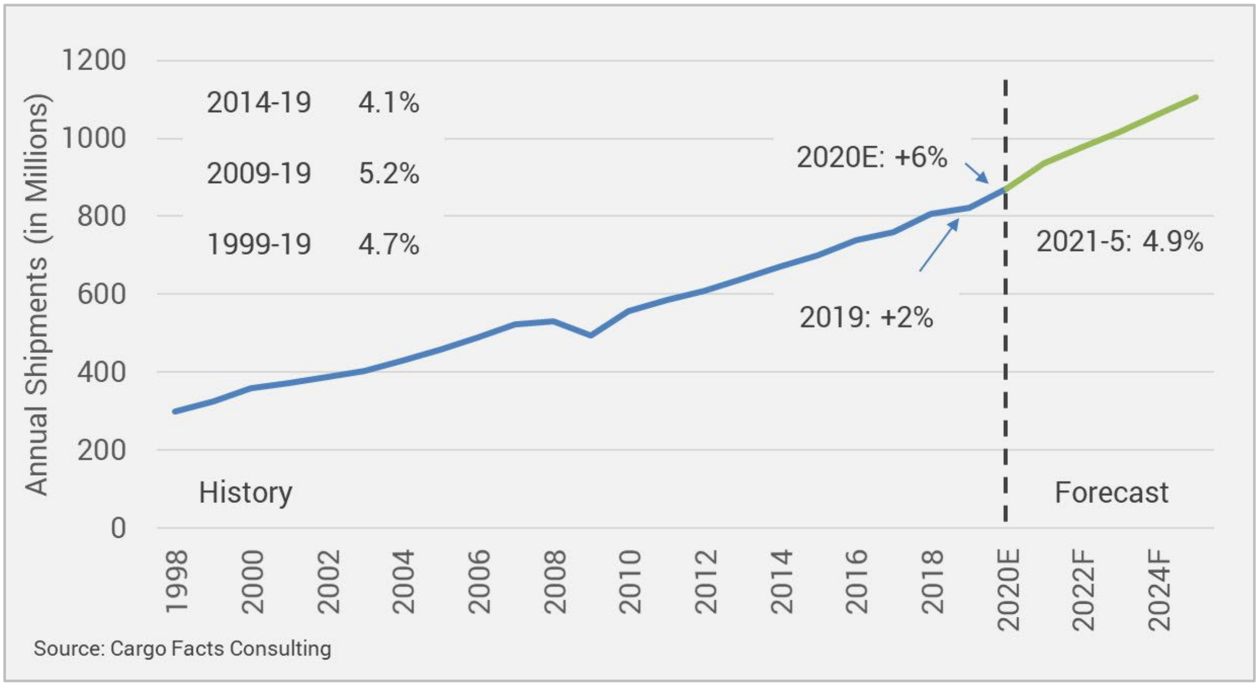
Figure 7 – The Main International Express Markets in 2019



In this year's report, we have revised our historical series for international express shipments, which has impacted both historical growth rates and overall shipment counts. Based on this, shipments have grown on average by just over 4% per year for the last five years and 5.2% over the last 10 years (see Figure 8).

This is somewhat lower than international air express traffic growth rates shown in Figure 6. At around 2%, 2019 growth was lower than the 3% we were expecting around the same time last year, but outperformed overall air cargo traffic, which declined by 3.3%. For 2020, we expect to see an acceleration of growth due to pandemic related surges in demand and between 2021 and 2025 we forecast average shipment growth rates of 4.9% per year.

Figure 8 – International Express Shipment Growth and Forecast 1998 - 2025

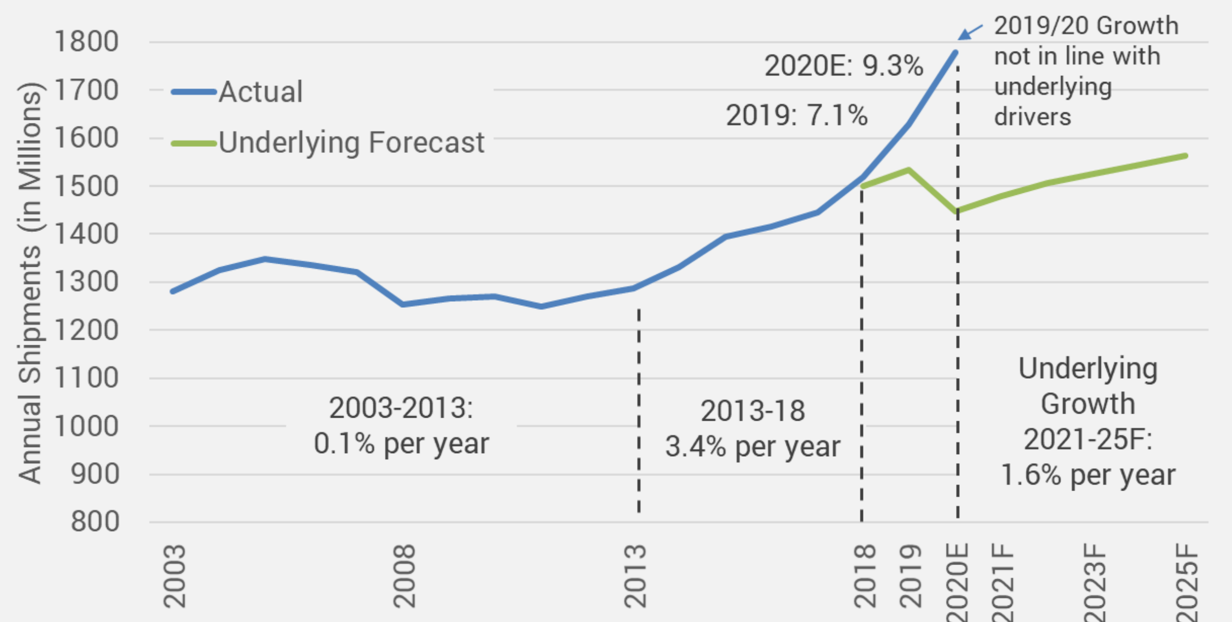


3.2 Domestic US

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).

In the following five years growth picked up to about 3.4% per year as more business to consumer traffic started moving through domestic express networks. In 2019, growth accelerated to 7.1%, driven to large part by Amazon's upgraded prime product offering. 2020 is likely to be even higher, partly due to a continuation of this trend and party due to pandemic surge in business to consumer traffic. This growth is in addition to volumes moved by Amazon through their own dedicated air network, which will encompass more than 80 aircraft by the end of next year.

Figure 9 – US Domestic Express Shipment Growth and Forecast 2003 - 2025

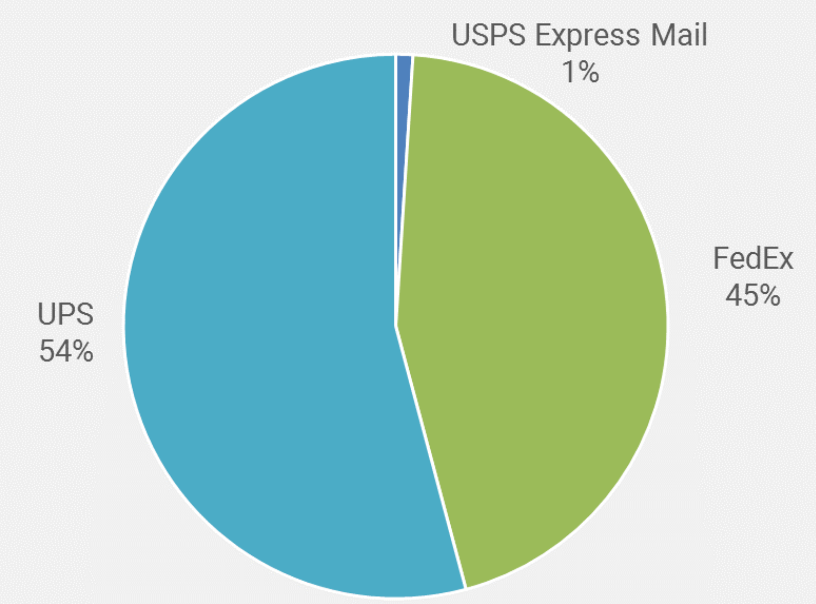


Source: Cargo Facts Consulting

However, the growth rates we have been experiencing in the express business are not in line with underlying express market drivers. Much of this growth could be lost as Amazon continues to insource volumes and other platforms focus on own controlled networks to fulfill their deliveries. The forecast line in Figure 9 shows our expectation of what the market would look like between 2018 and 2025 if the normal statistical relationships between economic development and express would continue to apply. We think there is a great risk that the addressable market for FedEx and particularly UPS could contract compared to current levels.

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



Source: Cargo Facts Consulting analysis of company financial data

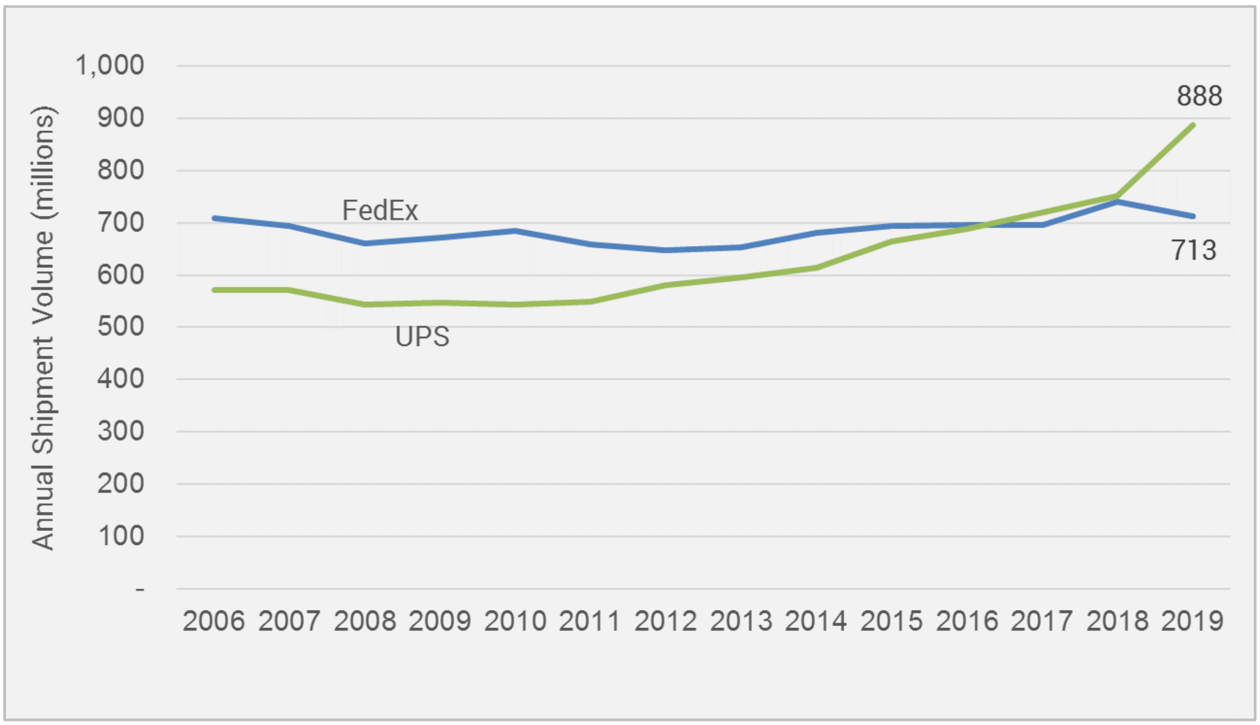
Currently (in 2019) the size of the Domestic US Air Express market is about 1.63 billion shipments per year, or on average 6.5 million shipments per day.

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; it handled around 73,000 more per day in 2018 and this figure grew to 703,000 more daily shipments in 2019.

Figure 11 – FedEx and UPS Domestic Air Express Shipments 2006-2019

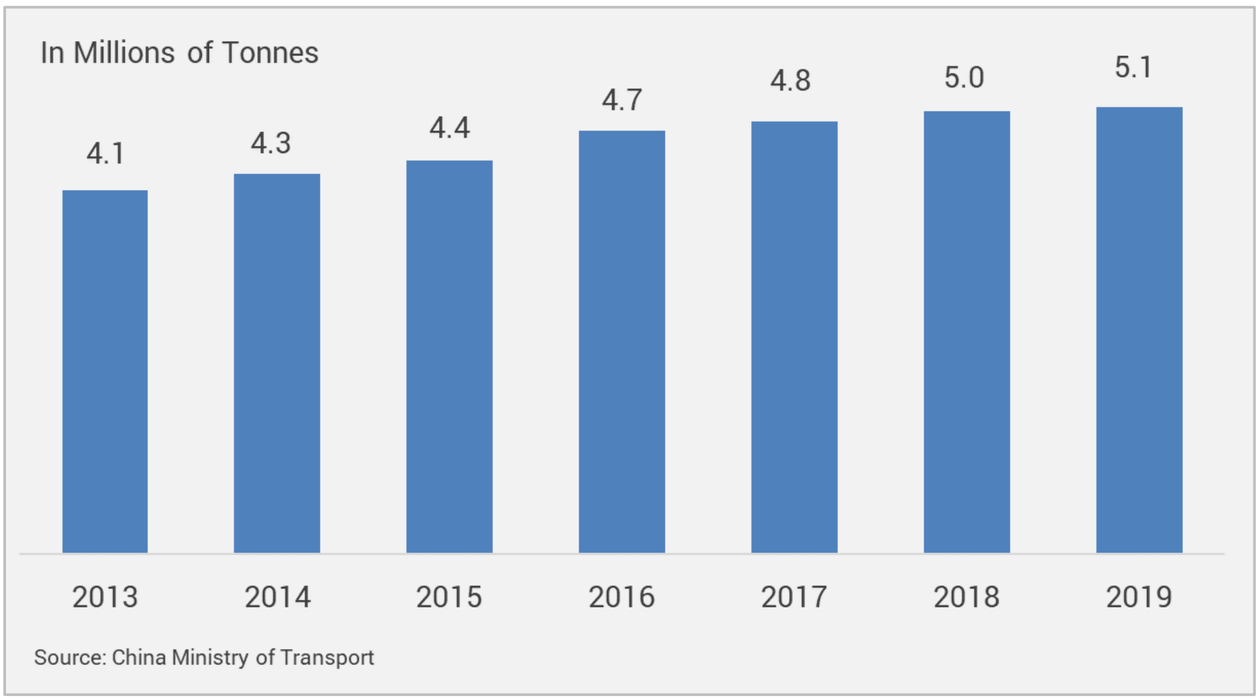


There are some combination carriers that work in conjunction with freight forwarders to serve the US Domestic air freight industry by offering belly space on passenger flights. However, with the exception of Alaska Airlines, the rest do not operate freighters and there is not a regular use of widebody 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. Over 90% of US domestic freight traffic is carried by FedEx and UPS.

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 rather than air networks. Average annual domestic air cargo tonnage growth between 2014 and 2019 has been 3.5% per year and currently stands at approximately 5.1 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 cargo and mail transportation is about 24.8% (compared to 20% in 2018). Our own calculations reconcile with this figure.

Figure 12 – Chinese Domestic Air Freight Tonnage 2013 - 2019

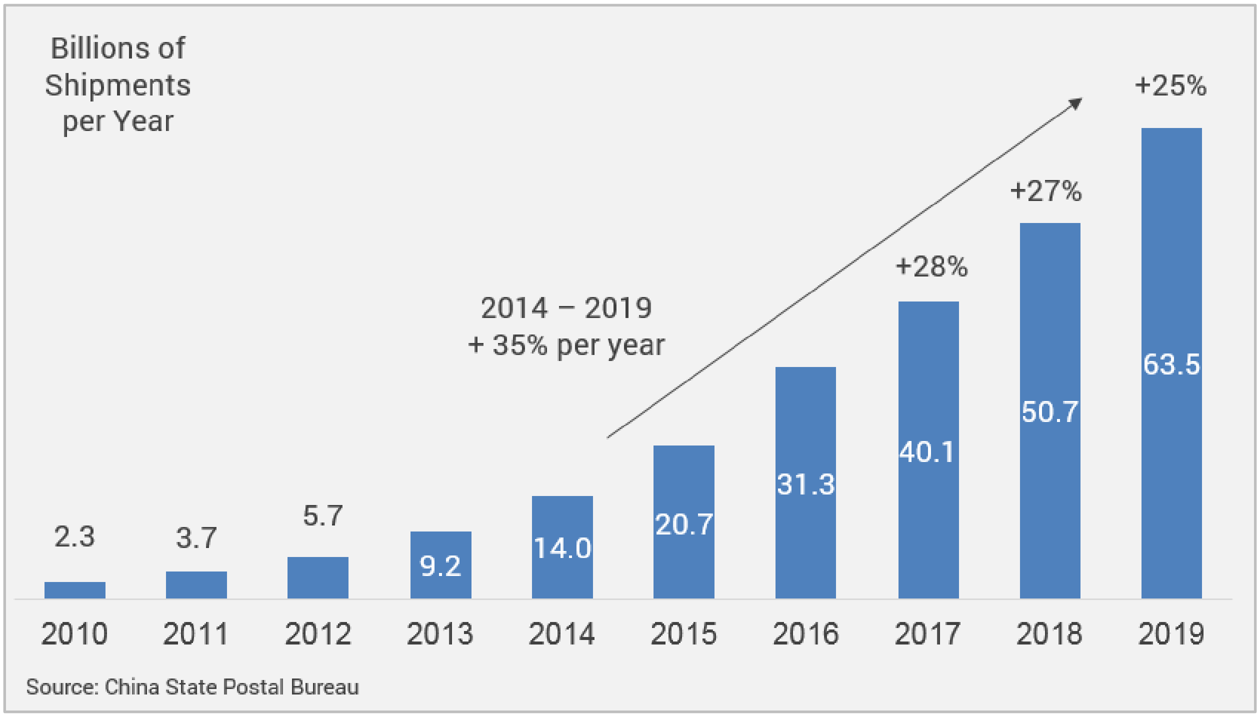


By comparison express traffic growth has been in the order of 35% per year over the last five years. Figure 13 provides an overview of Chinese domestic express shipment volumes between 2010 and 2019, according to the China Postal Bureau. Based on this information, the total market size in 2019 was 63.5 billion shipments. Growth in the last three years decelerated to a "modest" 25-28%.

Based on company reports, we estimate that the air express share of this traffic has dropped within the last year from 3% to about 2-6% of total shipments. This represents a market size in 2019 of about 1.655

billion shipments, with 870 million carried by SF Express, and an estimated 525 million by China Postal Airlines, 170 million by YTO, and 60 million by Yunda Express.

Figure 13 – Chinese Domestic Express Shipments 2010 – 2019



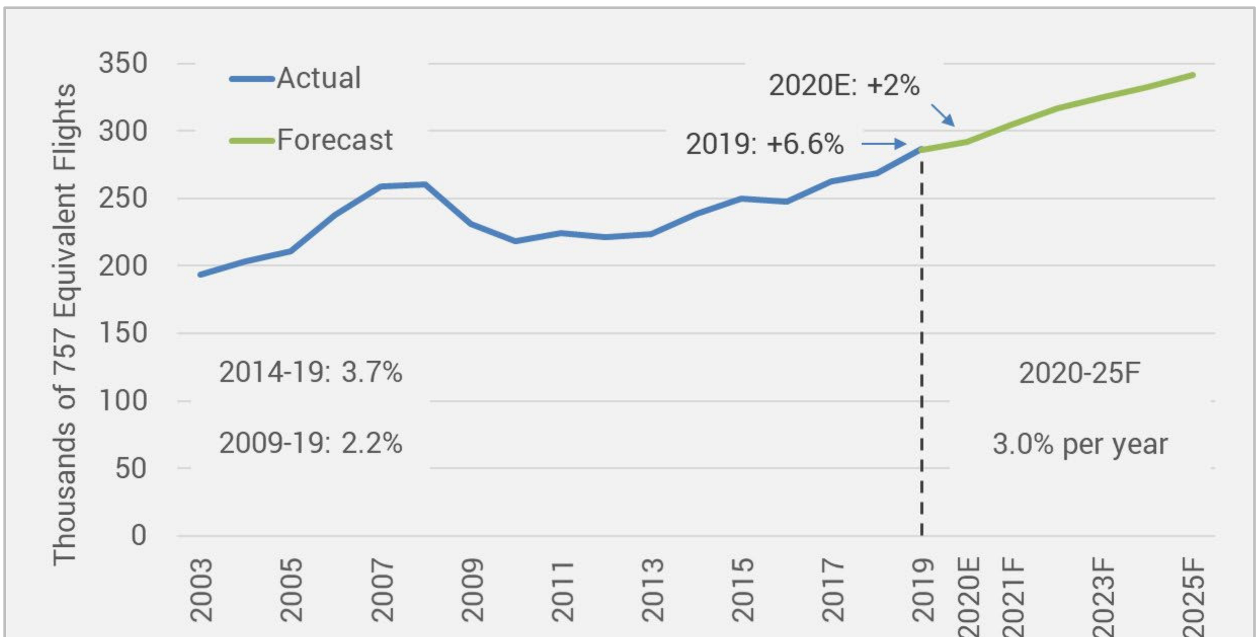
Currently there is insufficient air express shipment data available to produce a reliable forecast of Chinese domestic air express shipment or weight. The existing SF express fleet growth plans through 2022 would imply air express shipment growth expectations of approximately 10% per year for the next two to three years. In 2019 SF achieved 8.8% growth. 2020 figures are likely to be higher due to a pandemic related surge in demand. The best way to understand the Chinese domestic market is through the lens of SF Express, which provides the highest level of granularity on its operations, while the other Chinese express operators provide very little quantitative information.

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, but their use of air capacity is limited. 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.

Intra-European freighter aircraft traffic (measured in 757 equivalents) has grown by 3.7% per year over the last five years (see Figure 14. Most intra-European flights are to support the express industry and as such flight numbers are a good proxy for what is happening in the air express market, although Amazon has and continues to increase its own dedicated air footprint in Europe.

Figure 14 – Intra European Cargo Flights 2003 - 2025



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

2019 flight activity increased by about 6.6% and for 2020 we expect growth of around 2%. Between 2020 and 2025 we forecast an increase of approximately 3% per year. This This is growth is driven by both intra – European as well as intercontinental traffic for onward distribution in intra-European networks.

Most European Express traffic moves through six hubs: East Midlands (DHL, UPS, FedEx), Cologne (UPS, DHL and FedEx), Paris (FedEx), Brussels (DHL), Liege (FedEx) and Leipzig (DHL). These six hubs generate about 2,300 outbound flights and 20,000 tonnes of traffic per week (about 1 million tonnes per year).

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) and East Midlands have both been showing an upward trend, particularly in 2020.

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 the never-ending Brexit saga. 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 expiry of the existing transition arrangements at the end of this year, 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

According to World Bank data and IMF projections, India's GDP is expected to reach 3.02 trillion in 2020, about 4% of the global GDP. India is currently one of the fastest growing retail markets with the potential to reach an estimated Gross Merchandise Value (GMV) of $120 billion in the next five years according to a recent study by PWC. A growing middle class, the expansion of Internet penetration and smartphone use are fueling the development of the e-retail sector in the country.

Online platforms are on the rise since there the upfront capital required cannot be compared to setting up an asset-based business. The logistics industry in India is also growing fast with continuous infrastructure and technology improvements supported by government reforms. Increasing foreign investments and trade indicate a promising outlook for the Indian logistics sector even though the businesses in this area are rapidly evolving, facing new challenges and increasing competition. We have decided to include India in this study because of the growing potential of its e-commerce market and express operations development.

COVID-19 has forced physical shops to shut down for months and reopen under strict conditions in India. The lockdown periods have caused a sudden expansion of e-commerce activity with more consumers moving away from physical shops and shopping online more frequently. According to a recent survey by Bain & Company, there was a surge in online shopping in the second quarter of 2020 with 13% of respondents buying online for the first time. Electronics, appliances and health products saw the biggest rise over the lockdown period. Walmart has stated that Flipkart's GMV has exceeded pre-COVID levels, with 45% growth in active consumers and 30% growth in online transactions.

On the air freight front, India's performance has 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. However, its profit margins have shown signs of weakness in the last two years, recording a profit decline of -15% in the latest fiscal year (ended March 2020). Blue Dart is India's largest and only express delivery company with a supporting air network (See chapter 4.4, Page 43). At an estimated 30 million air shipments per year, the Indian domestic Air Express Market is only 1.8% the size of the Chinese domestic and 14% 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 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, and UPS 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, including jd.com’s inhouse logistics arm. 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).

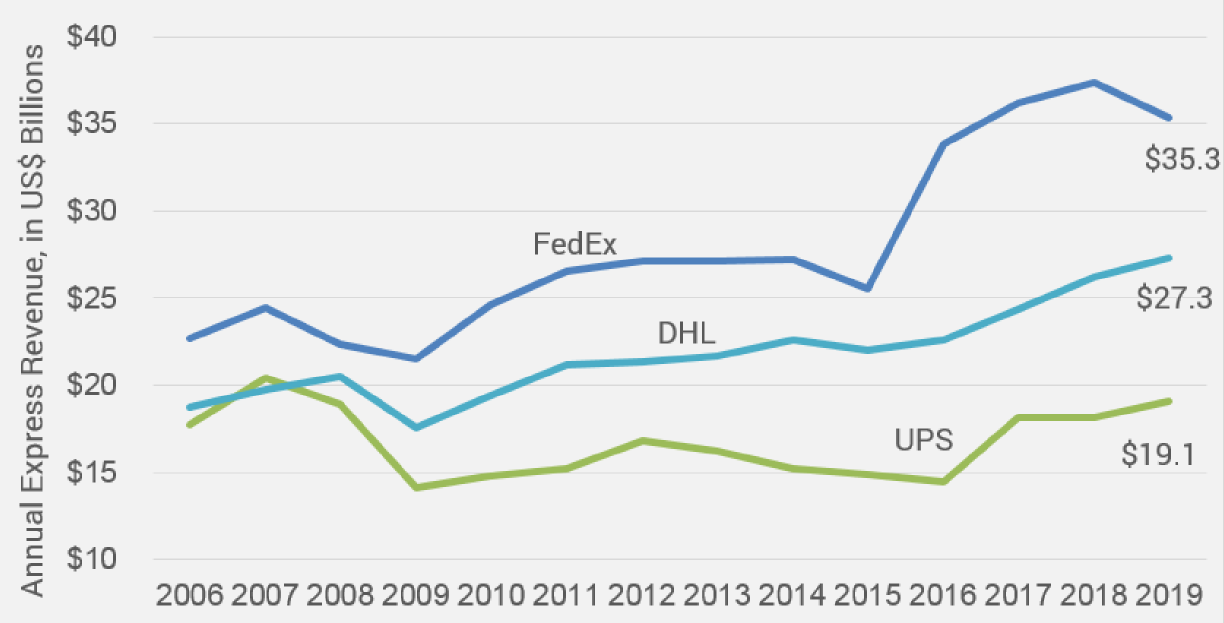
This section focuses on five companies: DHL, FedEx, UPS, SF Express, Aramex and Blue Dart. All of these report regular financial results and operating statistics, albeit of varying granularity and usefulness. We have prepared a profile of China Postal Airlines (see Table 6, Page 87) but due to lack of 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 2019, but we have included a chapter that discusses recent developments in 2020. 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 - 4.8) 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 $16 billion company, while Aramex generated revenues of approximately $1.4 billion. Blue Dart generated revenues of $421 million in the last financial year. Figure 15 shows an overview of the express revenues generated by each of the three big integrators.

Figure 15 – Top Three Integrators Express Revenue 2006-2019

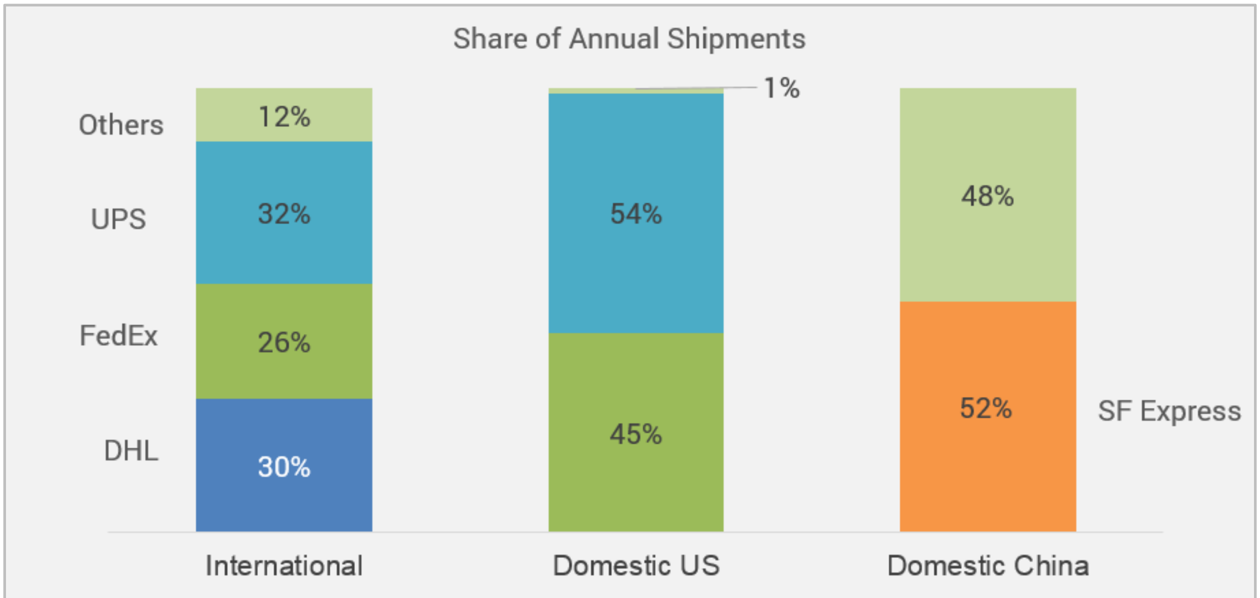


Source: Cargo Facts Consulting analysis of company financial data

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 15) but dropped in 2019.

The three big global integrators account for 90% of international air express shipments, with UPS and DHL together accounting for approximately 65% (see Figure 16). 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 16 – International, Domestic US, and Domestic China Air Express Market Shares 2019



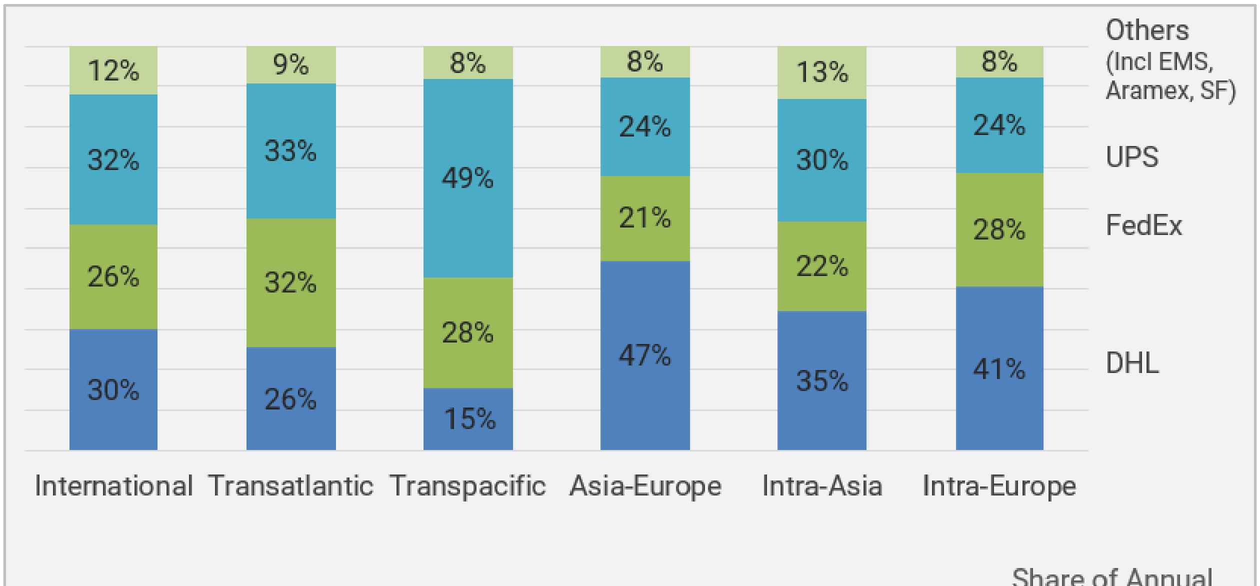
Source: Cargo Facts Consulting estimates based on company data, traffic and capacity data

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 10% higher than FedEx's combined international express yield (see also Figure 18).

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 17 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 69) 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 17 – International Express Shipment Shares by Geographical Market 2019

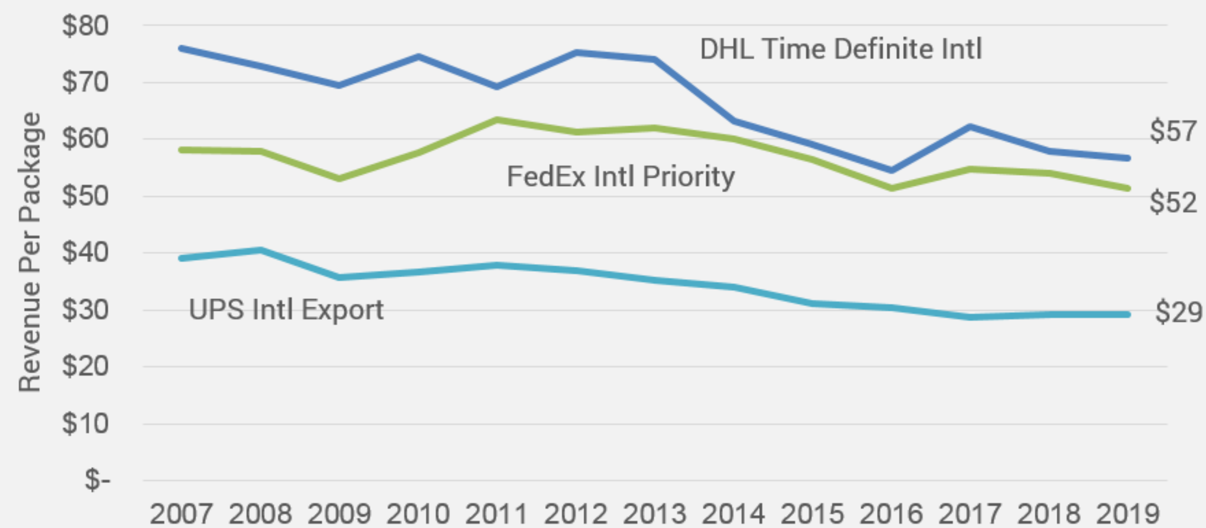


Source: Cargo Facts Consulting estimates based on company data, traffic and capacity data

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 18). This analysis includes the main international cross border products of each of the integrators.

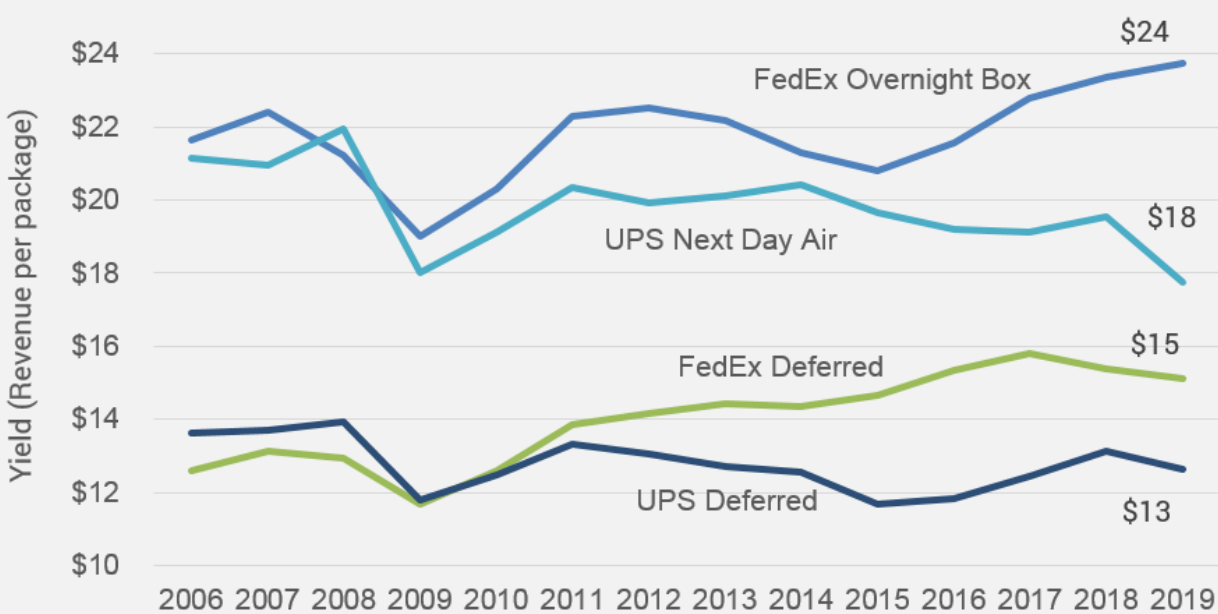
While there has been a degree of consistency with regard to international per package yields, FedEx and UPS have developed differently (see Figure 19). Since 2015 FedEx' premium product yields have been growing while UPS has seen a decline. Deferred product yields have also been following an upward trend for Fedex and a downward trend for UPS. While in the mid to late 2000s FedEx and UPS generated similar yield levels, since 2010 FedEx has consistently achieved higher package yields to UPS. Much of the recent drop in UPS next day yields is a consequence of its high exposure to Amazon (11.5% of its global revenue in 2019.

Figure 18 – DHL, FedEx, and UPS International Air Express Package Yields 2007-2019



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

Figure 19 – FedEx and UPS US Domestic Package Yield by Product 2006-2019

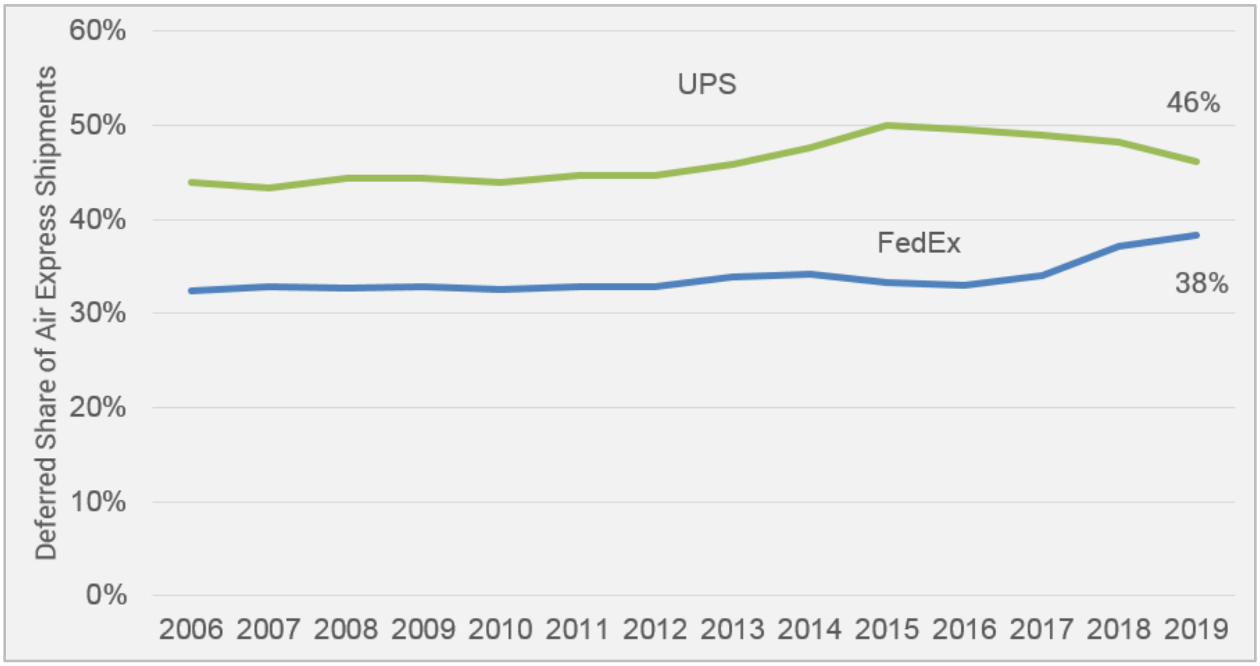


Source: Cargo Facts Consulting analysis of financial data, FedEx figures refer to financial year ending the following May

The increase of B2C traffic also implies more residential deliveries and lower-priced deferred services. The deferred share today is indeed higher today than it was 10 years ago (see Figure 20) and with UPS' higher

B2C share compared to FedEx the percentage of deferred services is also higher. UPS most recent years results show an Amazon effect – the switch from two day to one day prime shipping led to a reduction in the deferred share of shipments while the loss of the Amazon contract led to an increase for FedEx.

Figure 20 – UPS and FedEx Deferred Share of US Domestic Shipments 2006 - 2019

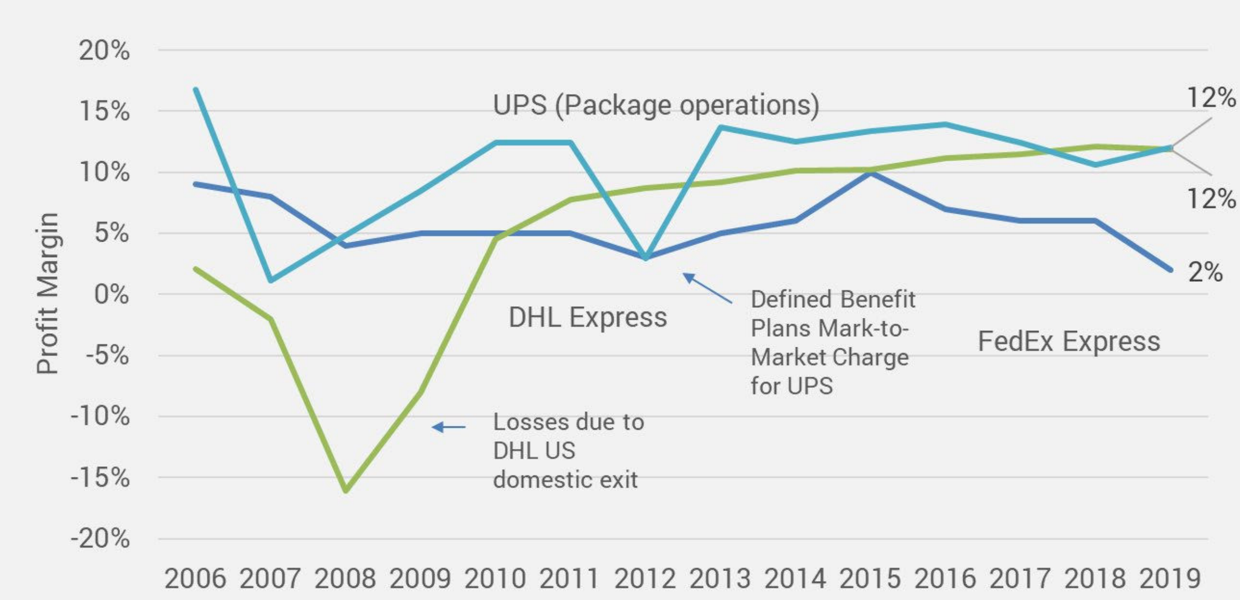


In terms of margins, DHL Express has outperformed both FedEx and UPS, although the latter does not report separate results related to its Express business (see Figure 21). Following the exit from the US, DHL Express has recovered, and its profit margins have shown a steady upward trend.

FedEx and UPS have shown no clear long term upward or downward trend, but in recent years there has been pressure on margins. Higher yields and a drop in the share of deferred products have not led to higher margins for FedEx.

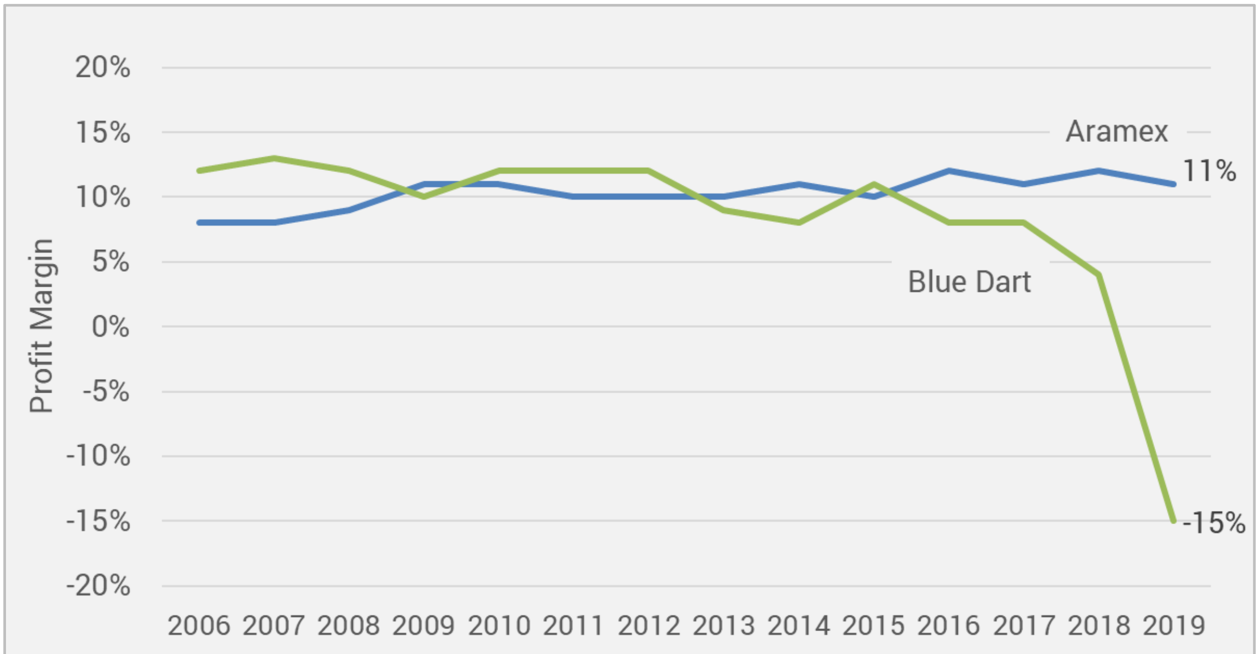
By comparison, Aramex has also shown a steady trend of increasing margins, while Blue Dart has taken a hit in the last years (see Figure 22). SF Express (not shown due to insufficient time series data) generated operating margins of 9% in 2017 and 6.4% in 2018, but improved margins in the first half of 2019.

Figure 21 – DHL, FedEx and UPS Profit (EBIT) Margins 2006-2019



Source: Cargo Facts Consulting analysis of company financials

Figure 22 – Blue Dart and Aramex Profit (EBIT) Margins 2006-2019



Source: Cargo Facts Consulting analysis of company financials

4.2 Pandemic Fueled Growth – Recent Developments in 2020

Looking at the results of the big three global integrators and SF Express, the first nine months of 2020 have seen a continuation of past trend in international and major 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 – 2020 Air Express Yield and Volume Development: DHL, FedEx, UPS, SF Express

Company	International Export Volume	International Export Yield	Domestic Volume	Domestic Yield
DHL (Jan-Jun 2020)	+ 0.9%	+ 3.9% + 1.7% (US$)	- -	- -
FedEx (Dec 2019-Aug 2020)	+ 5.8%	- 5.6%	-0.5%	- 3.7%
UPS (Jan-Jun 2020)	+ 4.4%	- 2.7%	+ 13%	- 7.7%
SF Express (Jan-Aug 2020)	- -	- -	+ 77%	-22%

Source: Cargo Facts Consulting analysis of company financials, UPS domestic volumes exclude Ground

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), domestic yields have dropped – particularly for UPS. FedEx and UPS have seen their international yields reduced in 2020, a trend that we had observed for the past years as the operators see pressure in their International Express segments due to more competitive pricing and a shift to lower yield services. Cargo Facts Consulting believes that express revenues will keep increasing in 2020, primarily associated with higher international volumes but we expect operating income to start declining due to the global economic weakness, demand uncertainty as a result of the pandemic.

Express operators have adjusted their network planning and schedule to maximize capacity and utilization on a daily basis during the pandemic. For instance, FedEx flew all 250 scheduled weekly flights in and out of China in early March while belly capacity was highly constrained, and they flew over 500 additional flights between April and June on top of their schedule. UPS flew 335 additional flights above normal schedule.

All express operators saw an increase in demand that emerged from the pandemic, including a rise in healthcare shipments, residential volume and strong outbound demand from Asia. The unprecedented surge in demand has reached the peak holiday season traffic levels and the global integrators have incurred costs associated with this sudden demand, leading to lower composite yields than their typical volume. This shift in mix impacted operating margins and results. It is hard to predict the severity and impact on the annual 2020 financial results, but FedEx and DHL have started to see signs of improvement in commercial activity.

Integrators have incurred additional increased operating expenses associated to medical supplies, personal protective equipment, security enhancements and cleaning activities with the goal of protecting employees and customers. The big three have taken some actions to strengthen their financial position including the implementation of temporary surcharges on domestic and international packages and the reduction of capital expenditures in 2021 such as the delay of fleet upgrades and technology implementation programs.

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 almost 16,000 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 has partnered with Amazon Web Services (AWS) to expand its technology footprint

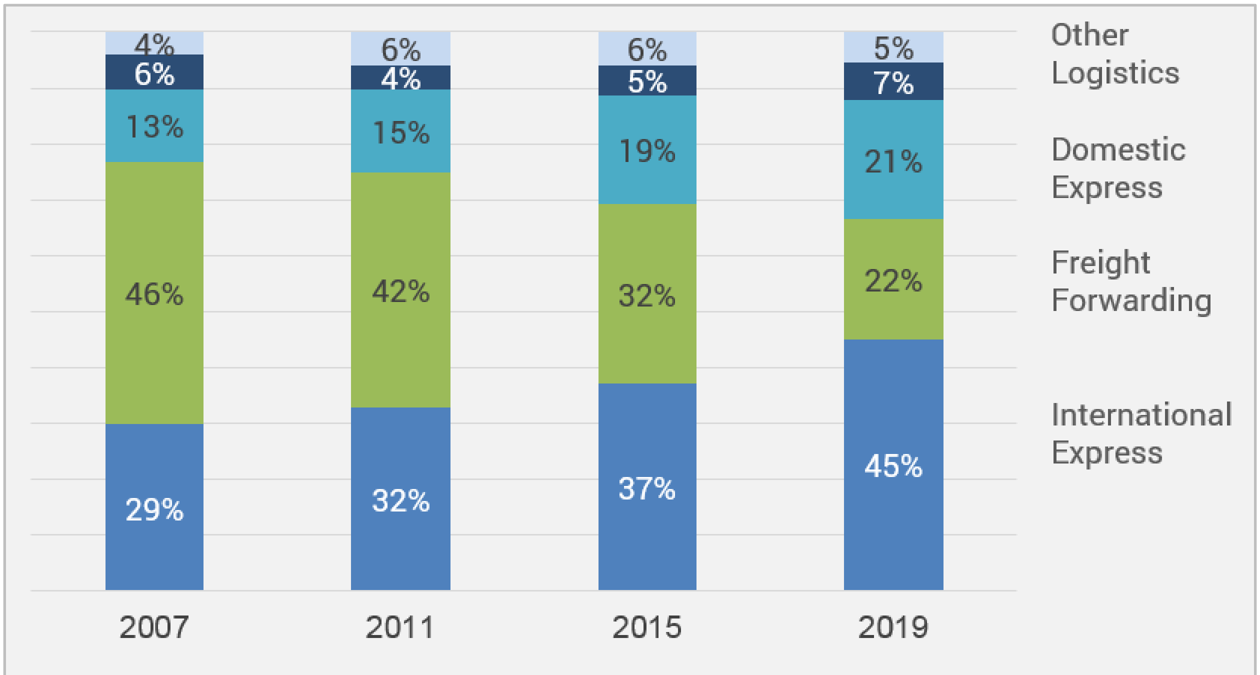
Aramex posted a net profit of AED 497 million (US$135 million) in 2019, an increase of 1% year-over-year while revenue was up by 3% to AED 5,246 million (US$1,428) recording the highest figure to date but with a much lower growth than in the previous year. Aramex margins have been heavily impacted by the pressure on e-commerce pricing and competition.

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 latter three segments accounted for 5% of Aramex revenue distribution by segment as shown in Figure 23. Aramex International Express Services continues to be the company's core product, with a revenue share of 45% in 2019. This segment grew in 2019 by 3% to AED 2,349 million (US$640 million) fueled by growth and expansion in Singapore, Saudi Arabia, the UK and the US. 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.

In terms of the domestic express, the revenue in this segment grew by 5% to AED 1,108 million (US$ 302 million) with strong contribution from the rise in e-commerce in Australia and the GCC region. However, revenue was impacted by foreign currency fluctuations and the restructuring of operations in India.

Figure 23 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 2007 but its dependency on this division has been offset by the growth in the Domestic and International Express sectors. 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 23 – Aramex: Revenues by Business Segment 2006-2019

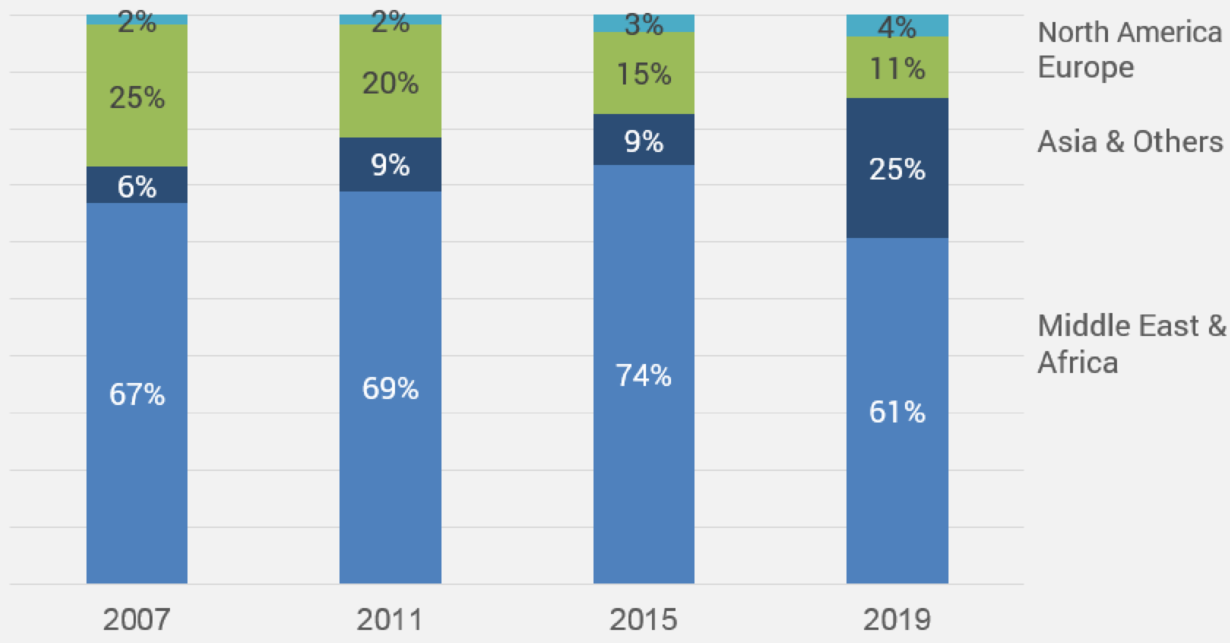


Source: Cargo Facts Consulting analysis of company financial data

Figure 24 shows the company's revenue share by region, with its core market accounting for 61% of the total revenue in 2019. The North American and Asian regions have experienced the highest growth in the last decade with Europe's share decreasing from 25% in 2007 to 11% in 2019. The North American region still represents a small 3% share of the total revenue.

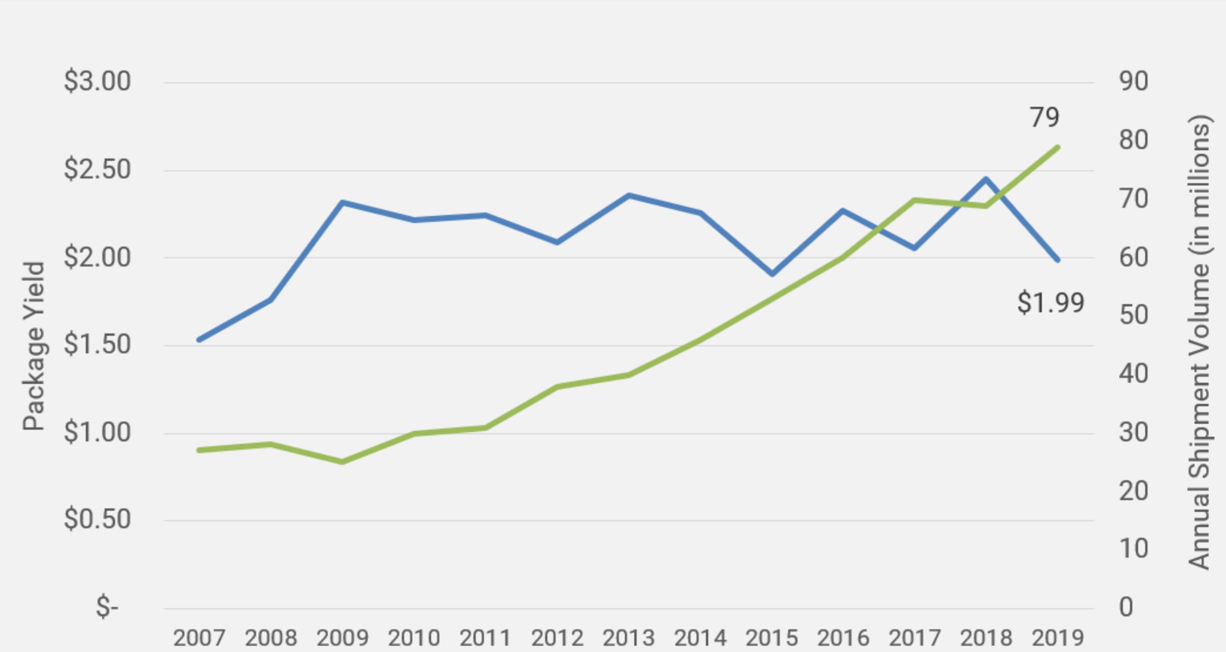
Aramex delivered a total of 79 million shipments in 2019, an increase of 15% from the same period in 2018. Figure 25 shows the revenue per shipment development from 2007 to 2019. In 2019, this figure was AED 7.31 (US$1.99), a decrease of 18% year-over-year. However, the chart demonstrates an unsteady trend with ups and downs especially in the last five years. Additionally, **Error! Reference source not found.** shows Aramex shipment volumes over time.

Figure 24 – Aramex: Revenues by Region 2006 – 2019



Source: Cargo Facts Consulting analysis of company financial data

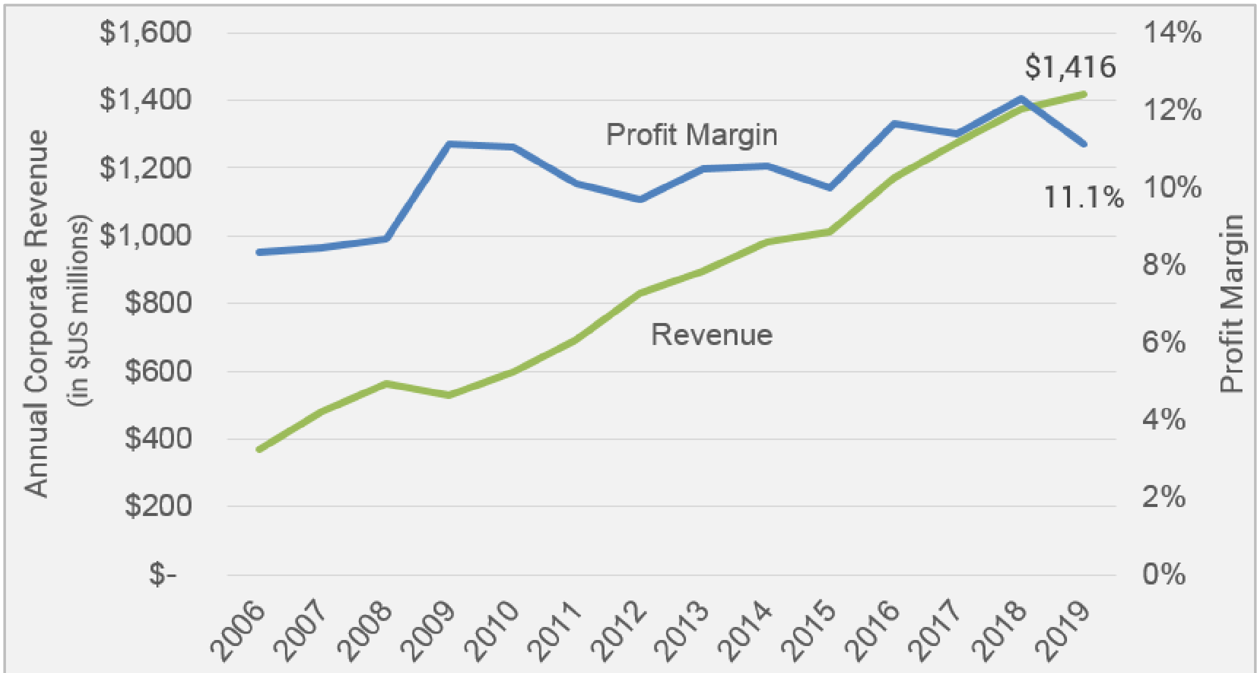
Figure 25 – Aramex: Revenue per Shipment and Volume Development 2007-2019



Source: Cargo Facts Consulting analysis of company financial data

Figure 26 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% but 2019 showed a sharp decline and Aramex posted an EBIT margin of 11.1%. The company stated that their margins are being pressed due to the increasing costs in the last mile delivery segment.

Figure 26 – Aramex: Corporate Revenue and EBIT Margin 2006-2019

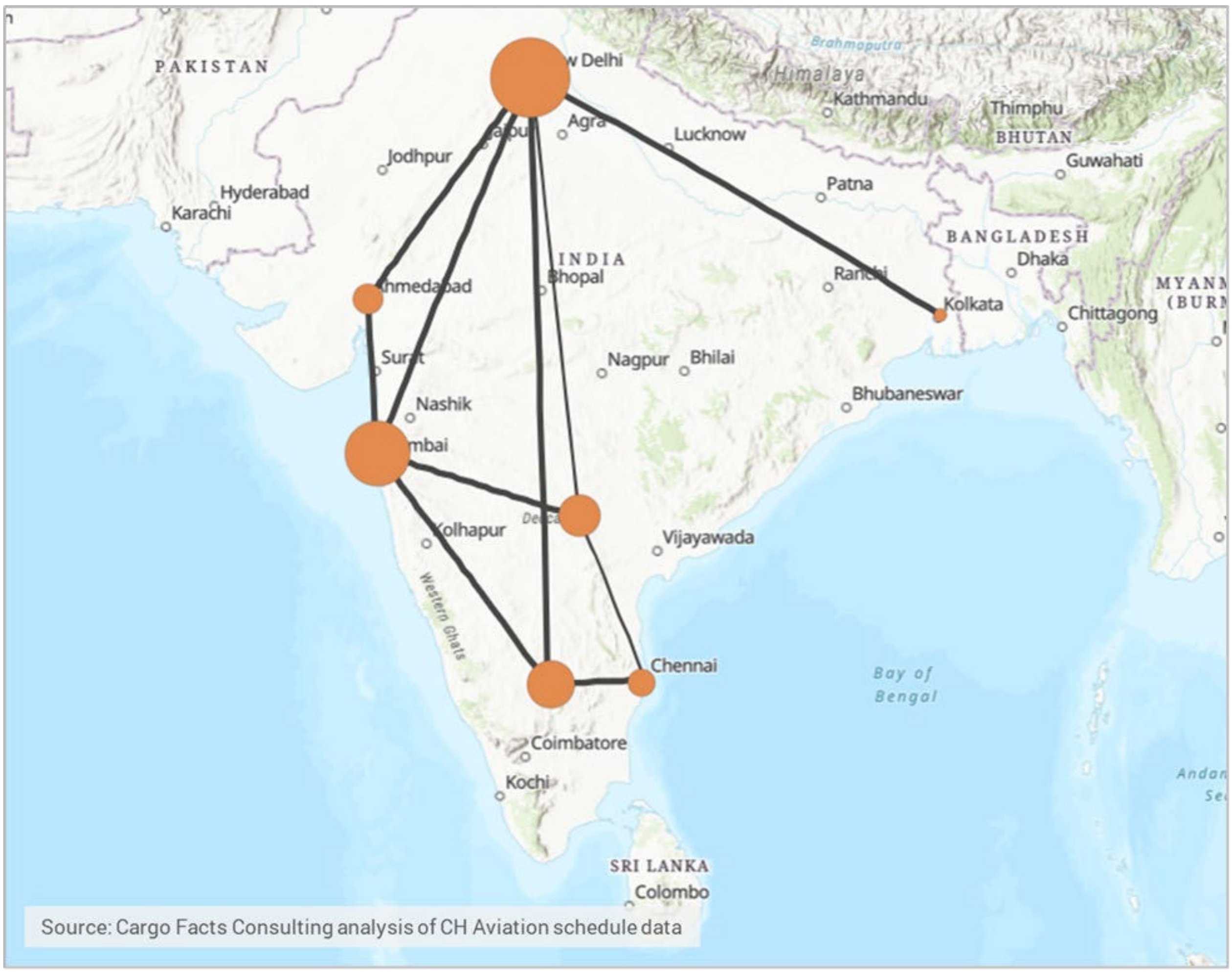


Source: Cargo Facts Consulting analysis of company financial data

4.4 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 75%, effectively making Blue Dart Aviation a subsidiary of DHL Express. The airline currently operates six 757-200Fs with capacity of 500 tonnes per night, serving the seven largest cities in India and flying at night, allowing late cut-off times and on-time early morning deliveries (see Figure 27).

Figure 27 – Blue Dart Air Network, October 2020



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.

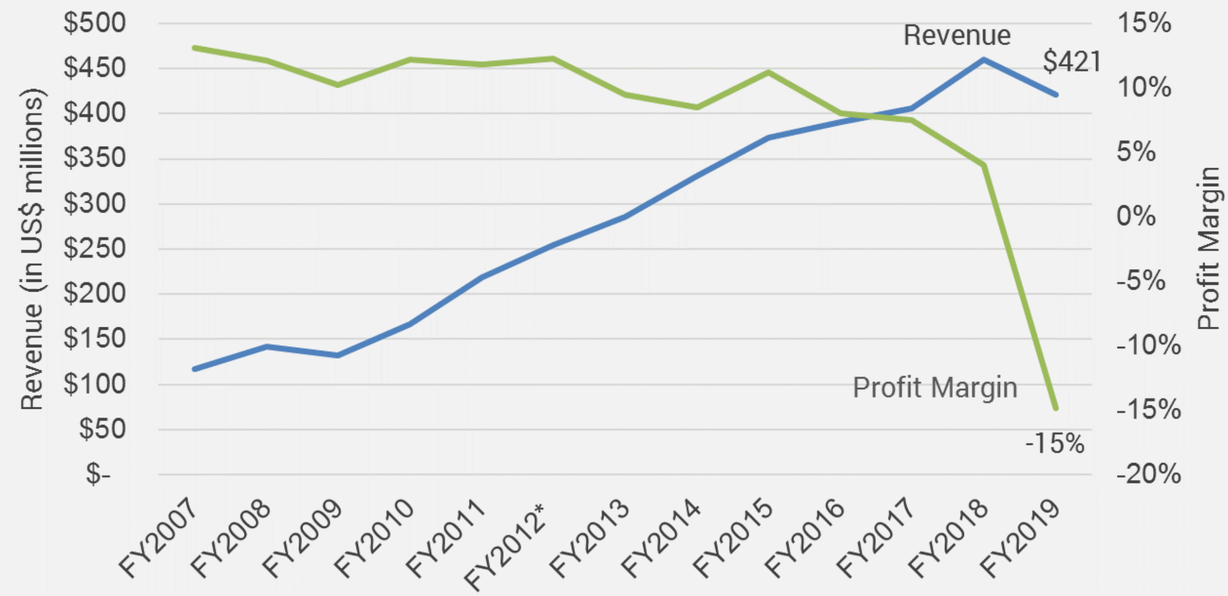
Blue Dart offers air freight, ground and air express, charters and trucking services through its partnerships with DHL Express, DHL eCommerce LLP, DHL Supply Chain and DHL Global Forwarding. This synergy allows Blue Dart to reach 220 countries and territories through its time-definite and day-definite 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). Blue Dart added two new Hubs at Mumbai and Chennai airport in 2019 with the goal of strengthening their air express offer and increase operational efficiency across their network. In the last year, Blue Dart has been investing in numerous IT solutions and upgrades that will help retain its strategic leadership in India.

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 (ended March 31, 2020), Blue Dart revenues reached $421 million (30.9 billion INR), an 8% decline on a year-over-year basis and it posted losses of $62.5 million before tax (4.5 billion INR). This profit decrease was mainly due to a surge in fixed costs, lower revenues and demand and increasing competition in the Indian continent. Cargo Facts Consulting expects that margins fall even further in the current fiscal year due the impact of COVID-19 lockdowns, which has impacted Blue Dart’s revenues and bottom line. Figure 28 summarizes the company’s revenue and profit margin over time.

Blue Dart is primarily a domestic operation. In its most recent financial year, the company moved 247 million domestic shipments but only 923,000 international shipments, and a total weight of 754,900 tonnes. The consolidated shipment count grew by 3 % compared in the 12 months ended March 2020 to the same period in the previous year (see Figure 29), well below the 18% growth rate in FY2018.

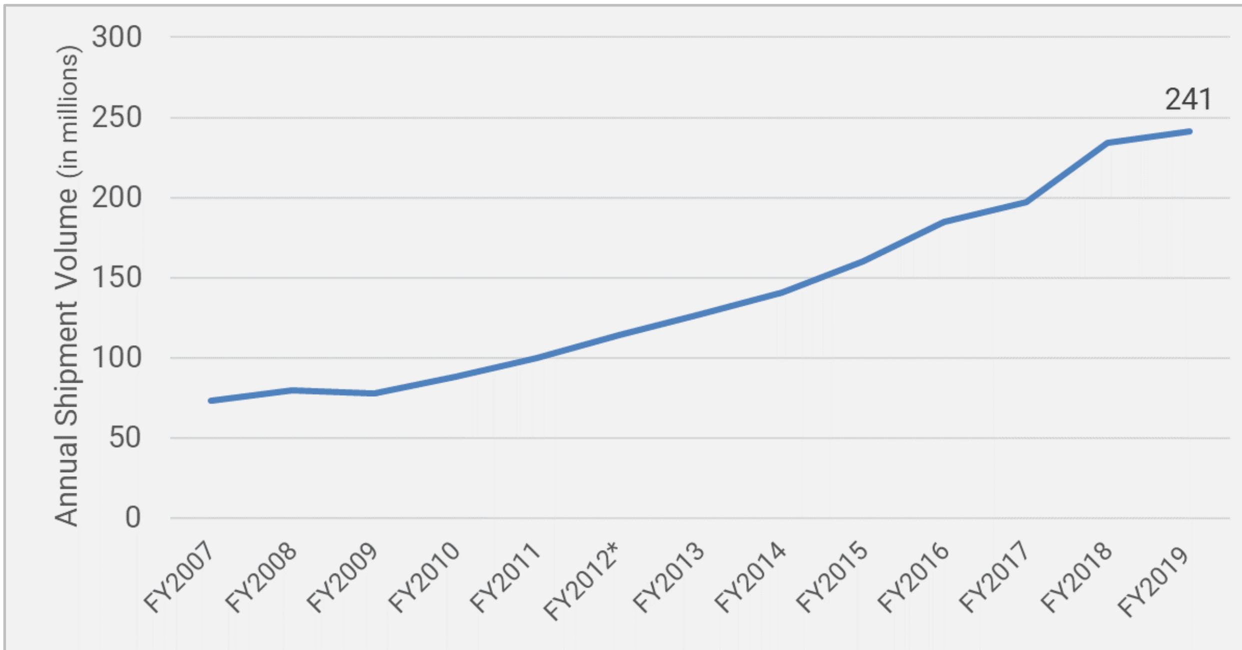
Approximately 12% of Blue Dart’s tonnage moves through its air network, with the remainder using ground transportation. It is worth noting that Blue Dart’s Air network has not changed significantly over the last decade other than a transition from 737 to larger 757 freighter aircraft.

Figure 28 – Blue Dart: Revenue and EBIT Margin FY2006-FY2019



Source: Cargo Facts Consulting analysis of company financial data

Figure 29 – Blue Dart Air and Ground Shipments FY 2007 – FY 2019



Source: Cargo Facts Consulting analysis of company financial data

4.5 DHL Express

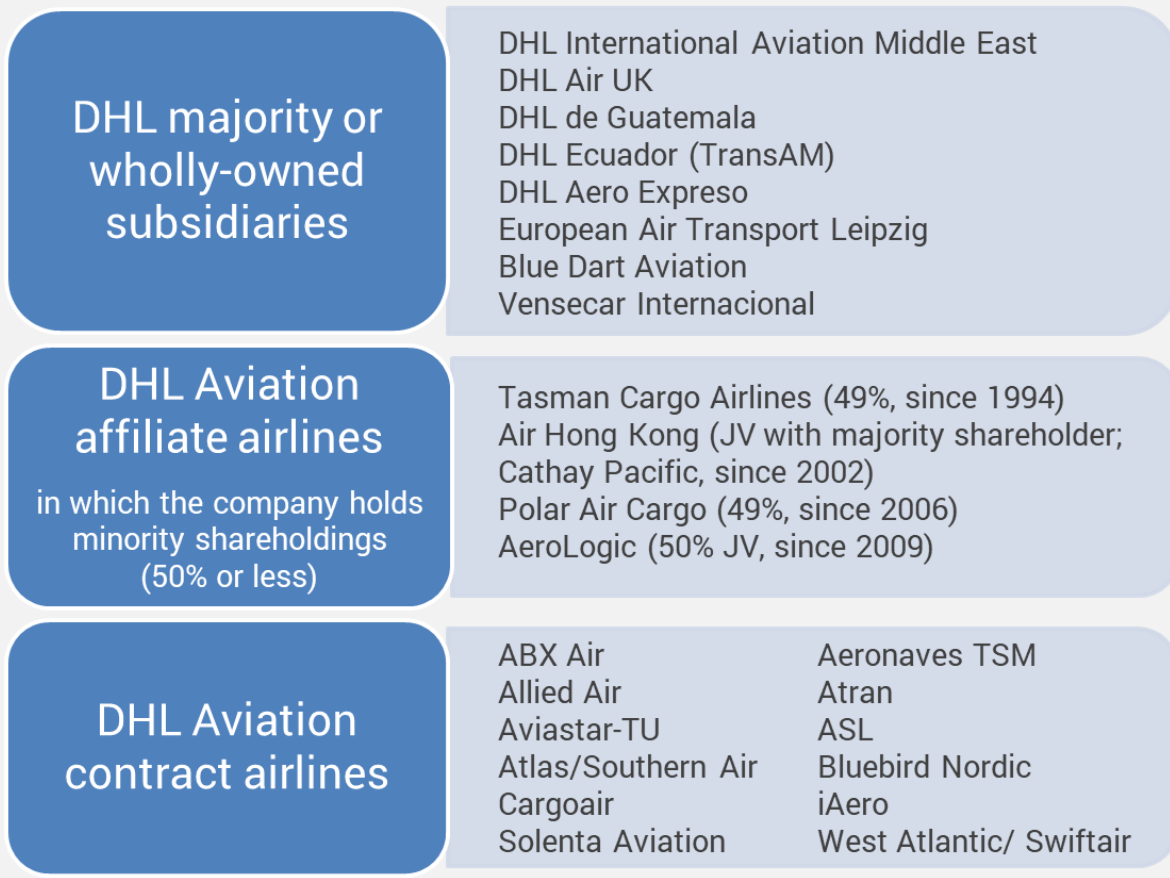
DHL Express is part of Deutsche Post AG, a German-registered corporation with headquarters in Bonn, Germany. Under its Deutsche Post & DHL brands, this group provides a range of international services including parcel distribution, express delivery, supply chain management, freight transport and e-commerce 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 2.7 million customers and employs over 100,000 people. Its fleet of about 240 aircraft makes DHL one of the largest air carriers in the world. DHL has developed a network of airline alliances with 16 owned and partner operators 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 30 provides a current overview of the international scope and scale of DHL Express' operations.

Figure 30 – DHL Express Hubs and Focus Cities

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 31.

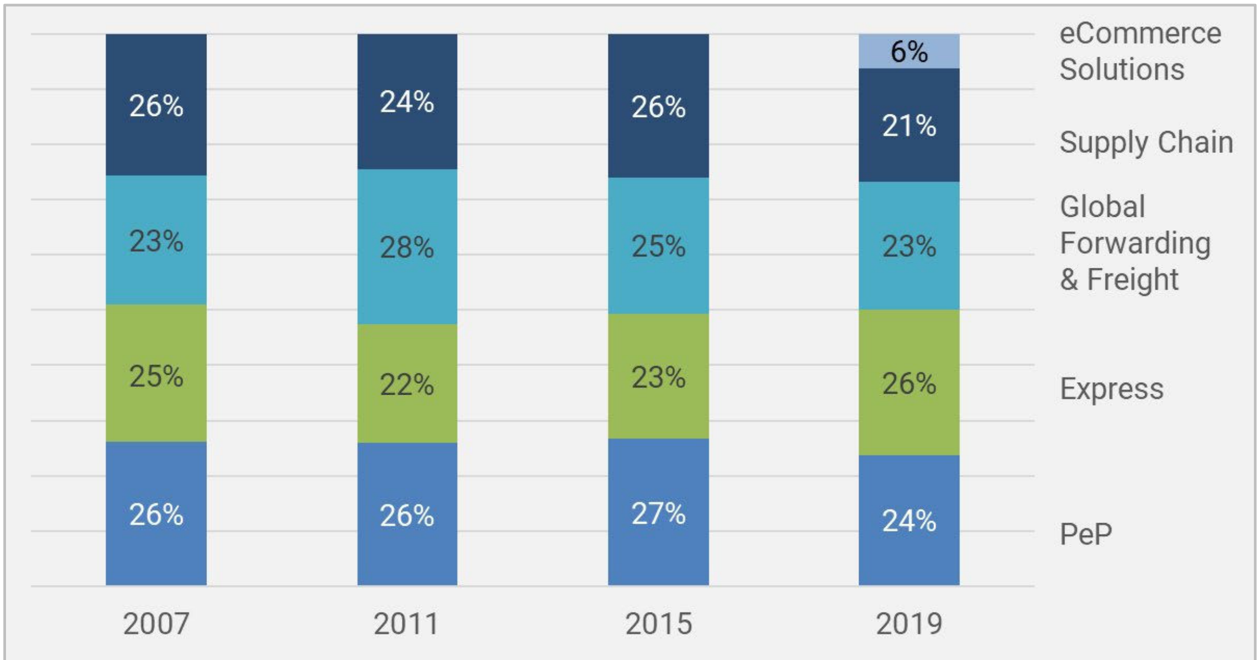
Figure 31 – DHL Express Airline Subsidiaries, Affiliates and Subcontractors



Source: Cargo Facts Consulting Fleet and Operational Data Analysis

The DHL Express division continued its strong performance in 2019 despite the weak economic environment with a 5.9 % increase in revenue for the year to €17,101 million (US$19,175 m) and its operating profit up 4.2% year-over-year to €2,039 million (US$2,286 m). Figure 32 shows DHL's revenue distribution across its four divisions. Historically, the total revenue is almost equally divided between the segments but with a higher share for the PeP (Post - eCommerce – Parcel). In 2019, DHL created a new segment called the new eCommerce Solutions which encompasses all international parcel delivery operations with core activities in Europe, some Asian countries and the US. In the latest fiscal year, this accounted for about 7% of all DHL revenue.

Figure 32 – Deutsche Post DHL Revenue by Segment 2007 - 2019



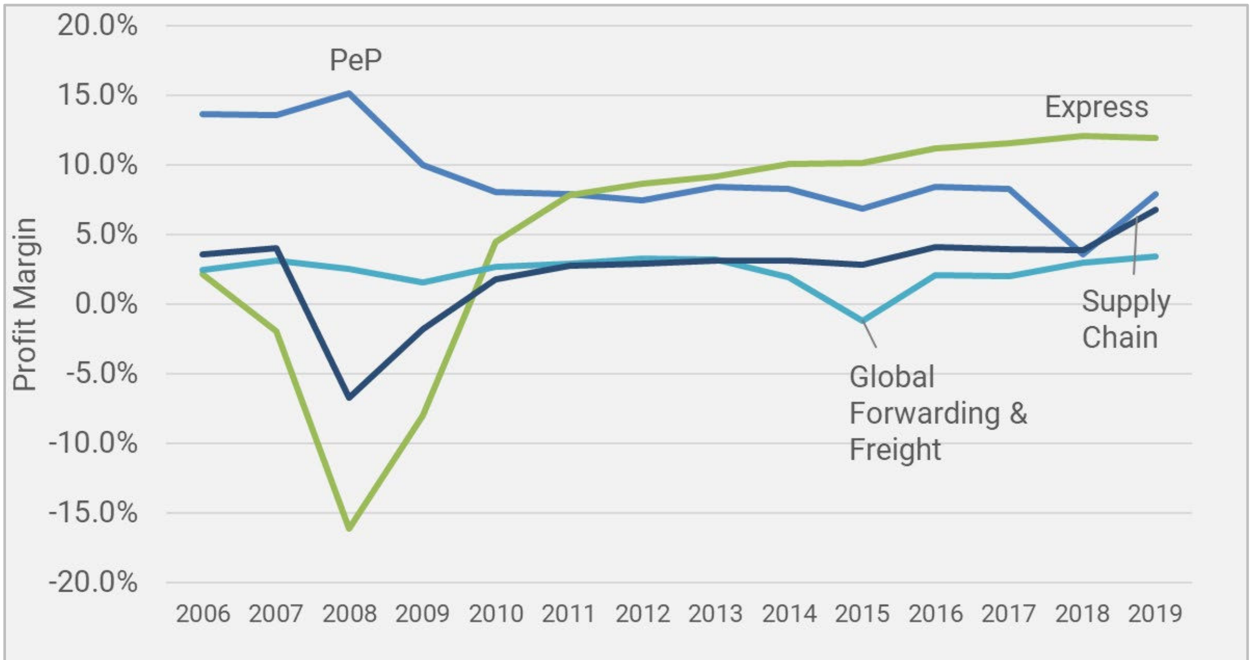
Source: Cargo Facts Consulting analysis of company financial data

In 2019, the consolidated EBIT results increased by 30% up to €4,128 million (US$ 3,622 m) down to €3,162 million (US$4,628 m) compared to the previous year. The Express division continues to show its positive growth displaying the highest profit margin with 12%. The international express business is benefiting from the rapid growth in the cross-border e-commerce and the expansion of the European and Asian air networks. In November 2019, DHL inaugurated the new built logistics center in Cologne Bonn Airport and expanded the Milan, Istanbul and Paris hubs. Meanwhile, DHL opened new locations in Vietnam, Indonesia, Malaysia, Sri Lanka, Taiwan, Thailand and Japan.

Figure 33 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. The newly created eCommerce Solutions division was not included in this figure, but its EBIT declined to -€51 million (US$ 57 m.) due primarily to restructuring expenses.

Within the Express unit, in 2019 about 75% of total revenue came from Europe (41% share) and Asia Pacific (33% share) with the Middle East and Africa (MEA) region and the Americas representing 7% and 19% respectively.

Figure 33 – Deutsche Post DHL Profit Margin (EBIT) by Business Segment 2006-2019

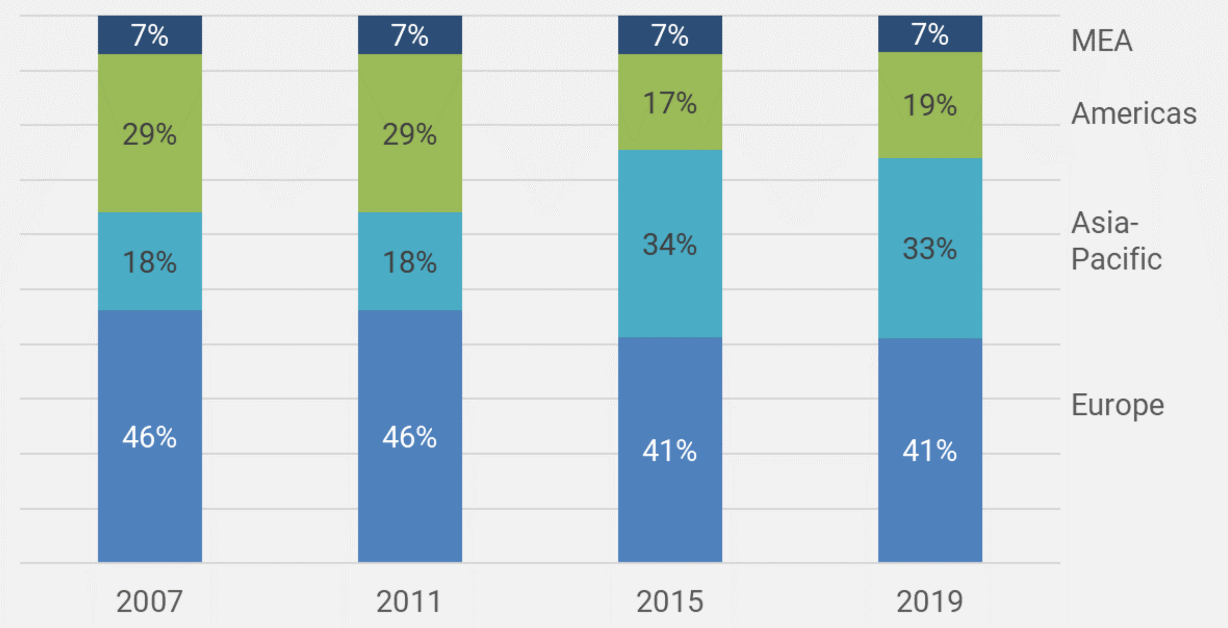


Source: Cargo Facts Consulting analysis of company financial data

Figure 34 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. Since then the relative share of revenue generated in each region has stayed constant.

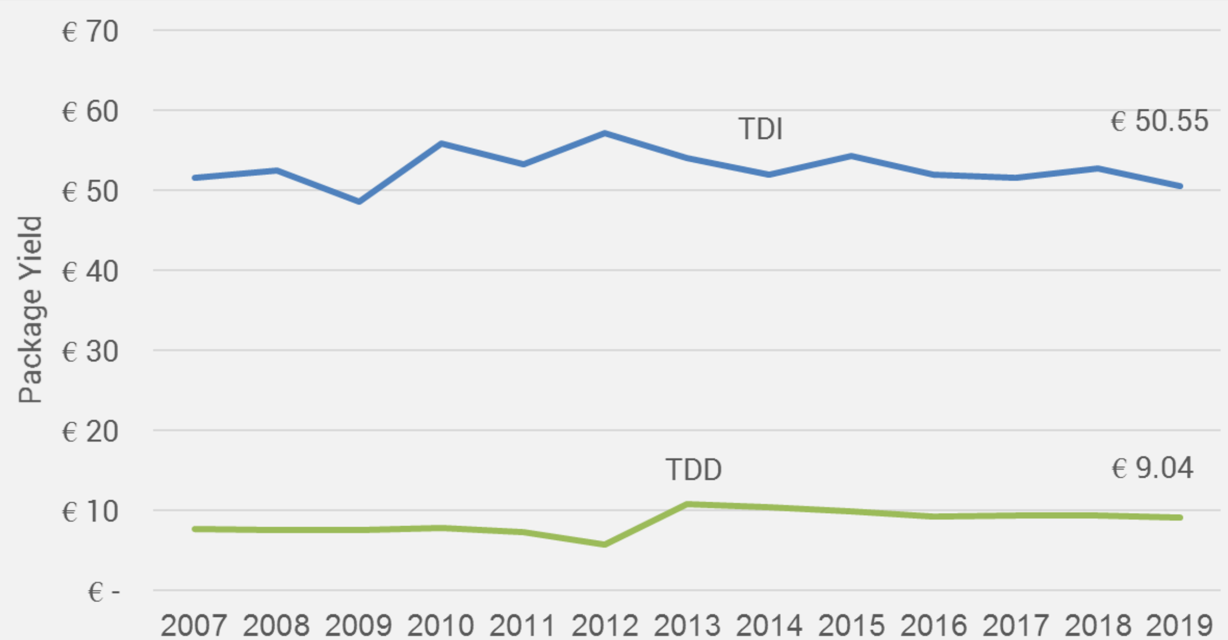
DHL Express's core product is the international time-definite shipments (TDI) which provides services with a pre-defined delivery time. The second main product is called time-definite domestic (TDD) and provides domestic services within a country or territory. TDD revenues are about tenth of TDI revenues due to lower shipment volumes and a much lower revenue per shipment. TDD is also generally a ground product. In 2019, TDI shipments accounted for 66% of the total volume and this product generated €50.55 (US$56.7) of revenue per shipment versus €9.04 (US$11.9) for each domestic shipment as displayed in Figure 35. The Express division performance was largely driven by the TDI where daily shipments grew by 5.7% year-over-year.

Figure 34 – DHL Express Revenues by Region 2007 - 2019



Source: Cargo Facts Consulting analysis of company financial data

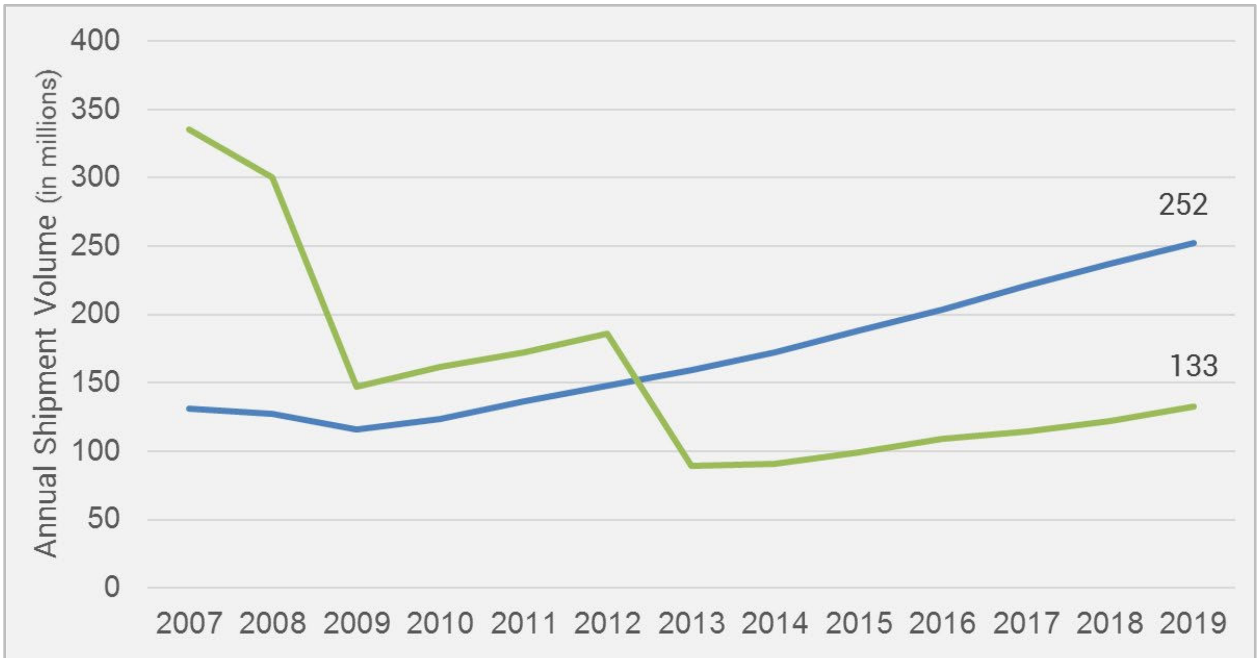
Figure 35 – DHL Express Time Definite International and Domestic Yields 2007 – 2019



Source: Cargo Facts Consulting analysis of company financial data

Figure 36 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 36 – DHL Express Shipment Volume by Product Development



Source: Cargo Facts Consulting analysis of company financial data

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.

4.6 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 North American provider of small-package ground delivery services; FedEx Freight, a U.S. provider of less-than-truckload operation; and FedEx Services, which includes FedEx Office. Figure 37 provides a current overview of FedEx hubs and focus cities across its air express network.

Figure 37 – FedEx Hubs and Focus Cities

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 expected to finalize all integration activities by the summer of 2020 but due to delays caused by the COVID-19 pandemic, this work is expected to continue after 2021. The successful integration of TNT Express in FedEx Express operations remains a challenge, especially in the scheduled timeframe and without incurring additional costs. Nevertheless, 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.

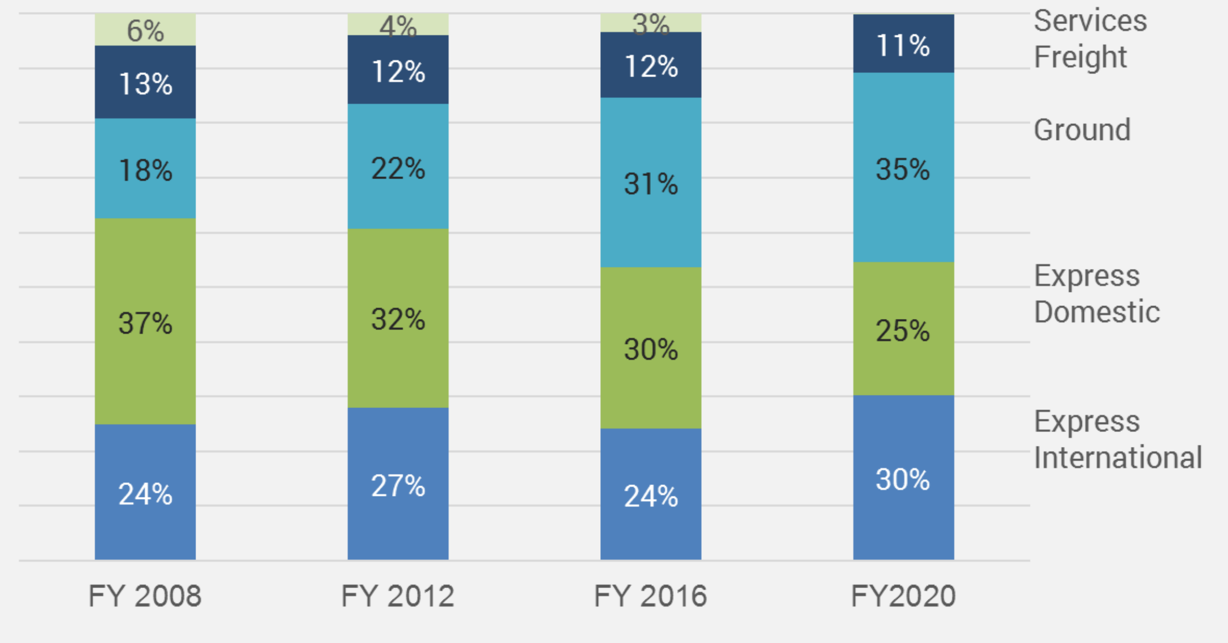
In late 2019, FedEx enhanced their e-commerce capabilities with strategic initiatives including year-round seven-day FedEx Ground delivery year-round for the majority of the US population, enhanced large package capabilities and the insourcing of FedEx SmartPost packages. However, the weak global economic conditions in 2019 have had an impact in the volumes and revenues, especially within the International Priority product line. The increasing costs of FedEx Ground from expanded service offering, the loss of the Amazon business coupled with lower-yielding services have impacted the company's margins.

FedEx reported revenues of $69.2 billion in FY2020, a 1% increase from FY2019 while the consolidated operating income was reduced by 46% down to 2.4 billion year-over-year. Revenues across all FedEx divisions were heavily impacted due to the lower demand of commercial services during 2020. Since FedEx fiscal year ends in May, their latest report shows the substantial repercussions of the COVID-19 pandemic.

Figure 38 shows how in FY2008, approximately 61% 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 55% in FY2020. 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 39 shows the profit margin (EBIT) development by division where the Express unit has seen margins between 4% and 10% in the last twelve years. The growth has not been consistent 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, but margins fell in the latest fiscal year. FedEx Ground delivery volumes increased to those during seasonal peaks over the fourth quarter of FY2020.

Figure 38 – FedEx Revenue by Business Segment FY 2008-FY 2020



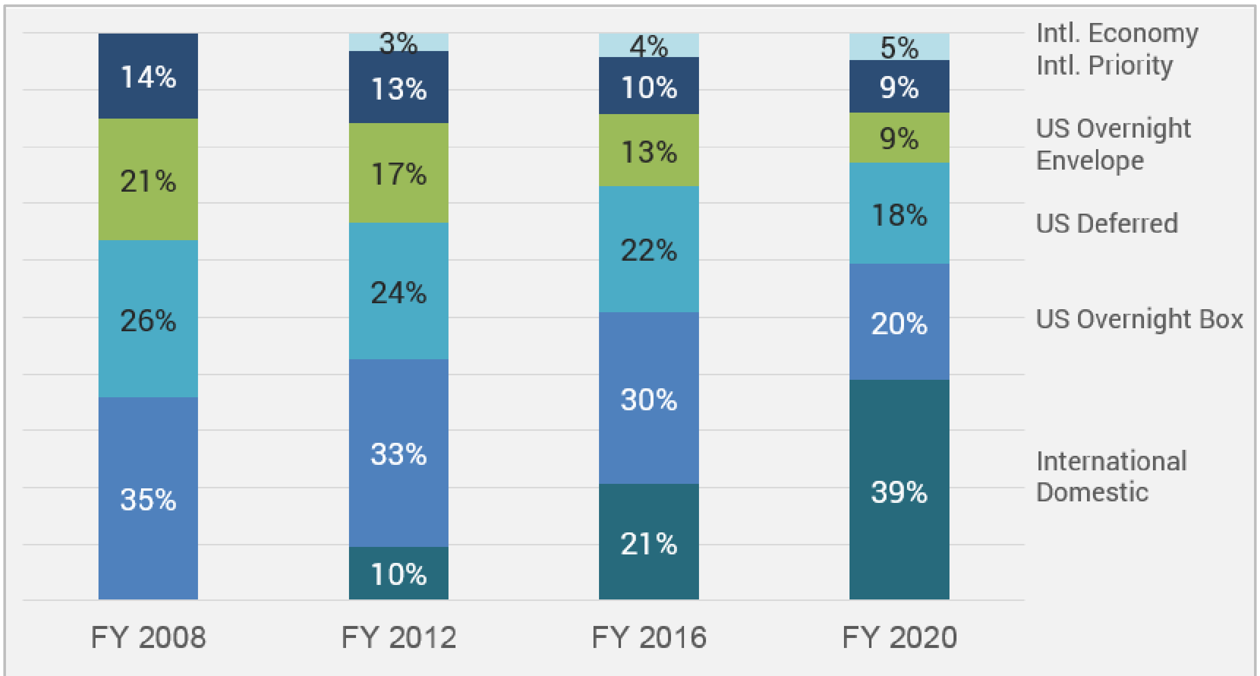
Source: Cargo Facts Consulting analysis of company financial data

Figure 39 – FedEx Profit Margin (EBIT) by Business Segment FY2006-FY2020

Source: Cargo Facts Consulting analysis of company financial data

Figure 40 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 39% 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.

Figure 40 – FedEx Express Volume Distribution by Product FY2008-FY2020



Source: Cargo Facts Consulting analysis of company financial data

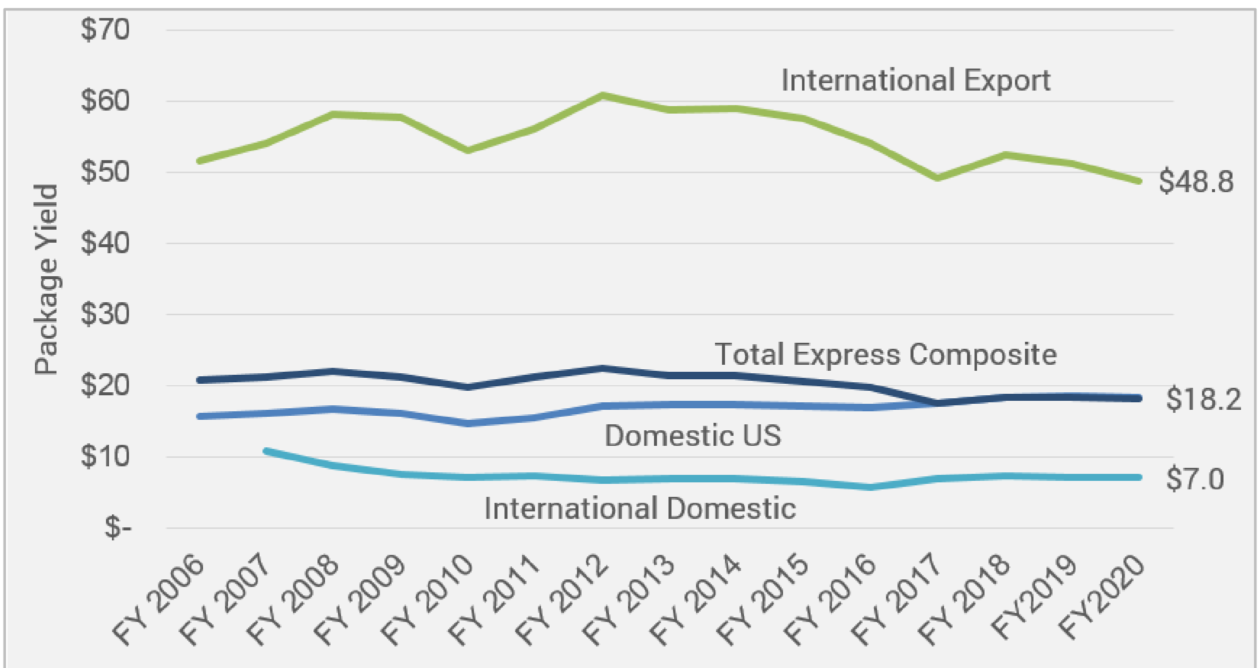
Much of the recent International sector increase has come from acquisition-induced growth in the International Domestic category, in which FedEx handled almost seven-times as many shipments in FY2019 as in FY2008. The TNT acquisition disrupted FedEx Express product volume share and the International 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 Express 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.

The 2019 global weak economic conditions and COVID-19 have negatively impacted International Export (Priority & Economy) revenue per package yields at FedEx Express and these resulted in a contraction of 5% driven by base yield declines, lower fuel surcharges and unfavorable exchange rates. International Domestic per package yields decreased 2% in FY2020 as base yield improvement helped offset the adverse exchange rates. In the US Domestic Segment, package yields also decreased by 1%, driven by the volume decrease as a consequence of the loss of business from Amazon. These figures are also 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 41 summarizes the revenue per package development by Product Line. The composite package yield for all products at $18.20 is almost equal to the US domestic composite package yield at $18.30.

Figure 41 – FedEx Express Yield by Product FY 2006 – FY 2020



Source: Cargo Facts Consulting analysis of company financial data

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 $48.8 each in FY2020.

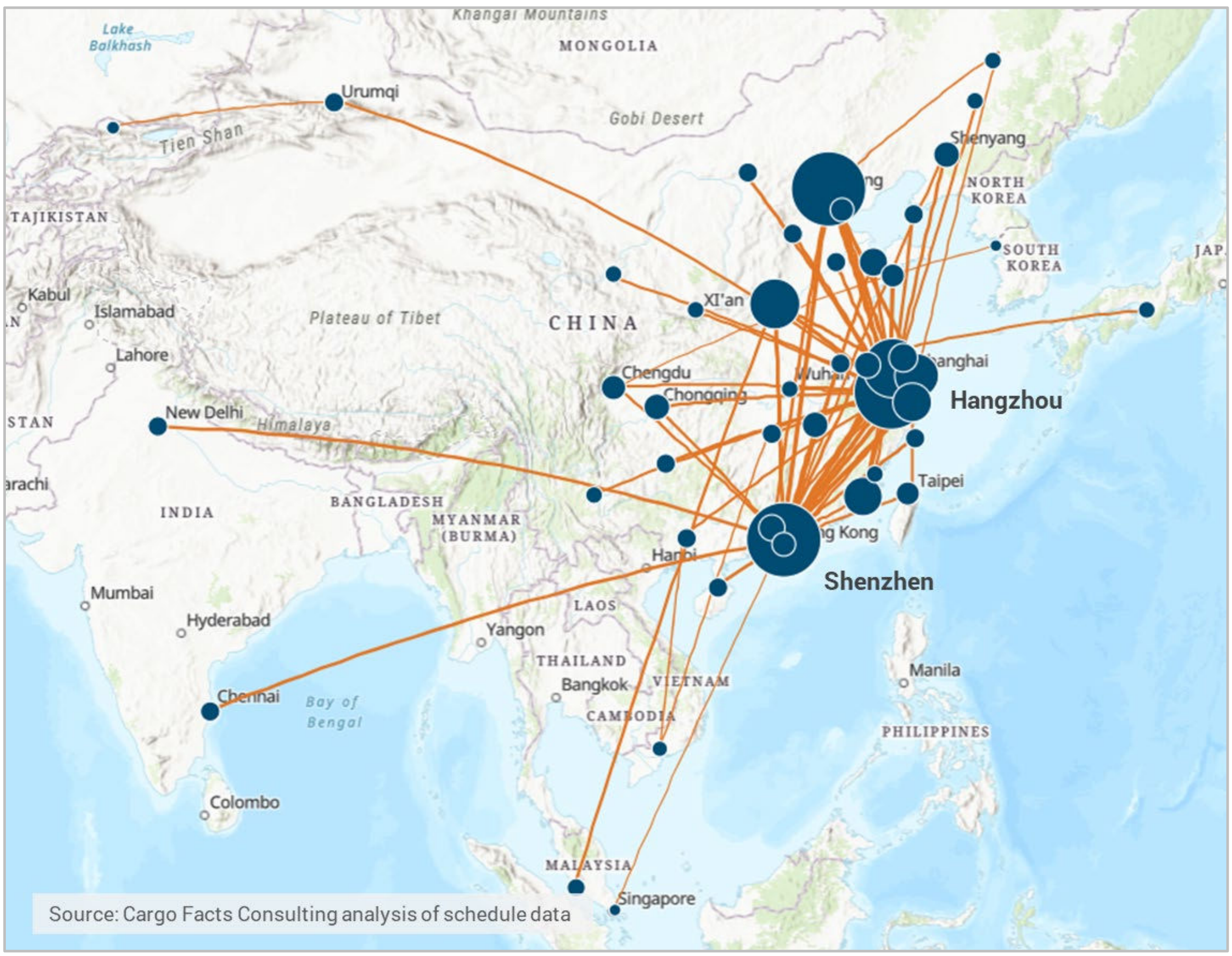
Even though its profit margins are lower than the other two integrators, FedEx Express continues to be an established profitable business and it is now implementing a series of initiatives to reduce cost and therefore, reduce the impact of the global macroeconomic conditions and uncertainty. FedEx continues working on expanding their hub in Indianapolis and modernize the FedEx Express World Hub in Memphis. During the first quarter of 2020, FedEx completed a project that allowed the interoperability between the ground networks for TNT Express and FedEx Express packages. As part of its international plans, FedEx added 14 new origin markets in the Asia-Pacific region for FedEx international first service to the US and Canada.

4.7 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.

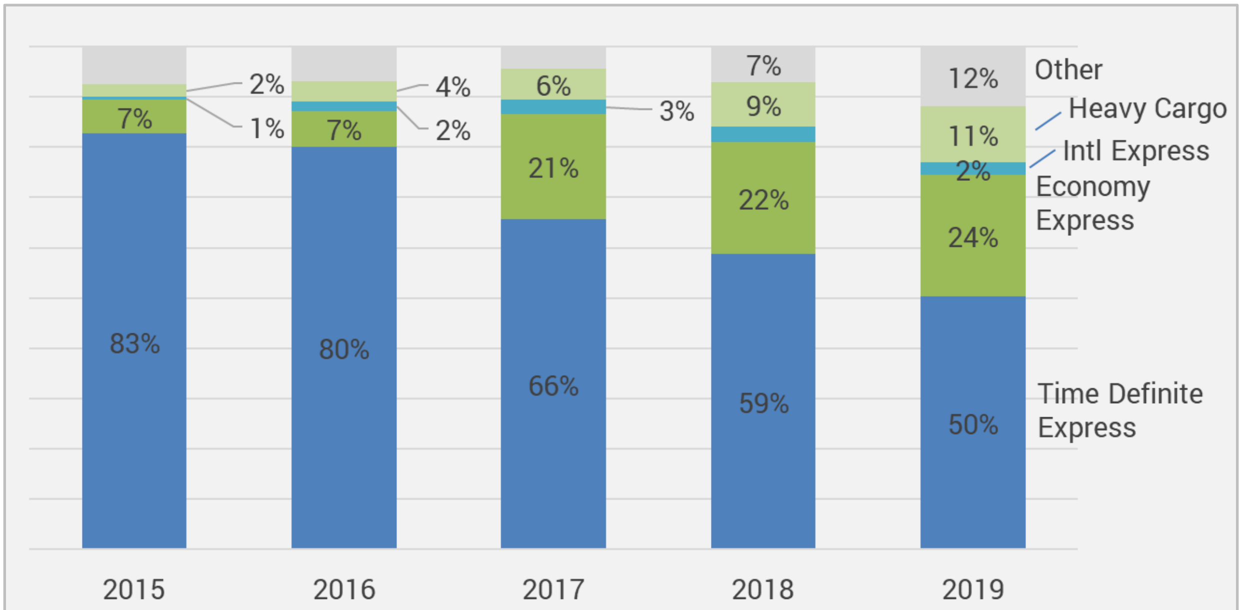
In 2018, the company generated revenue of RMB 90.9b ($13.6b), 98% of which is from Express and Logistics. During the same year, SF moved 3.9 billion packages, or about 75% of what UPS moved in the same year. For the time being SF Express remains primarily a Chinese domestic operation, with flight activity focused around its main hubs in Shenzhen and Hangzhou (see Figure 42).

Figure 42 – SF Express Hubs 2020



Between 2015 and 2019 overall annual revenues grew by 24% per year. During the past five years, howeverSF has seen a fundamental change in the product mix, with economy express products outgrowing time definite express services (see Figure 43). Economy Express product now account for almost one quarter of total revenues. In the last four years, time definite express grew by 9% per year, economy express by 70% per year, international express by 80% per year. Heavy cargo and cool chain products revenue grew by 81% and 64% per year, respectively.

Figure 43 – SF Express Revenue Distribution by Product: 2015-2019



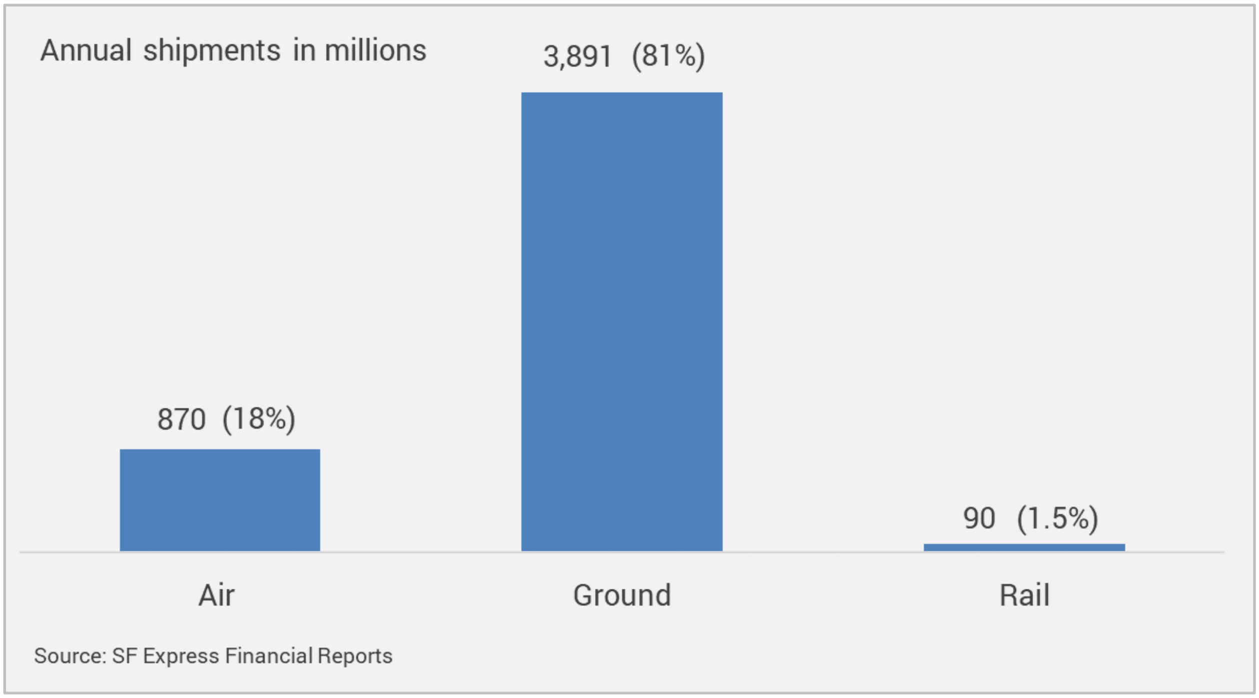
Source: Cargo Facts Consulting analysis of company financial data

Despite this change in product mix, revenues outpaced shipment growth in 2017 and 2018. In 2019, revenues grew slower than shipments – 24% vs 26%. Revenue per shipment have hovered around the 23 RMB ($3.45) for the last years. For the first 8 months of 2020, revenue were up 39%, but shipments up 77%. This has led to a yield drop of 22%.

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 6.3% in 2018 and 6.6% in 2019. At time of writing, no profit information was available for the first six months of this year.

Air accounts for 18% of total shipment volumes (compared to 22% in 2018), with ground and rail accounting for the bulk of the rest (see Figure 44). 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 and added new services during the last financial year. The company is also pioneering the development of an unmanned feeder aircraft.

Figure 44 – SF Express Shipment Share by Mode 2019



4.8 United Parcel Service (UPS)

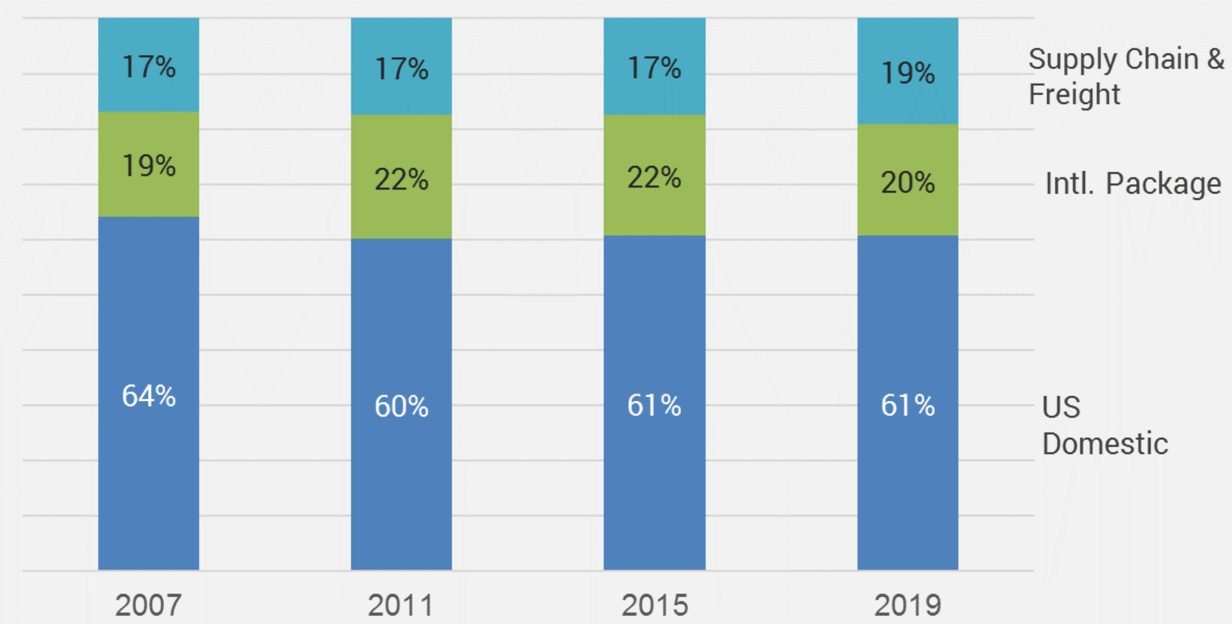
UPS is the world's largest package delivery company measured in terms of shipments, a provider of global supply chain management solutions and a leader in the domestic US LTL (less-than-truckload) market. In 2019, UPS delivered an average of 21.9 million pieces per day, an annual total of 5.5 billion packages. For most of its 100+ year history UPS 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. UPS moves as many business to business as business consumer packages, thanks to its increasing exposure to e-commerce.

UPS reports its results in three segments: US Domestic Package, International Package, and Supply Chain & Freight operations. The company reported a record $74.09 billion in consolidated revenue in 2018, up 3.1 % from 2018's $71.86 billion while consolidated operating profit declined by 10.4% to $8.2 billion. The results showed an improvement due to increased demand and new cost efficiencies in the UPS network.

Figure 46 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 2019 and the distribution is not likely to change in the short-term.

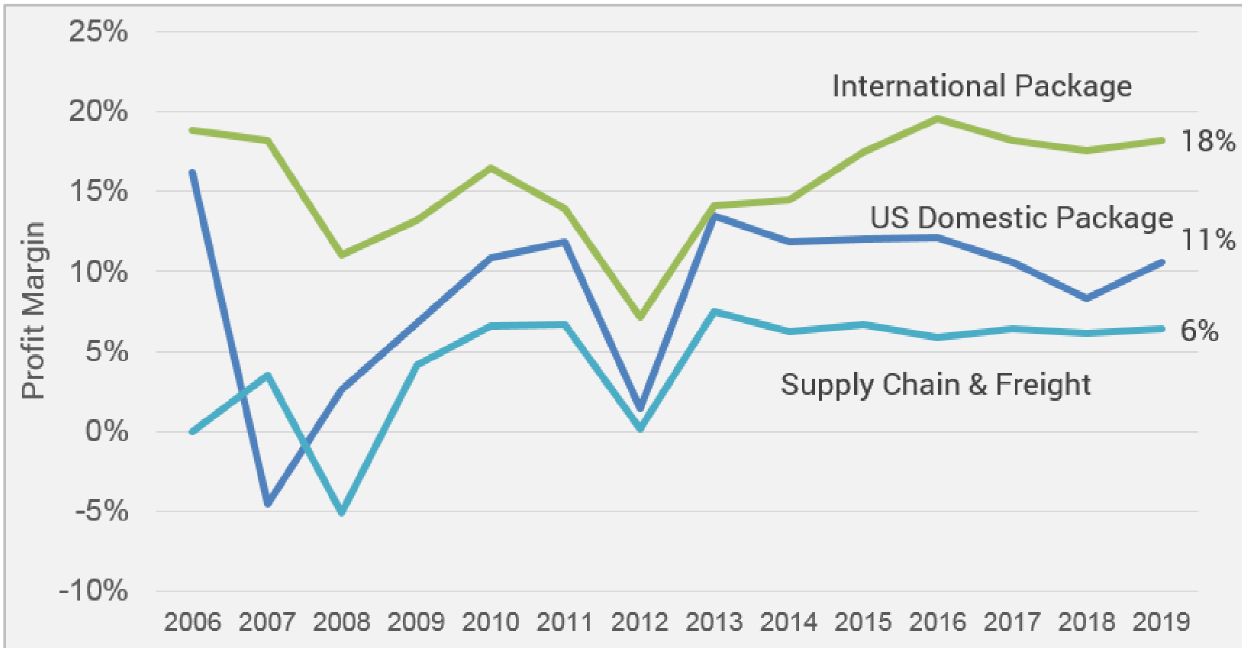
Figure 46 provides the profit margin development by business segment where the International business segment grew its operating profit and leads the industry with a 18% margin. This wide margin is driven by the strong export shipment growth in 2019 and the rate increases in rates for international shipments originating in the US. 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 six years. The US Domestic segment has shown declining profits in the recent years primarily associated with higher pension expenses and investment projects as part of UPS's transformation strategy. However, the latest year showed a profit margin improvement driven mainly by volume growth (led by their largest customer, Amazon).

Figure 45 – UPS: Revenues by Business Segment 2007 – 2019



Source: Cargo Facts Consulting analysis of company financial data

Figure 46 – UPS Profit Margin (EBIT) by Segment 2006-2019



Source: Cargo Facts Consulting analysis of company financial data

Figure 47 shows the volume distribution development by product for UPS. At the moment, the largest portion of all shipments is attributed to the US Domestic Next Day Air, with a 28% share. This is followed by the International Domestic service with a 26% share. Figure 47 demonstrates how the International Export segment has increased its share over time with a 22% share in 2019. 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%.

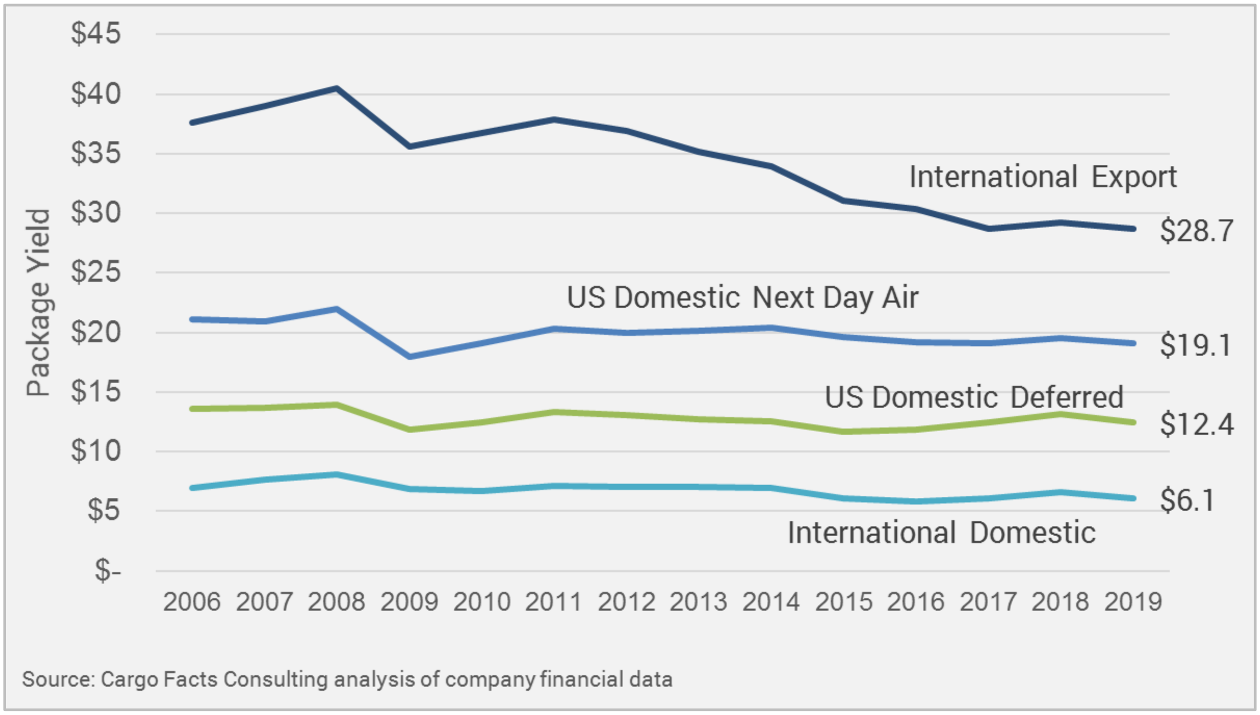
Figure 47 – UPS Volume Share by Product 2007-2019

Source: Cargo Facts Consulting analysis of company financial data

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.

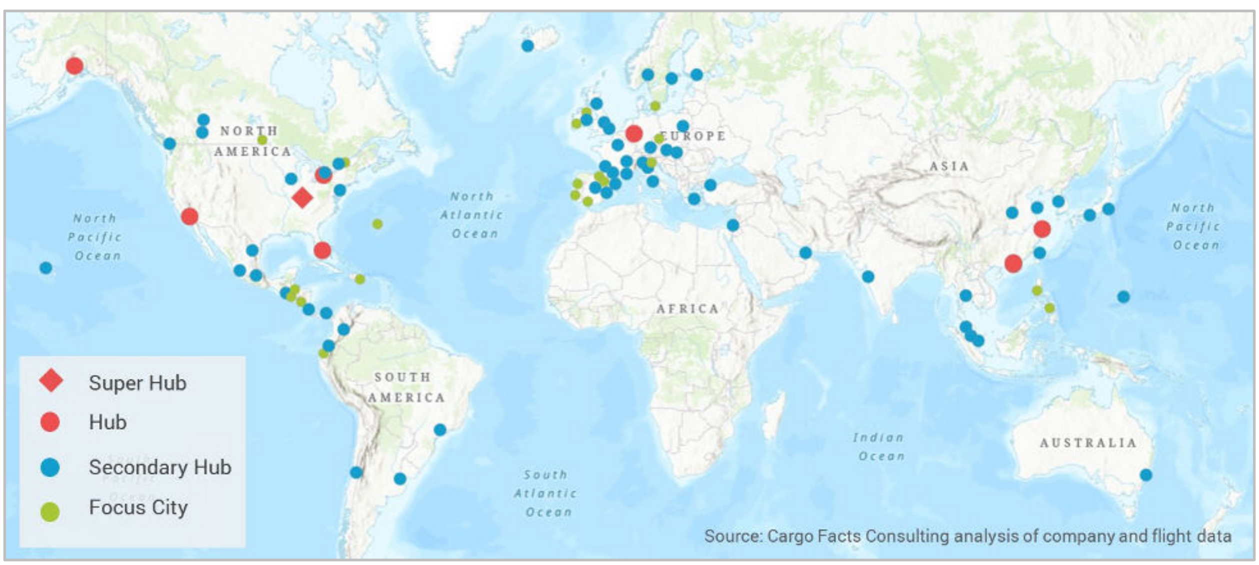
Figure 48 displays the package yield for the main UPS components in the Domestic and International market. The average revenue per piece varies by type of service provided with Next Day Air shipments generating about $19 each, significantly higher than Deferred (air) shipments at $12.4 or International Domestic at $6.1 (mostly surface). The highest yield comes from International Export shipments at about $28.7 each.

Figure 48 – UPS Yield by Product 2006-2019



Error! Not a valid bookmark self-reference. 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 49 – UPS Hubs and Focus Cities



UPS continues investing in the expansion of its services and capabilities across the industry. In 2019, UPS extended their network to support new business growth by adding 2 million of square feet of additional capacity across its distribution centers. The upgrade and expansion of the Eindhoven and Shenzhen hubs will facilitate the market access to the rest of the world and will also fuel regional growth in Europe and China. Even though UPS does not split its revenue by geographical region, we understand that Europe accounts for about 50% of its international revenue and it is currently one of their primary drivers for shipment growth.

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 half 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.

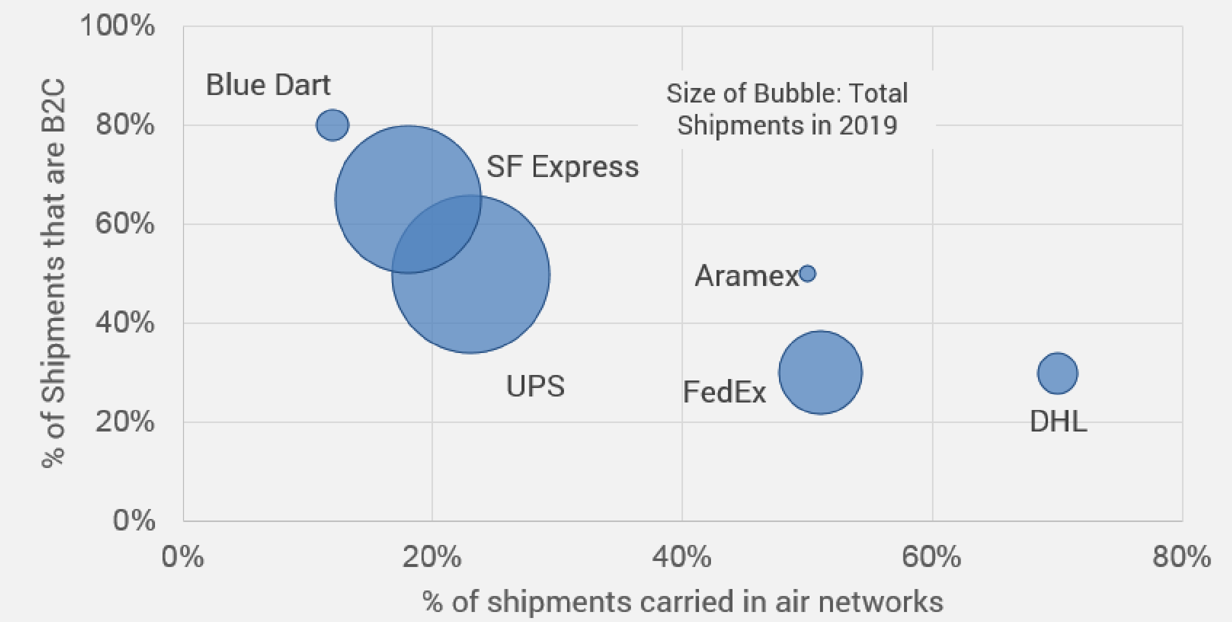
5.1 From B2B to B2C – Disrupting the Express Business Model

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 50).

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.

Figure 50 – Integrator share of B2C vs Air Shipments 2019



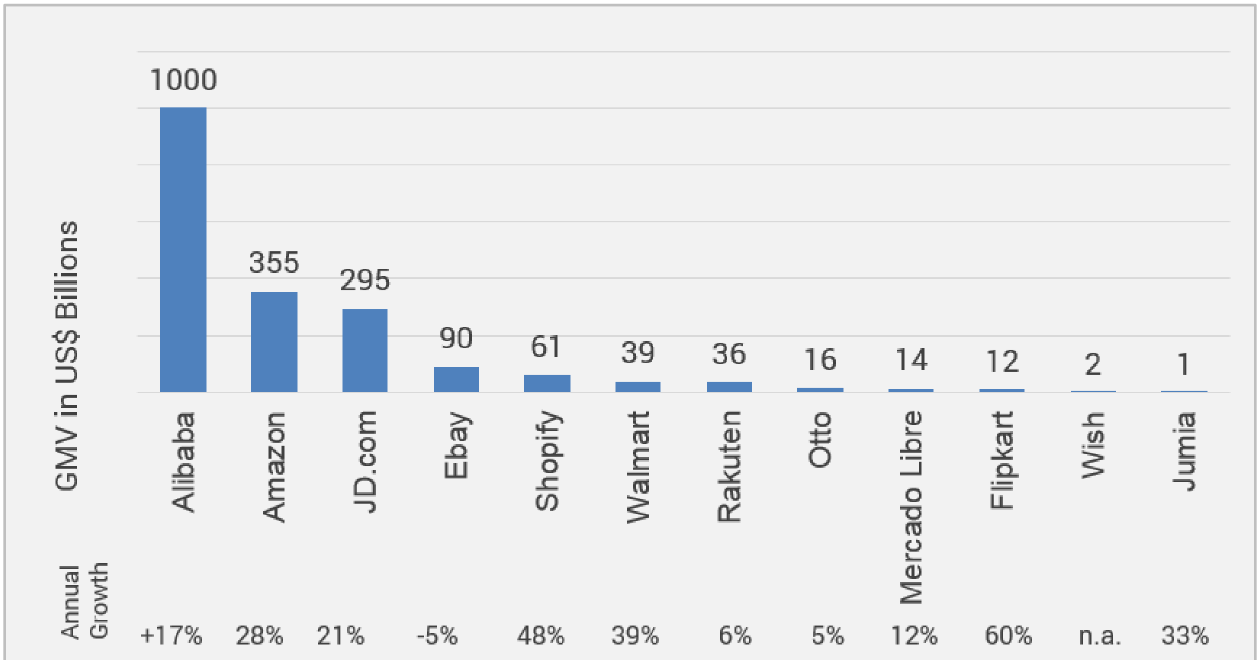
Source: Cargo Facts Consulting analysis of financial reports and estimates

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 51 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.

All of platforms below (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.

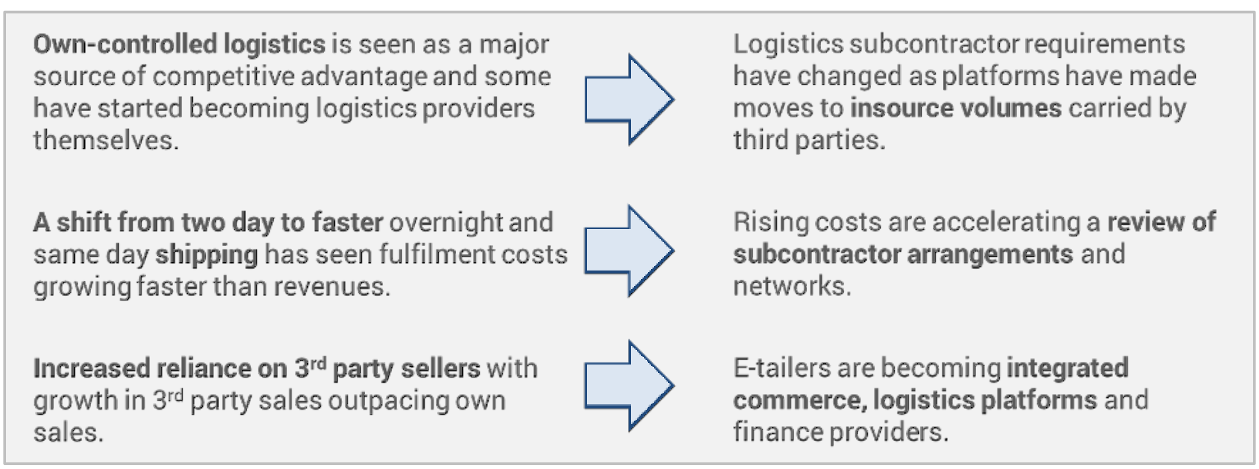
Figure 51 – Key Global and Regional E-Commerce Platforms 2019



Source: Cargo Facts Consulting, Company Financials

Figure 52 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.

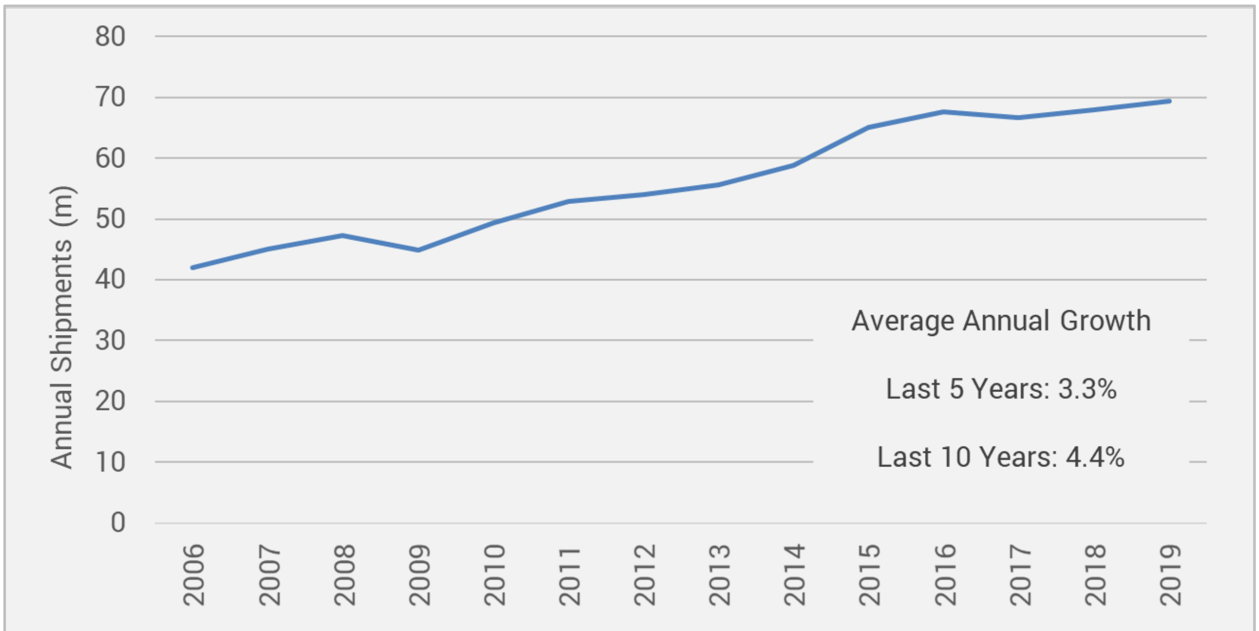
Figure 52 – Three E-Commerce Platforms Trends and their Consequences



5.3 EMS – Rise of the Virtual Integrator?

About 8% 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. Revenue data for 2019 was not available, but Figure 53 provides an overview of the development of EMS shipments since 2006 including for 2019.

Figure 53 – EMS Shipments 2006 - 2019



Source: UPU, Carrier Reports, Cargo Facts Consulting

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 2009 and 2019 EMS shipments grew by 4.4% per annum compared to 5.2% for international express. There has not been an acceleration of EMS traffic over the past years despite strong cross border e-commerce traffic growth.

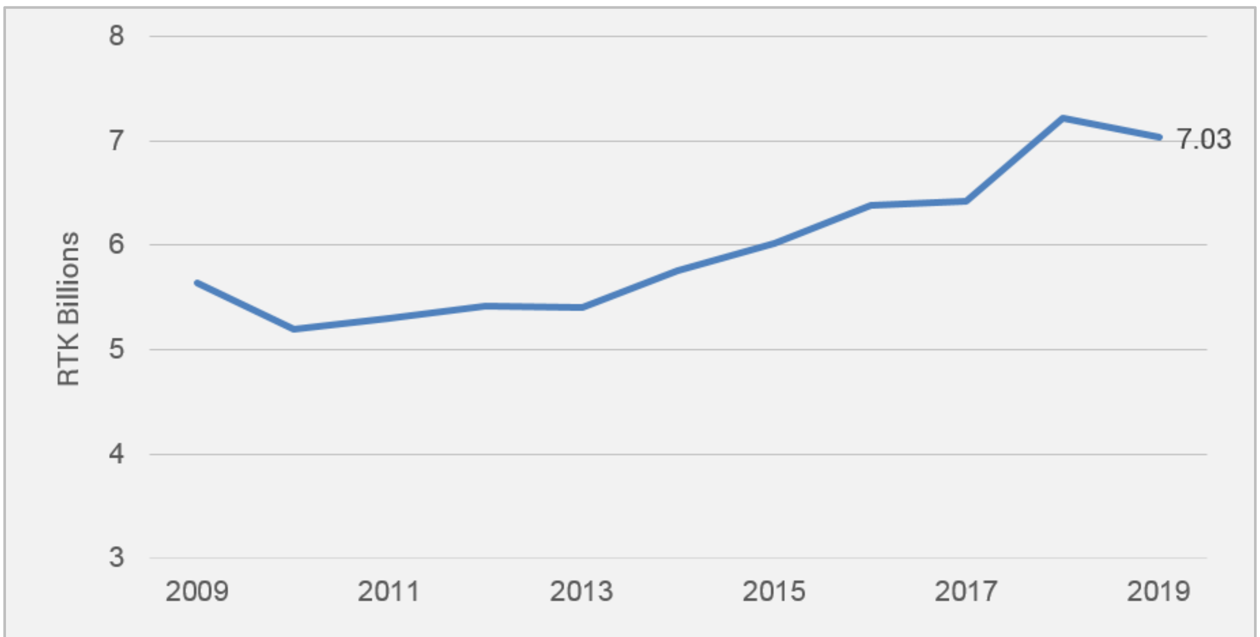
We do not believe that EMS will become a significant competitor to the global express business. However, individual postal companies are poised to play a much stronger role in cross border fulfilment.

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 27%, while traditional mail volumes have declined from 46% to 39% of postal revenues between 2007 and 2018, according to statistics collected by the Universal Postal Union (UPU). Between 2008 and 2018 domestic letter post decline by around 3% per year, while parcels increased by 7.5% per year. On international services parcels increased by almost 13% per year but represent only about 1% of domestic volumes. For 2019, the UPU expects domestic postal parcel growth of 4.8% and 8% in 2020.

The growth in cross-border as well as domestic parcel traffic has also driven renewed growth of global postal traffic carried by air. Figure 54 shows the global airmail traffic measured in billions of revenue tonne kilometers (RTKs) over the last ten years.

Figure 54 – Global Airmail Traffic 2008 – 2019



Source: Boeing, IATA, Cargo Facts Consulting

Global airmail traffic grew strongly until 2018, but saw a decline in 2019. For 2020, despite an expected growth in B2C e-commerce of 19% in 2020 and 17% in 2021, postal tonnage is expected to decline by 20%, according to an outlook published by the Universal Postal Union (UPU) in September.

While the 2020 decline is due to a lack of intercontinental air capacity. Given that most airmail traffic moves in the bellies of passenger aircraft rather than freighters, the grounding of large parts of the world's passenger fleet has been particularly severe for the movement of international mail. However, the drop in 2019 is a sign of a more fundamental change. While there is an increasing amount of cross border e-commerce traffic, less is travelling under a CN38 postal airwaybill and more as part of organised supply chains. This includes express, but also an increasing amount of traffic that travels as general airfreight, is cleared at destination and then distributed through domestic networks. This is precisely where postal companies are developing into formidable competitors to the express business.

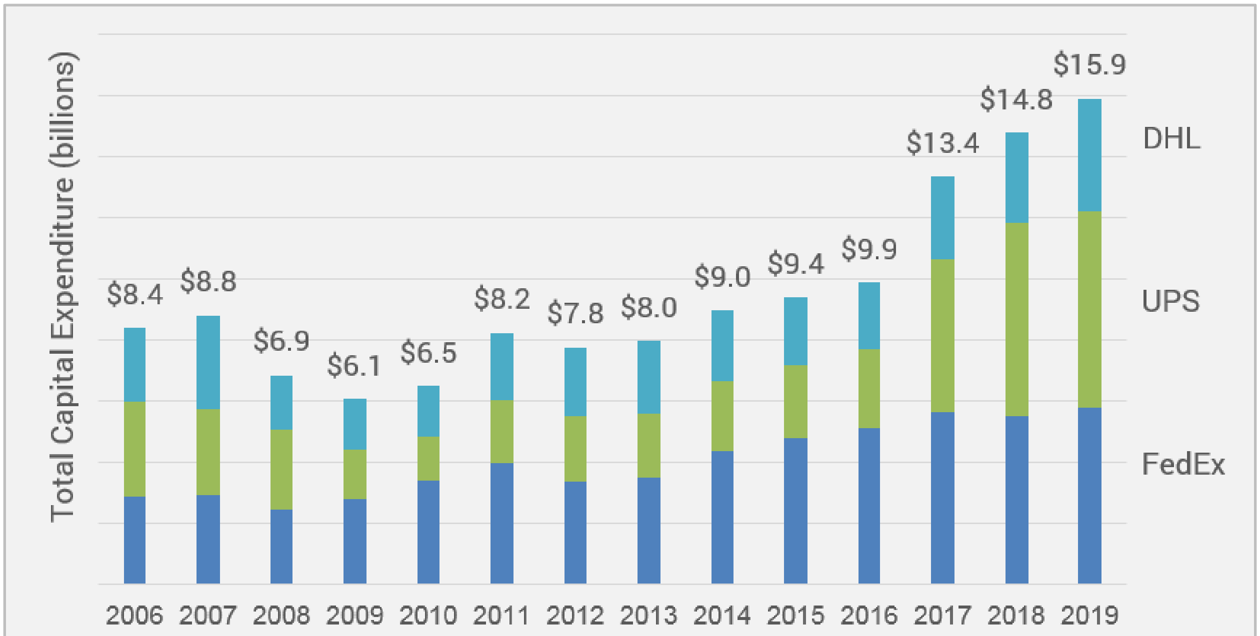
Rather than seeing themselves purely as last mile fulfillment agents some postal companies have begun moving upstream to provide a wider range of services ranging from consolidation, customs clearance and onward distribution to multiple countries (rather than just in the home country).

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.

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 the last three years, combined capital expenditure of the big three integrators was over $44 billion, as much as the preceding 5 years between 2012 and 2016 (see Figure 55).

Figure 55 – DHL, FedEx and UPS Capital Expenditure 2006-2019



Source: Cargo Facts Consulting analysis of company financial data

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 2019. Most of FedEx and UPS investments are in infrastructure improvements, sorting facilities and technology. The 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.

The pandemic has forced the operators to take some actions to improve their liquidity. For instance, FedEx reduced their expected 2021 capital expenditures by $1 billion, including delaying technology initiatives, facility expansions and spend on vehicle modernization. Nevertheless, FedEx has stated their 2021 investments will focus on aircraft fleet modernization, the Indianapolis and Memphis hubs expansion and other strategic programs to improve productivity and safety in 2021.

6. The Demand for Aircraft Capacity and Contract Services

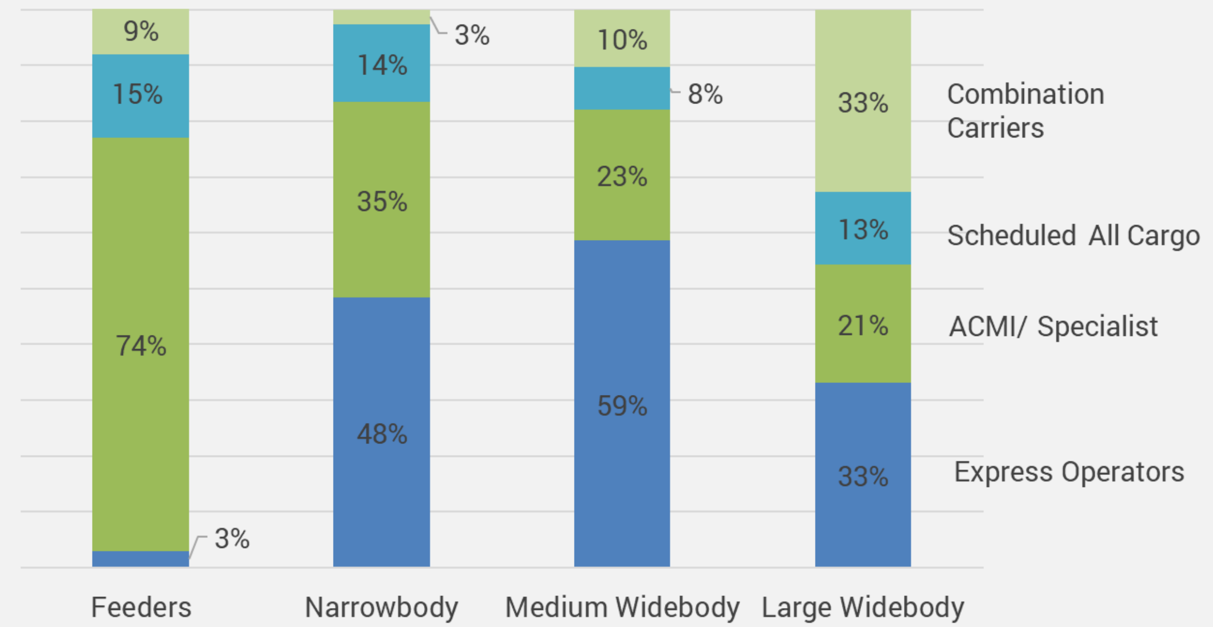
Key Findings

- 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 2800 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 1900 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 platforms such as Amazon. The share of aircraft operated directly by integrators or by contract ("ACMI") carriers on behalf of integrators varies by segment (see Figure 56)

Figure 56 – World Freighter Fleet by Operator Business Model (1Q 2020)

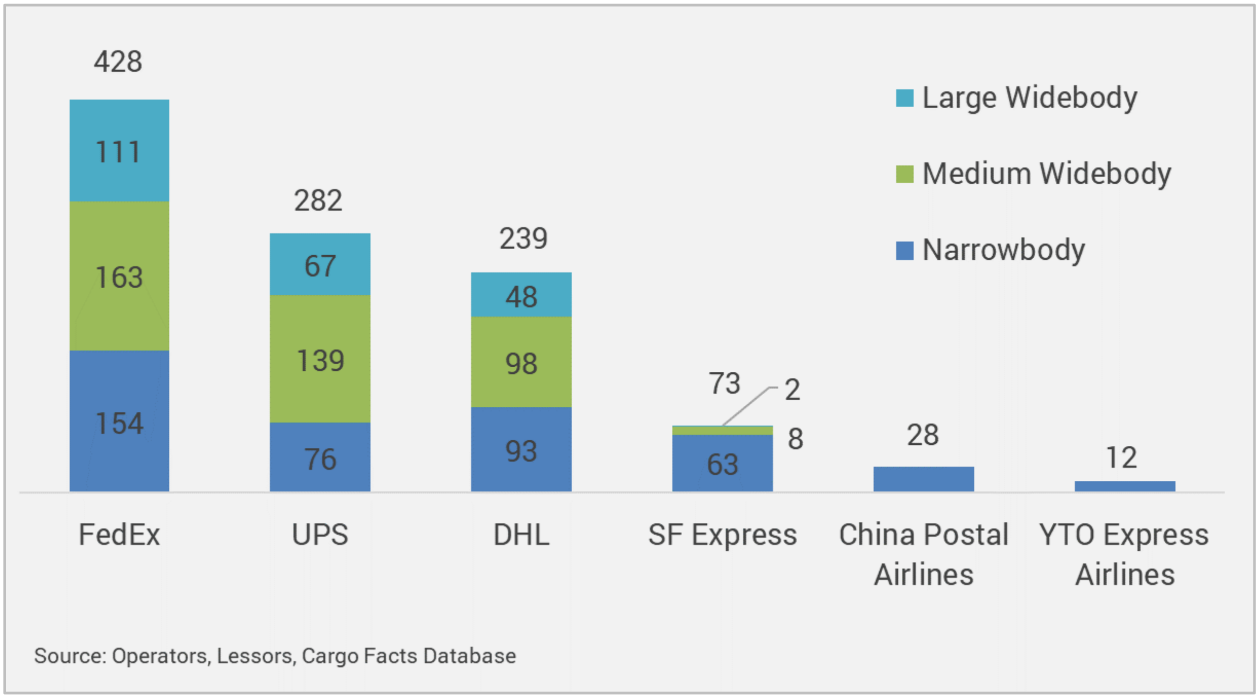


Source: Cargo Facts Consulting analysis of fleet and utilisation data

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 more and more 737-800s. The first A321-200P2F are also being redelivered to the market and will be operating with Australia Post, and two European contract carriers, Titan Airways (UK) and Smartlynx (part of Avia Solutions Group). 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 57 provides an overview of the jet fleets operated by and for integrators. Aircraft operated by Blue Dart are included in the DHL fleet count. SF also states that in addition to its own fleet, it operates 13 chartered aircraft including by Longhao and Suparna Airlines, which are included in the SF Express tally.

Figure 57 – Integrator Own and Third-Party Operated Jet Fleets October 2020



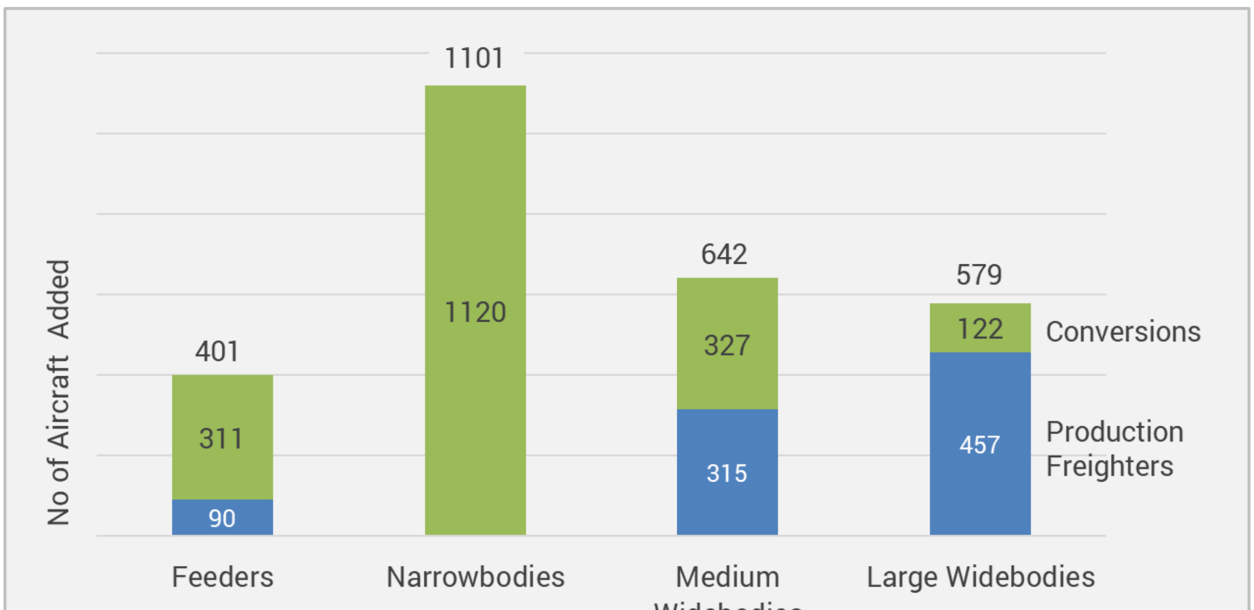
Other express companies not included in the above also operate dedicated freighter capacity. Toll Express operates a fleet of feeder aircraft (ATR 42 and Metro) and accesses capacity operated by Express Freighters Australia, a Qantas subsidiary. Estafeta, a Mexican express carrier which also have a JV with UPS has increased its fleet in recent years and now has five 737 classics and two CRJ-100 freighters in operation.

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 58). 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 58 – Forecast Freighter Aircraft Demand Forecast 2020 - 2039



Source: Cargo Facts Consulting Freighter Forecast 2020-2039

Across all categories we expect that 75% of fleet additions and replacements will be to serve the express and e-commerce business.

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	• Plans to retire all the MD-10 fleet by end of FY2022 • Plans to take delivery of 46 767-300F and 15 777F over the next 5 years • A further 80 feeder aircraft (50 Cessna 408 and 30 ATR 42-600F) will be added over five years starting in 2020.
UPS	• Small net increase of jets expected. • 29 aircraft on order, including 13 747-8F to be delivered over the coming 3 years and 11 767-300 freighters (including 3 conversions).
DHL	• DHL has 6 777-200Fs on order, with two to be delivered before the end of 2020 • DHL has an order for 4 additional 767-300Fs
SF Express	• Plans to growth aircraft fleet from approximately 71 aircraft today to 100 aircraft by 2022.
Amazon	• Current fleet of 62 aircraft is expected to increase to 81-86 aircraft by end of 2021.
Total	Net increase of approximately 135 jet aircraft.

Source: CFC analysis of fleet and company data, October 2020

While we do not view Amazon as an express provider, its fleet and overall network plans have the potential to affect express carrier volumes, particularly for UPS.

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.

By its own count, SF Express operates a fleet of 71 aircraft, of which 13 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. We think Aramex could potentially expand to dedicated capacity in the future.

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 wet 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 - 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:

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 3 – Aramex profile

Company	Aramex (2019)
Description	Middle East focused Express, Freight Forwarding and Logistics company, founded in 1982
Headquarters	Dubai
Revenue	AED 5.246b ($1.43b). International Express accounts for 45% of total revenue.
Profitability and growth	3% overall revenue growth in 2019, with Express and Logistics growing at 3% and 18% respectively. Net profit margin in 2019 increased by 1% (AED 4.8 m or $1.3m) to AED 494.7 million ($134.7 million). Express (Domestic + International) has increased its share of total business from 51% to 65% since 2013 while the freight forwarding share has decreased. International Express business grew by 3% in 2019 to AED 2,349 million ($630 m), compared to AED 2,273 million ($618m) in 2018, most notably coming from USA, UK, Singapore and Saudi Arabia. Domestic Express grew by 5% to AED 1,051 ($286 m) driven by rise in e-commerce across Australia and GCC (Gulf Cooperation Countries) Q1 2020: AED 1.2 billion (US$333 m) in revenues (-3%) Net profit declined to AED 67.4 million (US$18.35 m) (-38%) Q2 2020: AED 1.3 billion (US$350 m) in revenues (4%) Net profit declines to AED 94.4 million (US$25.7) (-23%) 1H 2020 profits were impacted by border closures and increase in line haul costs that impacted profit margins in Intl. and Express Freight.
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	71.2m shipments in 2019
Air Network Overview	Air capacity provided by third parties. No dedicated air network
Ground Linehaul Network Overview	Not available

Company	Aramex (2019)
First and Last Mile Network Overview	Own controlled and third-party franchisee fleet. Vehicle maintenance and running expenses accounted for 13% of operating expenses
Product Offering	International express: includes delivery of small packages across the globe to both, retail and wholesale customers.
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 Q2 2020

Table 4 – Blue Dart profile

Company	Blue Dart (FY ended March 2020)
Description	Main Indian express operator, now part of the DHL Group. Began operations in 1983.
Headquarters	Mumbai, India
Revenue	INR 31,804m ($446m)
Profitability and growth	Median EBITDA margins 11% over last 10 years, but profitability dropped to 6% over the last two years. Net loss in last financial year due to extraordinarily high depreciation. Average revenue growth of 7% over last five years Reported revenues for Q1 FY2020 (ended June 30, 2020) were US$56 million and net loss of US$17.4 million over this period.
Main geographical markets	Domestic India
Main competitors	FedEx, Gati LTD
Shipments and tonnage	Shipments: Domestic 240.4 million (+3%), International 0.84 (-7%). Tonnes: Total 769,489 (+1.9%), Domestic 767,814, International 1675 Of this figure 93,854 (12%) was transported on its air network.
Air Network Overview	Fleet consisting of 6 757 aircraft providing a network payload of 504 tonnes across 74 route connections each night. Domestic hubs in Mumbai, Navi Mumbai, Delhi, Bengaluru, Chennai, Erode, Hyderabad, Kolkata, Ahmedabad, Guwahati and Kochi.
Ground linehaul network overview	Network of approx. 90 hubs and sub hubs
First and Last Mile Network Overview	22,336 vehicles supporting 2113 facilities and servicing over 34,800 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. 11 cities served.
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 30 June 2020

Table 5 – DHL Express profile

Company	DHL Express (2019)
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	17,101 million € ($19.4 b) in 2019 for the Express division, 27% of DHL's total revenue of 63,341 million € ($71.9 b)
Profitability and growth	Profits of 2,039 million € ($2.3 b) in 2019 for the Express division, 49% of DHL's total profit of 4,128 million € ($4.7 b) 11 2020: Group revenue was up 0.9% to 15.5 billion € with net profit of 301 million €. Express revenue up by 4.5% to EUR 4.2 billion € with operating margins at 9.5% Q2 2020: Group Revenue was up 3.1% to 15.9 billion € with net profit of 525 million €. Express revenue up 6.5% to EUR 4.5 billion € with strong operating margins of 12.5%
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 (2019)
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. 6 more 777S planned for delivery in 2020.
E-Commerce Strategy and product offering	In 2019, DHL established a new eCommerce solutions division which is separate to DHL Express. Core activities include national last-mile parcel delivery in selected European and Asian countries and in the USA. DHL also suppliers cross-border non-TDI services especially, to, from and within Europe.
% of business linked to e-commerce	30% of Time definite international volumes are B2C (compared 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. The impact caused by coronavirus crisis during the first half of 2020 is difficult to estimate but DHL expects. DHL believes that the steadily growing cross-border e-commerce sector will continue to drive growth in the international express market in 2020.

Reflects financial data through Q2 2020

Table 6 – EMS (China Postal Express & Logistics Company) Profile

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 7 – FedEx Express profile

Company	FedEx Express (Financial Year ended 31 May 2019 and FY 2020 YTD)
Description	US based express and ground operator. Largest subcontractor to the United States Postal Service.
Headquarters	Memphis, TN
Revenue	FedEx reported revenues of $69.2 billion in FY2020, a 1% increase from FY2019. The Express division reported revenues of $35.5 billion, a 5% decrease from FY2020. Q1 FY2021: consolidated revenues of $19.3 billion (+13.5%), Express revenues of $9.6 billion (8%)
Profitability and growth	FY2020: Consolidated Operating income was down 46% to $2.42 billion. Express operating income of $996 (-54%) Q1 FY2021: Consolidated net income of $1.25 billion (+67%), Express operating income of $710 (+149%)
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

Company	FedEx Express (Financial Year ended 31 May 2019 and FY 2020 YTD)
	International Economy: door-to-door, customs-cleared product (2-5 business days) US Overnight Box, US Overnight Envelope, US Deferred
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	414 aircraft (jets) including 115 757Fs, 3 A310Fs, 44 A300-600Fs, 92 767Fs, 47 MD11Fs, 25 MD-10s and 42 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 September 2020

Table 8 – SF Express profile

Company	SF Express (2019)
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 (in 2019).
Headquarters	Hangzhou, Zhejiang, China
Revenue	RMB 112.2 ($16b, +23.4%), 98% of which is from Express and Logistics. Average revenue per shipment RMB 23.30 ($3.30). Express and Economy products accounted for 50.4% and 24.0%, of revenue, respectively, compared to 59% and 22% in 2018
Profitability and growth	Overall revenue growth of 23.4% in 2019 (28% in 2018 and 23% in 2017). Economy product has growth faster than its express product (32% compared to 6% in 2019). Intra city instant delivery revenue grew by 172% in 2018 and doubled to 2019 and now accounts for almost 2% of revenue. Net profit margin 4% in 2019 and between 5% and 7% in the preceding years. 1H 2020 revenue up 41% and shipments 81% fueled by pandemic induced B2C e-commerce demand.
Main geographical markets	Domestic China. International express accounted about 2% of revenue in 2019. Growth of general cargo and supply chain products has been strong. Has 250m individual users and 1.4m key account customers.
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 had a 24.8% share in 2019 (and 23% in 2018) of total Chinese cargo and mail volumes. Has a JV with UPS for international services.
Shipments and tonnage	Air: 870 m shipments (+8.8%)/ 1.35m tonnes (+8.9%). This represents 18% of total company volume (compared to 21.5% in 2018). Total shipments: 4.831b (+26%). Implies market share of 7.6% of total Chinese domestic express business. In 2018: Ground: 3 billion shipments (77% of total), Rail: 50 million shipments (1.2% of total). No detail provided for 2019.
Air Network Overview	Total of 73 routes (+8) and 103 flights per day (+6). 43% of traffic in 2019 (and 40% in 2018) were carried on won and dedicated charter flights. By its own account has arrangements with ca. 100 commercial airlines to move freight. 43 cities in China (including in Hong Kong, Macau and Taiwan) and 11 international cities. Long haul services to New York (JFK) and Germany (HHN). Main hubs in Hangzhou (HGH) and Shenzhen (SZX). Pioneering the development of unmanned feeder aircraft.

Company	SF Express (2019)
Ground Linehaul Network Overview	9 (unchanged) hub level transit depots. 43,000 (+8000) directly-operated and outsourced vehicles for more than 100,000 (+10,000) long-haul and branch routes. 161 (+80) high-speed railway lines, 122 (+1) standard rail lines and 6 express lines (new)
First and Last Mile Network Overview	17,832 (+2,232) directly-operated service points and 2,600 franchisee network points for Shunxin Express. 320,300 Couriers (+12%). The total number of vehicles for terminal collection and delivery grew 25% to 90,000 (excluding motorcycles and electric vehicles)
Product Offering	Full suite of products. 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 (general 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 (End of Dec 2019) operates a fleet of 71 aircraft of which 13 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. Started JV with Russian e-commerce platform J in Aug 2019.
E-Commerce Outlook and impact on business	Not available

Reflects financial data through to end of 2019, as well as monthly reporting

Table 9 – United Parcel Service (UPS) profile

Company	United Parcel Service (2019)
Description	Multinational package delivery and supply chain management provider
Headquarters	Atlanta, Georgia
Revenue	$74.8 billion, $46.5 b US Domestic Package, $14.2 b International Package, $13.3 b Supply Chain Freight. 80% or $59.8 b from total revenue is US Q1 2020: consolidated revenue increased to $18 billion (+5%) while net income was $965 million (-13%) Q2 2020: consolidated revenue increased to $20.5 billion (+13.4%) and net income was $1.9 billion (8.8%)
Profitability and growth	UPS annual net income was $4.4 billion, a 7.3% decline YOY. UPS Supply Chain division declined by 3% in 2019, International declined by 1.5%. UPS Domestic Package division grew by 7%. UPS International segment operating margin of 18% leads the industry Profits by division: Domestic (9%), International (18%) and Supply Chain (7%).
Main geographical markets	North America, Europe, Asia-Pacific, Latin America, Middle East & Africa
Main competitors	DHL Express, FedEx
Shipments and tonnage	5.5 billion packages and documents annually, serving more than 200 countries and territories
Air Network Overview	Aircraft fleet of 261 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	130,000 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

Company	United Parcel Service (2019)
	Worldwide Express Saver: 2-5 business days, delivery by end of the day 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	261 aircraft, including 75 757Fs, 52 A300-600Fs, 81 767Fs, 37 MD11s and 28 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 and accounts for 11.6% of their consolidated services.
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 up to Q2 2020