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2021 GLOBAL E-COMMERCE LOGISTICS OUTLOOK

Competition and greater volumes creating opportunities for air logistics

2021 Global E-Commerce Logistics Outlook

Competition and Greater Volumes
Creating New Opportunities for Air Logistics

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Executive Summary

Global e-commerce sales received a big boost from the pandemic, with 2020 growth coming out at around double the normal growth rate in most markets. Some companies were even talking about several years of retail share gains compressed into several months. We find that an exaggeration, but there are indications that the increases in 2020 and 2021 are unlikely to turn into a decrease in 2022 and beyond. Cross border e-commerce did not perform as well as intra-regional or domestic e-commerce, mainly because of a severe lack of intercontinental cargo capacity which is likely to persist well into next year.

High growth in 2020 and 2021 has created much more diversity in the e-commerce space and that is good news for an air logistics market that has become very dependent on Alibaba, Amazon and Jd.com. Platforms such as Shopify and Mercado Libre have done extremely well, as have Walmart and Pinduoduo, to name a few. Others like eBay, Jumia and Flipkart have shown disappointing results. Investors also are still willing to underwrite unprofitable businesses on the back of promises of a golden future. For many platforms, shipping costs continue to grow faster than revenues, not a good development from an operational efficiency standpoint and likely to put future pressure on cutting costs. Air logistics providers take note.

By our estimates, 17% of global airfreight is e-commerce and this share spreads over express, general cargo and postal networks. This includes small packages as well as e-commerce consolidations that are cleared on arrival in the destination market and then injected into national postal and courier distribution networks. The dependence on e-commerce traffic has increased substantially particularly in postal and express networks. Most postal traffic is e-commerce traffic, while the business to consumer share of express traffic increased from 48% of shipments in 2019 to around 65% in 2020. This share is likely to drop as business to business traffic returns and which has already been the case in 2021.

Amazon is now the fourth largest aircraft customer worldwide, behind FedEx, DHL, UPS and before SF Express. Amazon remains the only company with a substantial and growing dedicated air network, but other platforms make use of air capacity through partnerships. Mercado Libre now has four dedicated aircraft and other platforms may also make similar moves.

All platforms have one thing in common: controlling logistics is central to their strategy. However, the meaning of control varies across platforms with some such as Amazon choosing to be very hands on and others working through third party subcontractors and partners.

1. Introduction and Organization of the Report

Since 2019 we have been publishing an e-commerce logistics outlook that focuses on the impact of e-commerce growth on companies operating across the air logistics business, including postal and express companies, airports, airlines, service providers and leasing companies. Like last year, the outlook for global e-commerce continues to be shaped by the never ending pandemic. We hope that next year's report will be published in a more normal environment.

Chapter 2 provides an overview of the main e-commerce markets worldwide, as well as recent developments across key markets in North America, Europe, and China.

Chapter 3 provides an overview of the mechanics of domestic and cross border e-commerce. This is an important starting point in understanding where to look for future air logistics opportunities.

Chapter 4 focused on the role of the big e-commerce platforms in shaping air and ground logistics requirements. Compared to previous reports, we have expanded our coverage to include more platforms. The Appendix to this report contains detailed logistics profiles of each of the platforms covered.

Chapters 5, 6, and 7 go into further depth examining how business to consumer traffic has shaped strategy and the outlook in the Postal, Express and Air Cargo business. We regularly publish analysis on these topics available on our Insights (www.cfcinsights.com) platform, and as the business evolves so does our thinking.

Chapter 8 analysis the differences and reasons in market performance across to large geographical markets – Africa and Latin America. Both hold great promise for future growth, but so far, only Latin America has delivered and has shown strong growth despite pandemic induced capacity issues.

The report is complemented with an interactive PowerBI Dashboard that allows users to analyze and understand different aspects of the e-commerce logistics business.

We trust that you will find the material presented in the report valuable in shaping your company's ecommerce logistics strategy or e-commerce product offering. As always, we welcome your critical comments and feedback on the content, as well as subjects that you would like included in future analyses.

2. E-Commerce Markets and Growth Drivers

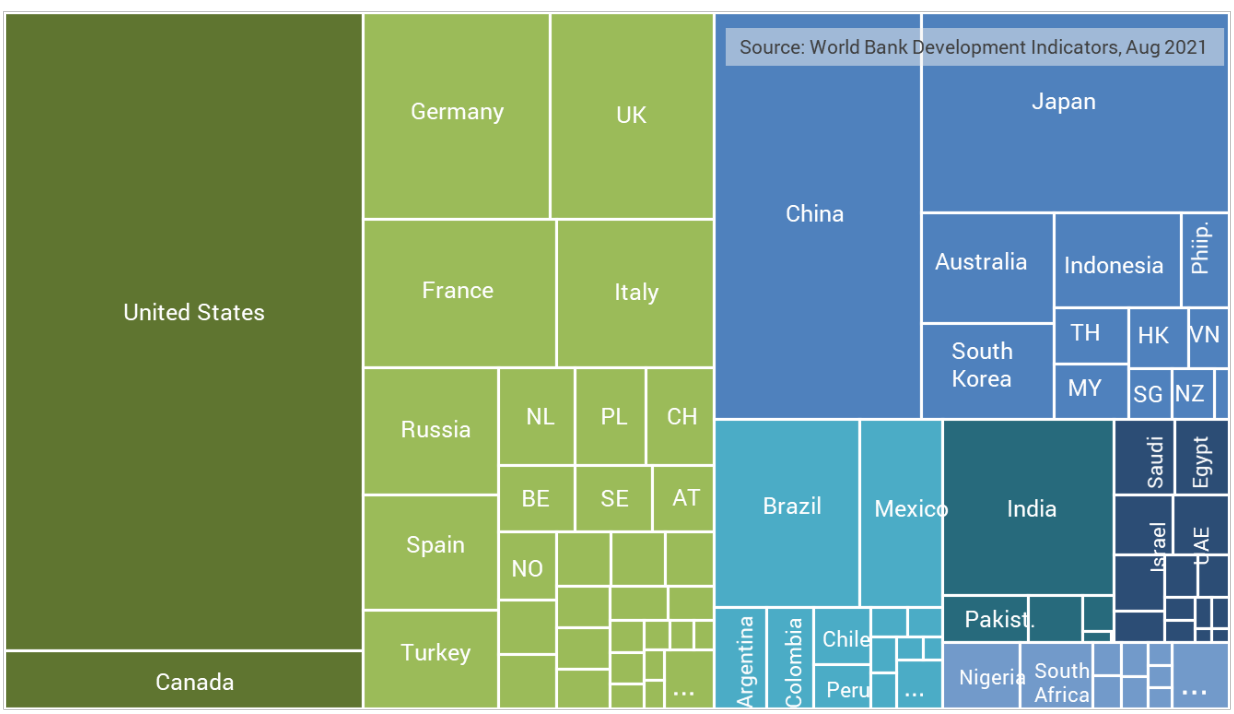
Key findings:

- While traditional retail took a hit in 2020, the world's major e-commerce markets saw strong 20+% growth, about twice the normal rate.
- Contrary to previous years, domestic and intraregional e-commerce performed better than cross border e-commerce, which was constrained by a global air freight capacity shortage.
- Growth is likely to moderate in the coming years, but achieving a balance between in-store and online retail will depend on how the pandemic continues to evolve.

2.1 In Context: Global Retail and E-Commerce

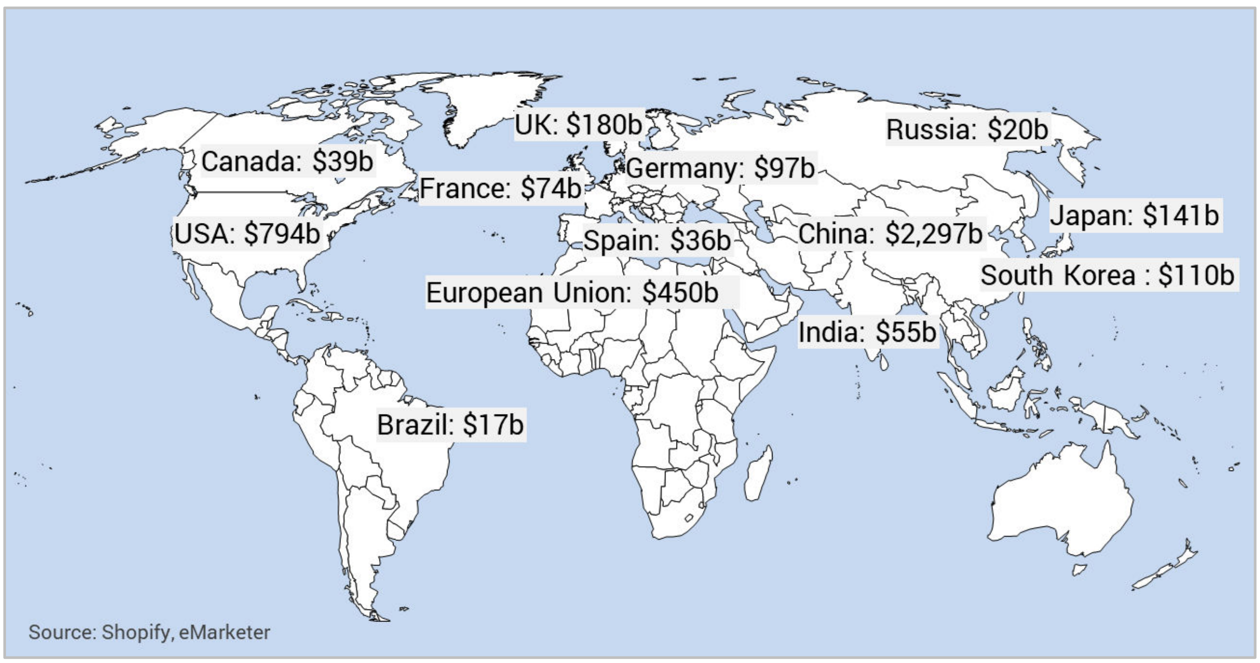
The United States, the European Union and the UK, China, and Japan account for two thirds of worldwide consumer spending. The US and the EU alone each account for over a quarter of total household consumption. Figure 1 displays an overview of the retail markets worldwide.

Figure 1 - The World's Largest Retail Markets in 2021



These markets are also the biggest business to consumer e-commerce markets, although China's e-commerce market is proportionally larger relative to its overall level of consumer spending and by some counts, Chinese consumers spend more on online shopping than any other country in the world. Most retailers earn most of their revenue from local operations, giving the impression that those with the largest domestic markets have the greatest foreign operations, but this is not necessarily the case across the world. Figure 2 shows the largest e-commerce markets in terms of revenue. Cargo Facts Consulting estimates that the European Union accounts for approximately $450 billion in e-commerce revenue and is the third largest e-commerce market after China and the United States. The world's largest markets shown in the map have grown 15% in average with China displaying the largest growth of about 20% in 2020 while Japan only grew by 4%.

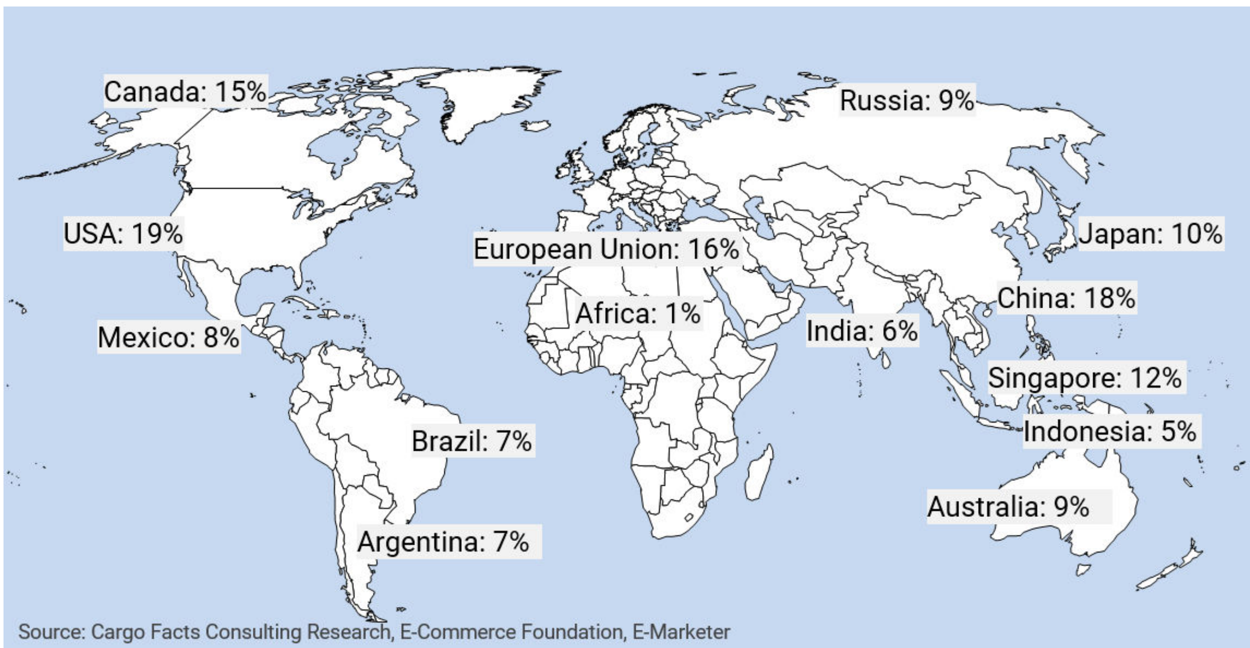
Figure 2 - E-Commerce Revenue by Market 2020



Our analysis finds that India, Brazil, Mexico, Russia, and Argentina have seen the highest rise in e-commerce revenue while some other more mature markets such as Japan or Canada have been – relatively speaking – growing at a slower pace or below the 15% average. Moreover, the number of nations where online shopping accounts for a double-digit share of all retail grew in 2020.

E-commerce market penetration, the share of retail that is conducted online varies across countries and regions, with China, the United States and the European Union displaying the highest shares. Shares in Latin America, Asia Pacific and Africa are much lower than these countries (see Figure 3). The COVID-19 crisis accelerated the e-commerce share of all retail sales globally as digital channels became the most popular alternative to in-person shopping. During the peak of the pandemic, the share of e-commerce sales in most nations was in fact higher, growing by more than ten percentage points in some countries such as Canada, France, or the United Kingdom. Figure 3 shows the current e-commerce market penetration as of September 2021.

Figure 3 - Current E-Commerce Market Penetration

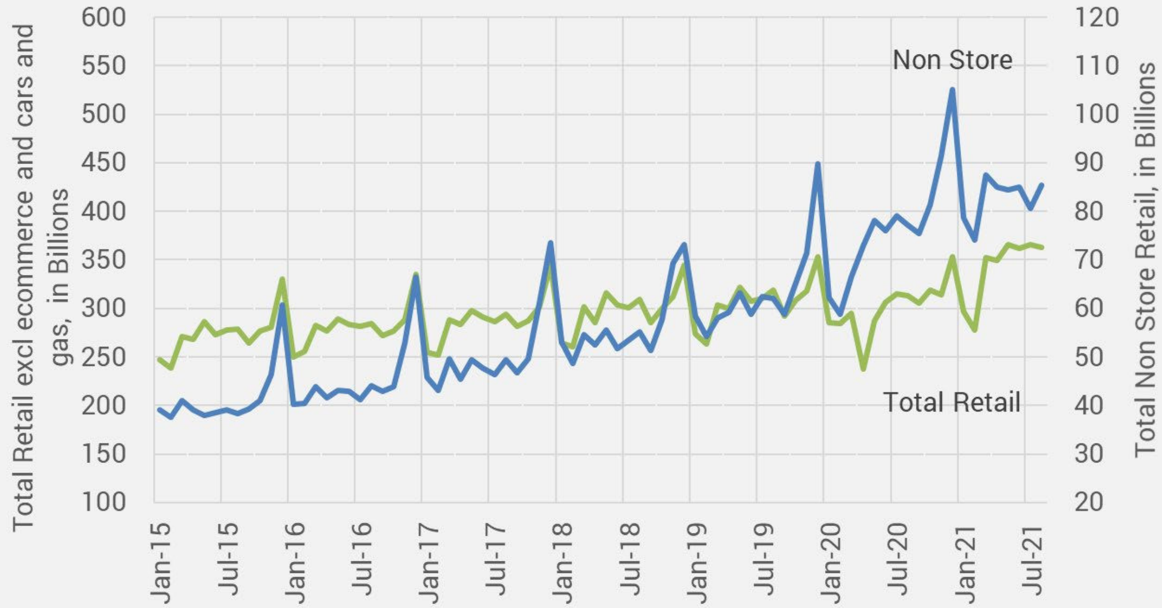


Before the pandemic, we had observed a slowdown trend in consumer spending, but the pandemic led to a rapid acceleration globally, including those countries that had a slower growth rate. Latin America showed the highest growth of e-commerce market penetration, at about 37% versus 2019. In comparison, the Middle East and Africa regions grew by 20%. Overall, we have observed an average of 25% growth across all regions worldwide.

2.2 US E-Commerce in 2020 and 2021

US e-commerce sales grew by 21% in 2020, while in store retail declined by 1%, with department stores, electronics stores, clothing stores and restaurants showing very large declines as large part of the population was forced into lockdowns. The high level of e-commerce growth achieved in 2020 continued into 2021, with e-commerce sales up 16% for the first 8 months compared to 2021 and 39% higher than the same period in 2019. Overall, in store retail is also up – 18% compared to 2020 and 14% compared to 2019.

Figure 4 - US In-Store and Online Retail Sales Jan 2015 - Aug 2021



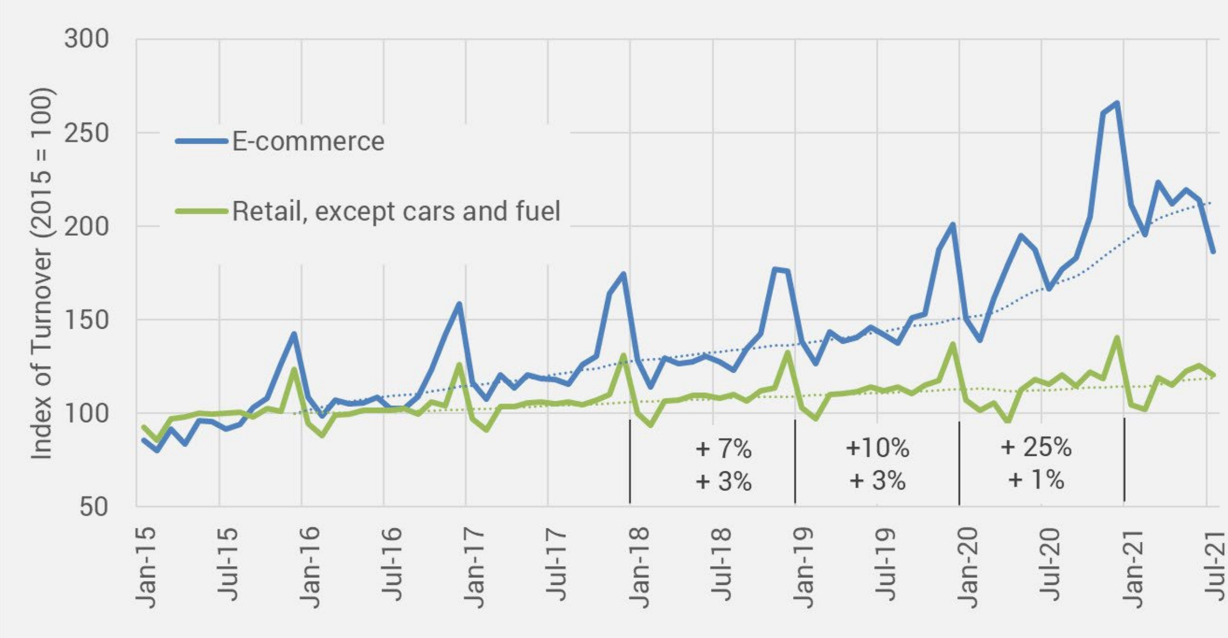
Source: US Census Bureau, As at 17 Sep 2021, Not Seasonally Adjusted

As illustrated in Figure 4, the level of e-commerce growth has started to slow in recent months. That is not entirely surprising given the level of growth in 2020. There is only so much stuff that one can buy.

2.3 European E-Commerce in 2020 and 2021

The development in Europe is similar, but 2020 growth was even higher than in the US. Overall online sales grew by 25%, while the remaining retail sector (which includes online retail) grew by 1% (see Figure 5). As of July 2021, online sales were running 12% higher than 2020 and 32% higher than 2019. Overall retail was 4% above 2020 levels and 8% above 2019 levels.

Figure 5 - EU 27 Retail and Online Retail Sales Index Jan 2015 - Jul 2021



Source: Eurostat, calendar adjusted series, calendar adjusted, non deflated series

As with the US, we expect growth in 2021 and beyond to moderate.

2.4 China's E-Commerce Market Potential & Environment

China stands out as the largest e-commerce market and projections show that they will remain in the first position in the foreseeable future, but this country still faces multiple challenges in the e-commerce space. Advertising products through online tools like Instagram or YouTube is not possible in China and online consumers prefer social media or mobile applications over standalone websites to purchase products. It is easier for Chinese businesses to enter Western markets, but the opposite requires an ICP (Internet Content Provider) license from the Chinese Government, a troublesome and lengthy process required for all foreign domains. Many international corporations struggle to make money in China's e-commerce market. Marks & Spencer, ASOS or Revlon are just a few of the well-known companies that have failed in China over the past years. Amazon's foray into China was entirely unsuccessful – while the company achieved a market share of around 15% in 2011, this dropped to less than 1% four years later, leaving little choice but to exit the market completely.

Our analysis shows that the Chinese e-commerce environment is dominated by a few players and most customers in China purchase goods directly from these platforms. There are three main sales channels in the Chinese e-commerce industry, and each has a defined target group and customer strategy (see Figure 6).

Figure 6 - Chinese E-Commerce Sales Channel Strategy Framework

Social Commerce Platforms	Online Marketplaces	Third-Party ECommerce Retailers
• Pinduoduo, WeChat • Use of Social Media platforms • Broad customer base due to large use of cell-phones	• JD.com, Alibaba • High sales potential of large global customer base • Leverage of established e-commerce infrastructure	• DHGate.com, Suning, Mecoxlane • Product focus leading to high relevant target groups

The domestic rivalry in Chinese market is also strong and only those companies that have proved to be creative, competitive, and unique have survived. Moreover, Chinese customers are hesitant to purchase items from firms they have never heard of. So, while selling your items on well-known e-commerce platforms like Tmall or JD.com is required, small businesses will almost certainly be unable to do so due to the rigorous restrictions and limitations imposed by each site. This leaves us with Alibaba, JD.com and Pinduoduo dominating the Chinese e-market. While these three platforms are subject to the same regulatory framework, Alibaba has been under increased scrutiny for its business operations, which has benefited its competitors, notably JD. Last quarter, JD's revenue increased by 26% year over year. Its overall sales are higher than Alibaba's, even though Alibaba has three times the transaction volume due to different business strategies.

The Chinese government's pressure on Alibaba was perhaps the most important factor impacting the recent results. In April 2021, regulators slammed Alibaba with a record fine of 18.2 billion yuan ($2.8 billion) for breaking antitrust laws, saying that the company had been pressuring merchants on its platform for years to avoid doing business with competitors like JD. Without these restrictions, Alibaba's monopolized brands like Starbucks or Louis Vuitton were free to set up shops on JD, which had 531 million customers at the end of June, up almost 30% from the previous year.

Pinduoduo is the newest addition to China's e-commerce big three, which have only recently emerged. Until 2019, Alibaba had dominated the roost, with JD attempting to catch up. Last year, though, the 5-year-old Pinduoduo became large enough to pose a concern. Pinduoduo made effective use of the WeChat messaging platform to advertise cheap items in smaller towns and rural areas. Its user base has exploded in recent years, increasing by 24% in the year to June to almost 850 million, surpassing Alibaba's. Pinduoduo has also been focusing its efforts on growing its client base through large sales events, with profitability being a distant second but it has the potential to become an even more powerful force when it begins to focus on recouping this investment.

Last year, we wondered if Pinduoduo’ s business model was sustainable and if they would be able to compete with Alibaba and JD.com in the near term. Given its newbie position in the industry, the firm, which only debuted in 2015, is enjoying unusually spectacular development. Pinduoduo’ s revenues originate from its marketing, advertising campaigns and promotions from its 5 million third-party sellers and it does not own stock or warehouse spaces, making it an asset-light based e-commerce company.

2.5 Cross Border E-Commerce in 2020 and 2021

While domestic e-commerce markets are larger, cross border e-commerce markets have been growing faster. E-commerce platforms are continuing to develop globally, and they are using a variety of methods to their cross-border e-commerce strategy. Cargo Facts Consulting has compiled a list of the various techniques, as well as their benefits and drawbacks, that different platforms have utilized when beginning cross-border operations. A successful strategy requires the correct implementation of one or more of the approaches listed in Table 1. The Chinese giants, Alibaba and JD.com have both introduced branded sites in their international marketplaces with the aim to provide an enhanced customer experience.

Table 1 - Strategies for Cross-Border E-commerce adopted by Platforms

Strategy	Pros	Cons
Partnering with local vendors	Logistics operations managed by experienced local teams	Vendor sourcing process and limited control of brand experience and operating costs
Establish a local entity within the foreign country	Possibility of future expansion, control of full operations, consumer experience and IP	Large upfront investment, long ROI and comprehensive research on import, market, taxes, policies and regulations
Introduce a online marketplace	High traffic and outsourced logistics; continuous monitoring of consumer behaviour	Higher costs to run branded sites and slower servers; higher competition on potential saturated marketplaces

China is the main source of cross border e-commerce, accounting for approximately 37% of all online cross border transactions worldwide in 2020. This number decreased from 39% in 2019 – mainly because of tight international air cargo capacity. If intra-EU transactions (which are essentially domestic) are excluded, this number would be much higher. Figure 7 displays an overview of key e-commerce markets and the share of Chinese cross-border purchases. Figure 8 shows the countries with the highest sales.

Figure 7 - Chinese Share of Cross Border E-commerce by Country 2020

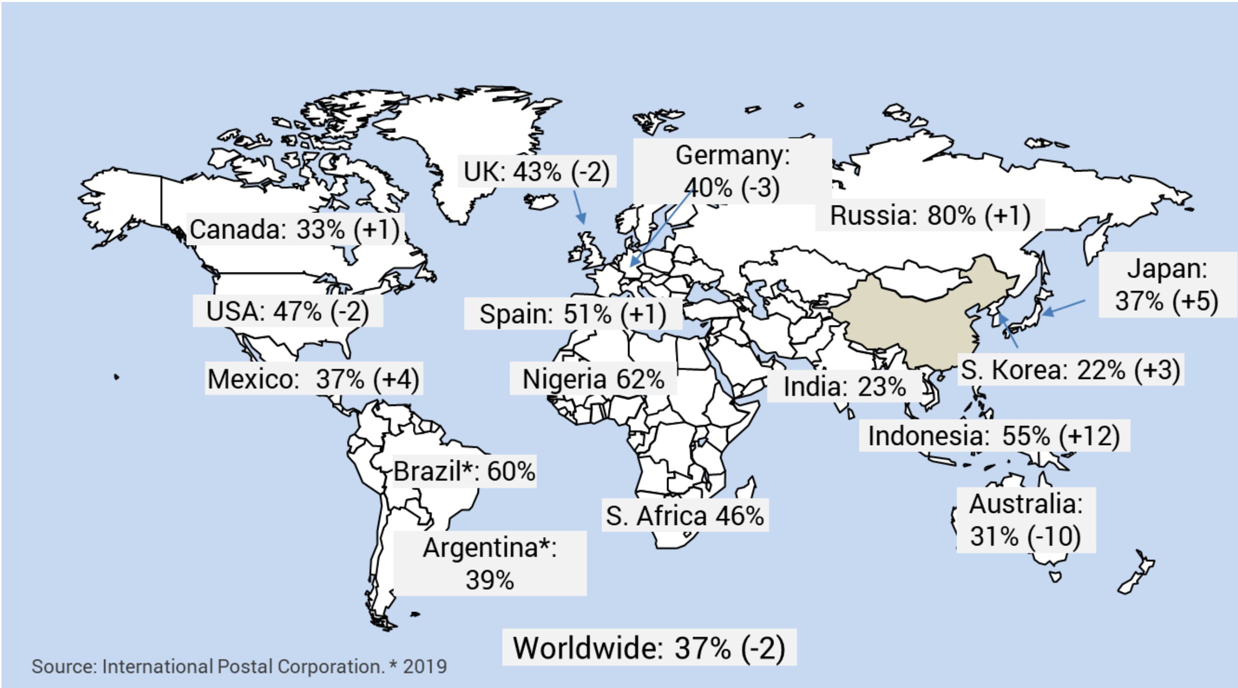
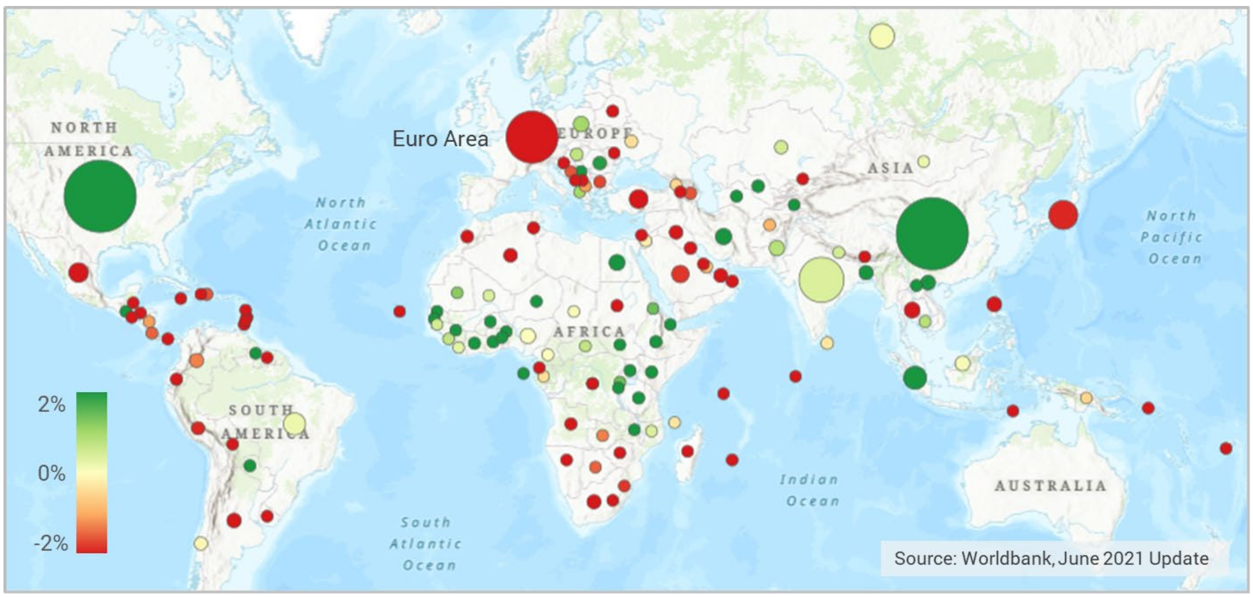


Figure 8 - Cross-border E-commerce Sales by Country, 2020

2.6 Beyond 2020/21: Backwards or Forwards?

Because of the pandemic, many economies worldwide are expected to be smaller in 2021 than they were in 2019. Following growth of 2.5% in 2019, the recent June 2021 World Bank report forecast estimates a worldwide decline of 3.5% in 2020, followed by an increase of 5.6% in 2021. This means the world economy will be only 2% larger than at the end of 2019. While the World Bank is forecasting better economic performance than a year ago, several economies will take some time before they recover to 2019 levels. By the end of this year, the Euro Area is still only expected to be 98% what it was in 2019, while China and the US are expected to be larger.

Figure 9 - 2021 Forecast GDP as a Percentage of 2019 Levels, Worldwide



The pandemic has accelerated the shift to online shopping with most major e-commerce platforms reporting strong sales in 2020 and for the first half of 2021. The rate of digitization continues its upward trends and the e-commerce giants have benefited from a higher number of individual consumers shopping online. Platforms have leveraged their technology and logistics capabilities to ensure the steady supply and on-time delivery of products to consumers, but will this increase in e-commerce adoption stay beyond 2020? Reports indicate that the pandemic has pushed the industry ahead by around five years.

Years before the pandemic, retailers kept fighting an arduous battle against the e-commerce giants but 2020 has certainly accelerated the challenges as malls remained closed for months and consumers relied on online shopping. Brick-and-mortar stores have reopened but they all must adapt to the safety regulations such as limiting the amount of people inside the store, imposing mask wearing, introducing more self-service options, and improving the speed of service. This is costly, time-consuming, and not appealing to shoppers who are used to seamless online purchases; how can a client buy an item if they are worried about going into a store?

Physical chains are struggling and there will be a lot less at the end of the pandemic if they do not reinvent themselves to survive. Retail chains are looking into fulfillment and logistics centers located behind the stores or nearby to combine the in-store shopping, click and collect option and fulfillment of online orders all in the same place. Since shopping malls are conveniently located in urban areas, retailers believe their stores can become part of the supply chain. Those traditional stores with the capability to increase their online offering and ensure a customer enhanced experience will likely survive the impact.

The COVID-19 outbreak has highlighted some of the weaknesses of digital technologies and tools and in the context of e-commerce, the main lessons learned include the need for greater cooperation between countries to facilitate the cross-border movement of goods, the implementation of online payment options across younger markets and the reduction of the digital divide. The ongoing effects of the COVID-19 outbreak are highly unpredictable and they impact the platforms business and supply chain operations, demand for products and services, cost of logistics, access to inventory, ability to predict financial performance and in-stock positions among others.

3. Fulfillment Channels: The Mechanics of e-Commerce

Key findings:

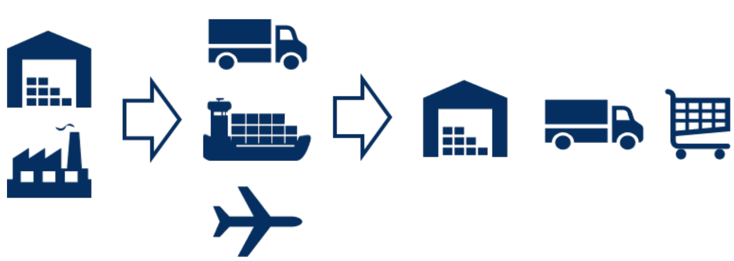
- Cross border and domestic e-commerce are fulfilled through distinctly different channels and using a different set of providers.
- Postal companies, express carriers and specialist e-commerce consolidators are key agents in cross-border fulfillment, where the ability to deal with customs and value-added and other tax regulations are necessary.
- Parcel carriers, postal companies and other ground transportation providers are key participants in domestic and intra-regional fulfillment.
- Air capacity is more important in intercontinental fulfillment, but for domestic and regional fulfillment ground transport is the leader.
- E-commerce remains a key growth driver for the air freight industry, as online transactions keep boosting demand for parcel delivieries worldwide.

Understanding where to find the highest quality opportunities in e-commerce logistics requires an understanding of the mechanics of e-commerce fulfillment and competitive dynamics across the fulfillment chain.

3.1 E-Commerce Fulfillment vs Traditional Retail Chains

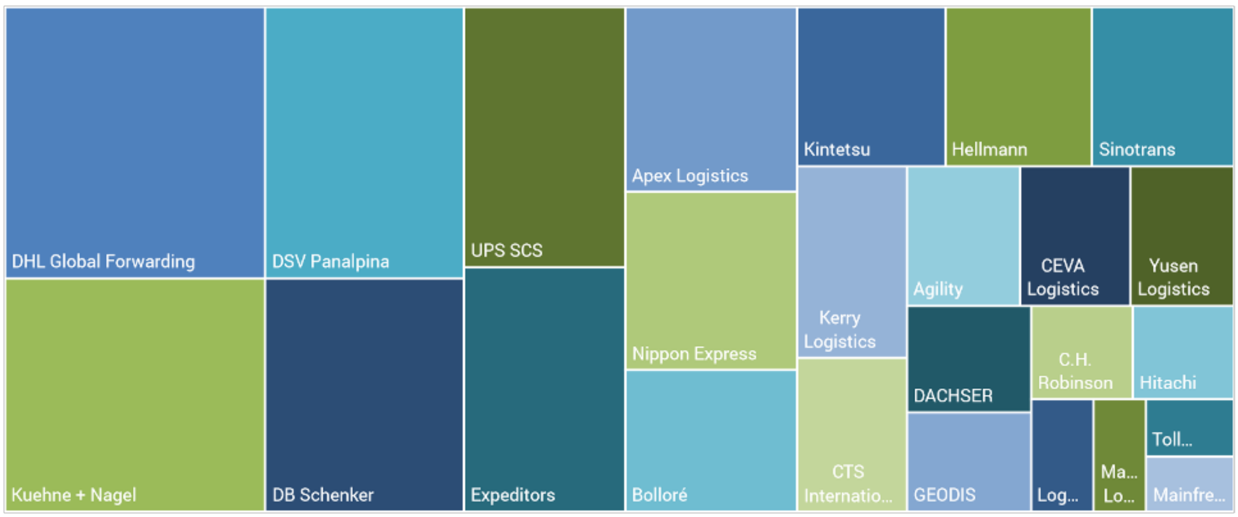
Traditional retail and e-commerce fulfillment channels are fundamentally different in nature and involve a different set of providers. Traditional retail fulfillment largely involves wholesale transportation of large lots between factories, distribution centres and retail outlets using linehaul truck, shipping, and air transportation. Figure 10 provides a simplified overview of traditional retail fulfillment.

Figure 10 - Traditional Retail Fulfillment



The key transportation providers in traditional retail fulfillment are third party logistics providers and freighter forwarders, shipping lines, airlines, and trucking companies. In some markets, rail transport also plays a role in the shipment of containers from port to distribution centres. Shipment sizes tend to be either full or partial container or truck loads. International airfreight in traditional retail fulfillment is controlled by the top freight forwarders (see Figure 11).

Figure 11 - Top 25 Freight Forwarders, Based on 2020 Tonnage



Source: Armstrong and Associates (July 2021)

While much of the front end of the e-commerce retail fulfillment from factory to distribution centre is like the traditional retail chain, online retail is primarily centred around movement and delivery of small packages or single items, either domestically or cross borders. While some of the top freight forwarders play a role in e-commerce fulfillment, they not particularly geared towards this business.

Figure 12 provides a simplified overview of the e-commerce fulfillment chain.

Figure 12 - E-Commerce Retail Fulfillment

A customer – be it a consumer or business – places an order which is then picked, packed, and dispatched from a seller or distribution centre using an inhouse or third-party logistics system that may involve pick up, origin handling, sorting and consolidation, road, and air linehaul, customs clearance, destination sorting and handing, and last-mile delivery to homes, business or pick up points such as retail outlets and parcel lockers. Large e-tailers use predictive analytics to estimate what customer will order and when, allowing them to pre-stock items on delivery vehicles or local distribution points to provide instant or rapid delivery.

Particularly for domestic e-commerce the customer is generally provided with real-time or near-real-time tracking information. Due to the fulfillment options chosen by sellers in cross border e-commerce, tracking information is often not available to the customer.

E-commerce fulfillment involves more parties than traditional retail fulfillment. These include postal companies, express companies, courier companies, independent contractors as well as wholesale transportation capacity providers such as airlines or trucking companies. The traditional third-party logistics providers and freight forwarders play a lesser role in e-commerce fulfillment, either because platforms manage their own logistics or rely on specialist e-commerce consolidators or other providers to organize transport.

The way shipments are injected into third party carriers' systems depends on how sellers and logistics platforms manage their requirements. In essence, there are interface possibilities at all stages of the chain. For example, shipments may be handed over to an integrator at origin, injected into last mile networks for delivery without any network impact further upstream.

The next two subchapters describe the mechanics of domestic and cross-border e-commerce fulfillment in more detail. Chapter 4 and accompanying appendix describe how the large platforms manage their logistics requirements.

3.2 Domestic (Customs Union) E-Commerce Fulfillment

Fulfillment in domestic networks primarily relies on ground transportation, i.e., trucks and vans. For the purposes of our analysis domestic also includes intra-EU or other customs union markets that essentially operate like domestic markets. Some premium traffic moves by air in express or dedicated networks, and driven by predictive analytics, platforms such as Amazon also move inventory between fulfillment centers using air freight to ensure shorter delivery times to market once actual orders have been placed. Some e-tailers are also trialing delivery by drone or other automated vehicles, but so far this type of delivery is still in the experimental stage.

More detail of the type of traffic moving in different networks can be found in Chapters 5 (Postal), 6 (Express) and 7 (Air cargo and dedicated e-commerce networks).

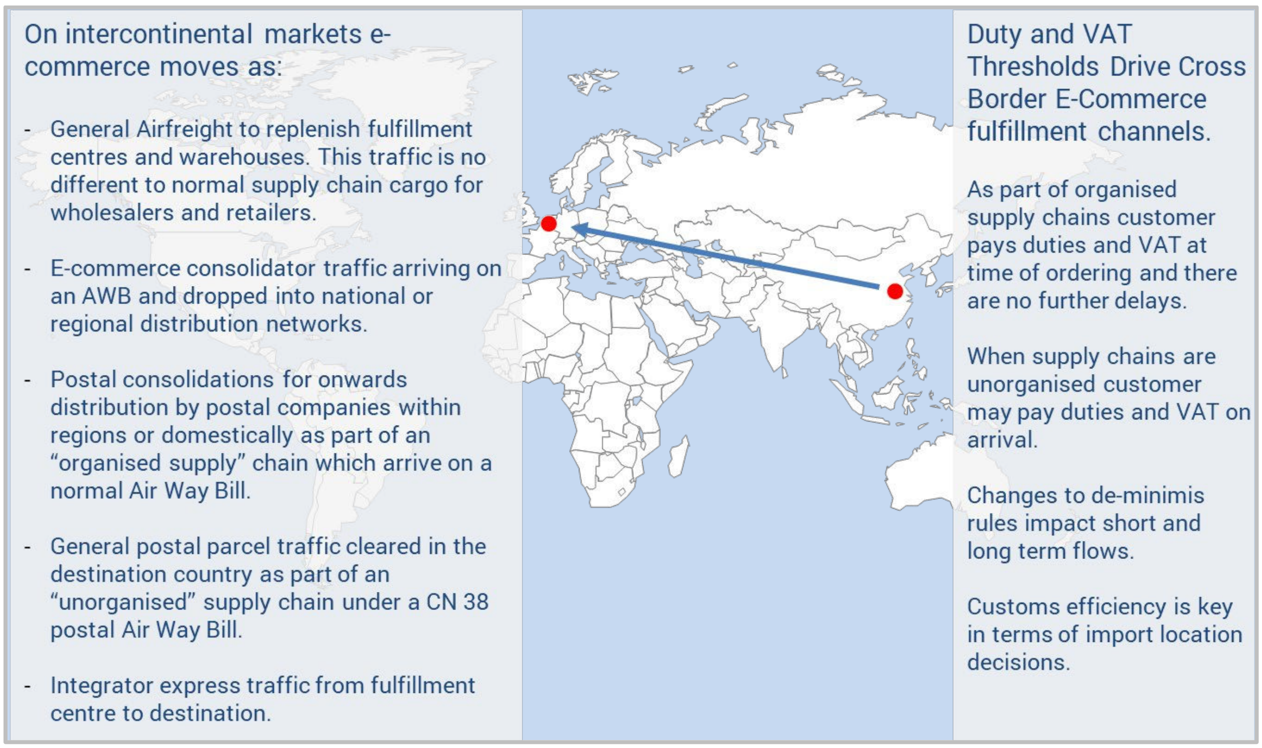
Figure 13 provides an overview of the mechanics of domestic and intra-regional (customs union) fulfillment. The choice of fulfillment channel and carrier is generally determined either by the seller or e-commerce platform, although in many cases customers can choose a shipping speed and occasionally are also given a choice of different parcel operators.

Figure 13 - Domestic Fulfillment

3.3 Cross-Border E-Commerce Fulfillment

Cross border e-commerce generally involves the use of airfreight, with subsequent on forwarding through postal, express, or other parcel networks (see Figure 14). Fulfillment channels are driven by customs and tax regulations and practices, particularly rules relating to de-minimis, tax-free thresholds and collection procedures. Changes to these have a fundamental impact on the flow of cross border e-commerce. For example, when Australia reduced its $1,000 tax free threshold on online shopping, volumes dropped significantly. Starting 1 July 2021, the European Union dropped the EUR 22 de-minimis threshold on cross border purchased from outside the EU, meaning that every purchase is subject to Value Added Tax (VAT) and customs duties, where applicable. The United States has a de-minimis threshold of US$800, which was increased from US$200 in 2015.

Figure 14 - Cross Border Fulfillment Channels



Postal, express companies, e-commerce consolidators are the key players in cross border e-commerce. Traditional forwarders and 3PL have tended to remain focused on their traditional business-to-business industrial operations. Most of the important e-commerce consolidators are local Chinese companies which are not household names outside China. We do not view the replenishment of e-commerce provider warehouse and fulfillment center inventory as e-commerce. This type of traffic is no different to normal consumers goods and supply chain cargo moving by air (and ocean freight) for the replenishment of wholesaler and retailer stocks. As such, we have excluded this from our analysis.

However, as e-commerce gains a greater share of overall retail volumes, we see a potential shift between customers – in favor of wholesale traffic to e-commerce warehouses and away from the distribution centers of traditional wholesale and retail companies.

4. E-Commerce Platforms: Shaping Logistics Networks

Key Findings:

- While the big three – Alibaba, Amazon and Jd.com – are the largest global e-commerce platforms by far, we find that e-tailing is becoming more competitive.
- More platforms are turning the corner in terms of profitability, but investors are still willing to underwrite growth with the promise of a golden future.
- E-Commerce logistics fulfillment networks and service requirements are being shaped by the large global and regional platforms.
- A common strategy across platforms is control over the fulfillment and logistics network. However, for some platforms (such as Amazon) this involves increased insourcing, while most others adopt a hand off approach and are happy to work with third parties to meet delivery commitments.

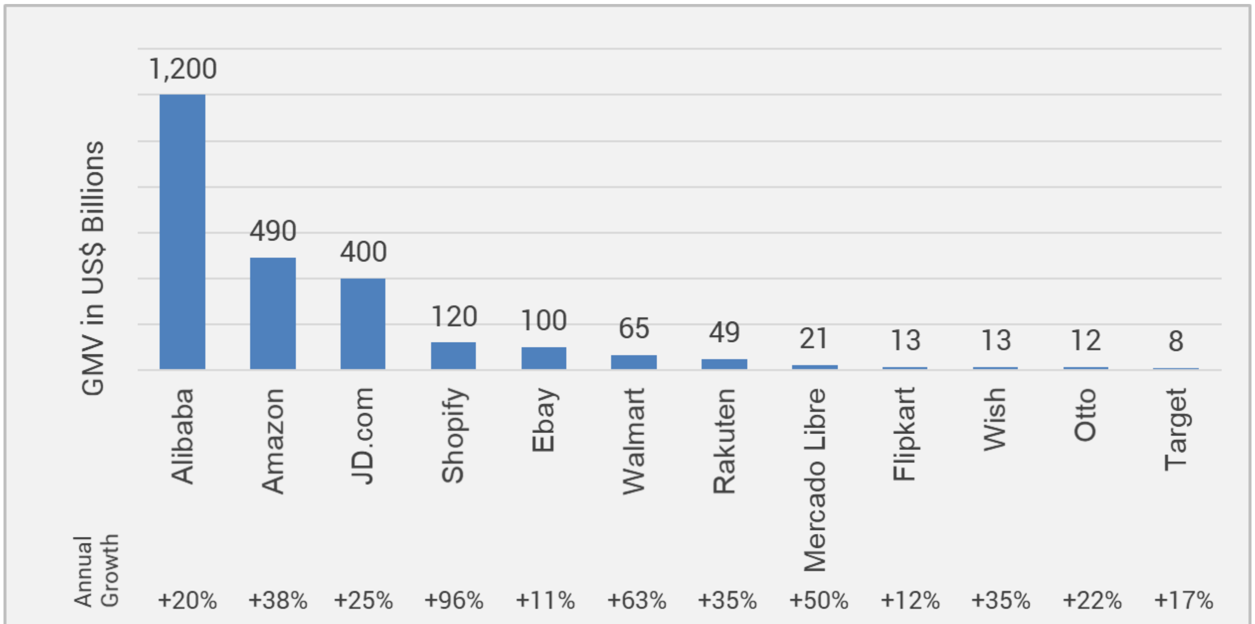
4.1 The Big 3 Drive Global E-Commerce Volumes

With a large share of global e-commerce revenues generated by or via the big global e-tailers and marketplaces, the strategies of the major platforms have a disproportionate impact on shaping e-commerce logistics requirements. As part of our research, we have taken a detailed look at the operations and logistics strategies of 14 key, emerging global and selected regional e-commerce platforms representing approximately 50% of global e-commerce GMV: Alibaba (and its subsidiaries), Amazon, JD.com, Pinduoduo, Ebay, Shopify, Walmart, Target, Rakuten, Otto, Mercado Libre, Flipkart, Wish and Jumia. Most of these companies have become large and powerful buyers of logistics services. Please note that in the case of Target and Walmart, the GMV figure only includes the company's e-commerce business.

We feel the companies selected provide a valuable cross-industry picture of what is happening in e-commerce logistics. This year we expanded our coverage of Target and Pinduoduo and will continue to add other platforms to our analysis where we feel developments are likely to have a material impact on the business and the outlook for air logistics services. As with other parts of the report, we welcome your feedback on the scope of our coverage in the lead up to next year's report, the research for which starts in the spring. A year in the world of e-commerce is a long time.

Figure 15 provides an overview of the Gross Merchandise Value (GMV) of the platforms included in our analysis. GMV is a measure of scale and consists of the sum of revenue conducted with own retail and revenues achieved by third party retailers. For platforms which host third party sellers, the revenue generated by platform itself (also called net revenues) is usually a fraction of GMV. In Alibaba's case net revenues are about 10% of its GMV. This number increases depending on the commissions charged by the platform as well as value-added services provided to sellers, such as fulfillment. This report's Appendix provides a detailed profile of each of the platforms, their logistics operations, expenditure, and strategies.

Figure 15 - Key Global and Regional E-Commerce Platform GMV in 2020



Source: Cargo Facts Consulting analysis and estimates, Company Financials

With a total of annual active consumer base of over 1 billion worldwide, Alibaba reached a GMV of $1.2 trillion (RMB 8,119 billion), which includes China retail marketplaces and local consumer services GMV. All major and minor platforms have shown double-digit growth in overall sales volumes in 2020.

Sellers on Amazon's marketplace sold $300 billion worth of products in 2020, an increase of $100 billion over 2019. Amazon's own sales increased by 40% to $190 billion (with net sales increasing by $55 billion) and bringing the total GMV for the company up to $490 billion.

None of the top three grew as fast as Shopify (+96%), Walmart (+63%) and Mercado Libre (+50%). Flipkart's growth was severely affected by a longer shut down of public life in India. Jumia (not shown in the above chart) saw its GMV decline.

4.2 It's Not about the Money: Profitability is Still a Sideshow

Our research has found that the global and regional e-commerce platforms fall into three categories:

- **Consistently profitable**: This includes Alibaba, eBay, Walmart, Target, and Otto Group. Rakuten used to sit in this category but has been losing money recently.

- **Becoming profitable** recently or in the last years: This includes JD.com, Shopify and, more recently Mercado Libre. Amazon has been making money overall since 2015, but profitability varies greatly across business segments and geography. Its North American business tends to generate margins of about 4% to 5% of net revenue, which is not great.

- **Consistently unprofitable**: Most of Amazon's international business falls into this category. Even though the international business overall turned a corner in 2020, Europe and India, for example, continue to lose significant amounts of money. Other platforms that fall into the unprofitable category include Flipkart, Jumia and Wish.

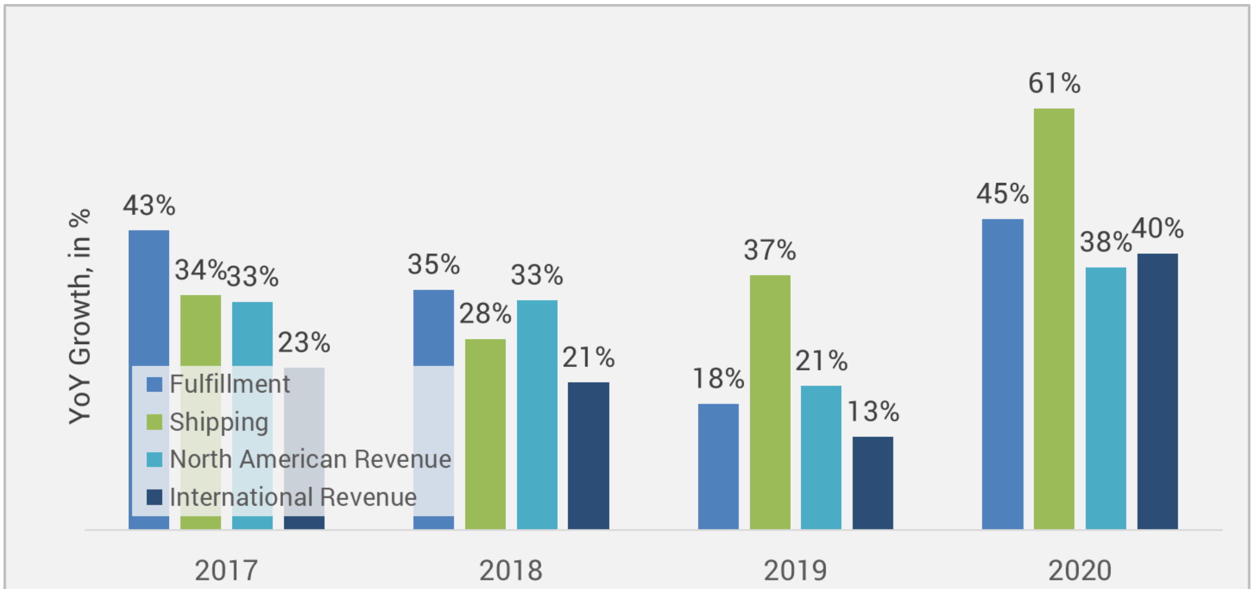
The reasons for the differences are complex, but one key factor is how fulfillment and shipping costs have developed relative to revenues. Building out scale and service capabilities requires substantial investments – and in general investors still seem happy to live off the promise of a golden future.

4.3 Key Platform Driven E-Commerce Logistics Trends

In our initial report in 2019, we identified a few trends that apply across e-commerce platforms – even though geographical scope and scale vary substantially between platforms. These continue to be valid, specifically:

- **Fulfillment costs are still (mostly) rising faster than revenues** – this is both a sign of a shift in service offering as well as a problem. Many platforms (Amazon, Walmart, JD) have moved from two day to overnight, same day or even delivery within the hour. Companies have not recovered the additional cost of this from their customers through their "Prime"-style memberships. This hurts its margins, and consequently transportation suppliers will be pushed harder to lower prices. Amazon has been spending heavily on expanding its fulfillment and more recently, its shipping capabilities. In 2017 and 2018, fulfillment costs grew by 43% and 35%, respectively, while in 2019 and 2020 fulfillment costs grew in line with the increase in amount of their space (see Figure 16 below).

Figure 16 - Summary of Amazon Revenues and Cost Development 2017-2020



Source: Cargo Facts Consulting analysis of Amazon financial results

Meanwhile, shipping costs in both 2020 and 2021 have outpaced revenue growth as the company has increased its capabilities.

- **Own controlled logistics is seen as a competitive advantage:** all the above platforms have their inhouse logistics providers, except for Wish, Pinduoduo and eBay. While most run their own fulfillment centres, they tend to rely on third-party carriers for linehaul and last-mile services. Otto is an exception with its own package company, Hermes, as is JD.com, who also runs its own delivery company. Walmart is providing more of its own last mile delivery through its Spark network.

- **Big platforms are shaping third-party provider networks:** Weekend and late evening delivery are becoming more prevalent around the world, and courier working times and delivery times are being driven by arrival of trucks from fulfillment centres. In 2014 Amazon drove the USPS to deliver on

Sundays, but it took until 2019/2020 for FedEx and UPS to follow suit. Seven-day deliveries are becoming the norm in most parts of the world, but postal and express companies in Europe are behind the curve.

- **Logistics networks are open to third-party sellers:** where platforms host third-party sellers, these can access the platform's fulfillment networks. This is a logical development as most platforms either rely entirely on third party sellers (e.g., Alibaba) or have seen an increasing share of third-party sellers (e.g., Amazon). However, none of the big platforms have become serious competitors to the traditional 3PL giants like DHL, Kuehne & Nagel, or DB Schenker. Cross border as well as domestic e-commerce fulfillment is a fundamentally different business. Cainiao still has the greatest potential to become a threat to the traditional 3PL business, particularly since its network and providers are also open to sellers utilising other platforms.

- **Some logistics networks are open to third parties who are not sellers**: JD.com and Hermes, for example, have opened their parcel networks to thirds parties including the public. Cargo Facts Consulting believes that once networks have reached a certain scale and maturity, platforms will seek to use these networks to drive additional revenue opportunities.

- **Moving from Controlled to Insourced Logistics:** to reduce costs and dependency on third-party providers, some platforms particularly JD.com and Amazon have moved from controlled to increasingly insourced logistics networks. This includes both linehaul, last-mile delivery and establishment of non-courier-based networks of parcel lockers and pick up locations. The latest example is Shopify investing in their warehouse fulfillment solutions. In early 2019 Amazon became its own largest carrier. The definition of "control" varies across platforms – for Amazon it involves being much more hands on and asset driven than in the case of Alibaba.

The following chapters discuss how postal, express, and other companies in the logistics business have been positioning themselves to deal with these trends as well as establishing themselves as alternatives to the large e-commerce platforms.

5. Postal Networks

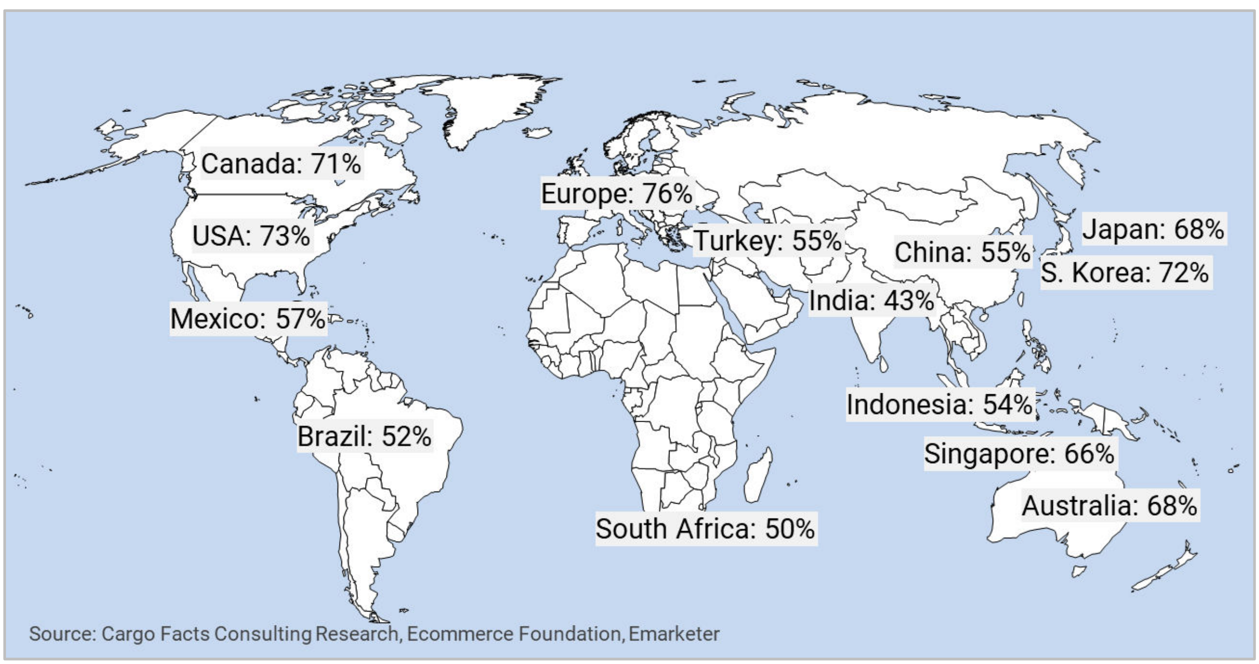
Key Findings:

- Business to consumer e-commerce traffic is becoming the main source of revenue for postal companies as traditional mail volumes continue to decline. As global mail volumes drop, post offices have sought to diversify their revenue streams.
- E-commerce service requirements and volume increases are putting pressure on postal networks which have been forced to adapt operating patterns and invest in physical and IT infrastructure.
- The COVID-19 crisis is accelerating the postal industry's fundamental shift from mail to parcels.

5.1 All Parcels and No Mail: The Changing Face of the Postal Business

The postal business has undergone fundamental changes over the last decade. During this time, the average share of postal revenues from logistics and parcels has increased from 15% to 25%, while traditional mail volumes have continuously declined and represent about 39% of postal revenues today compared to 46% in 2017. Postal companies are key fulfillment agents in the e-commerce supply chain and most parcels moving through postal networks are e-commerce (see Figure 17).

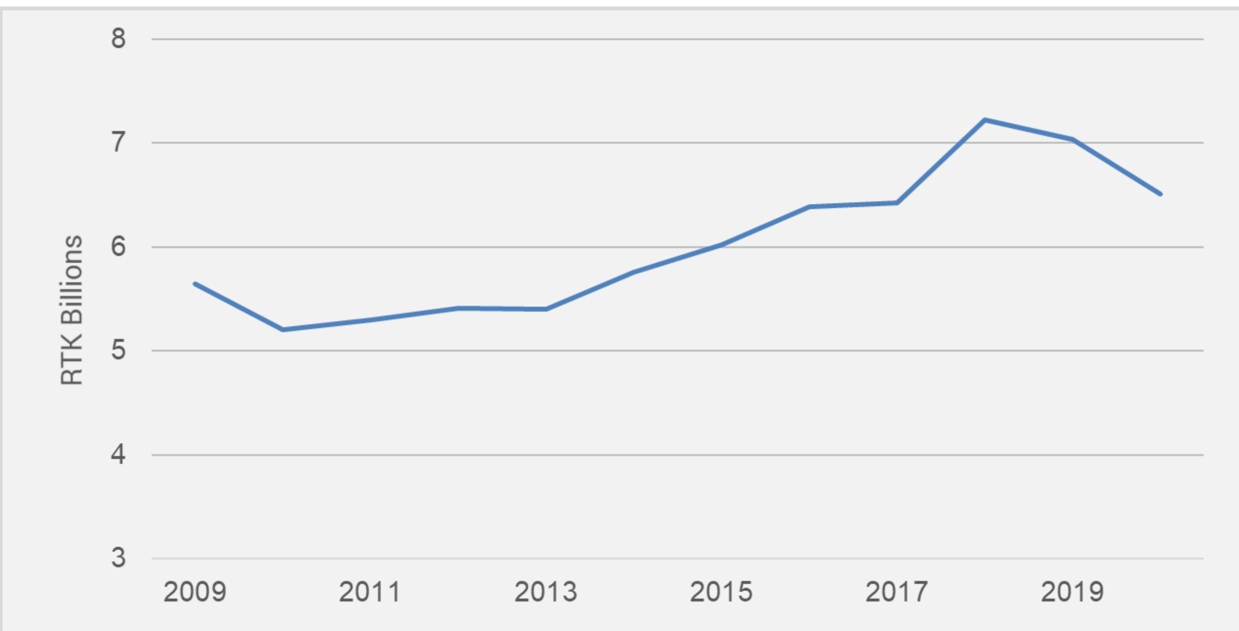
Figure 17 - Share of E-Commerce in Postal Parcel Networks 2020



Airmail plays an essential role in the delivery of letters and parcels between intercontinental and within key domestic markets. According to the International Post Corporation (IPC), the global postal industry registered $427 billion in revenue in 2019 while our estimates show that this figure was about $450 billion in 2020, resulting in an increase of 5% year-over-year. Even though mail volumes keep decreasing, parcel volumes continue to rise due to the growth in e-commerce. Amid a global epidemic, postal networks throughout the world continue to provide value to consumers while focusing on creating growth, improving efficiency, and investing in the future.

The growth in cross-border as well as domestic parcel traffic has also driven renewed growth of global postal traffic carried by air. Figure 18 shows the global airmail traffic measured in billions of revenue ton kilometers (RTKs) over the last ten years. In 2020, world airmail traffic declined by 7.3%, in line with the significant impact on postal operations across the world, particularly given that the postal business relies heavily on passenger aircraft belly capacity. Even though cross-border e-commerce traffic continues to grow strongly, there is an increasing amount of cross border traffic destined for postal networks that travels as general airfreight and not under a CN 38 postal airwaybill. Also, most of the e-commerce and express activity is covered under air freight figures and not airmail statistics.

Figure 18 - Global Airmail Traffic 2008 - 2020



Source: Boeing, IATA, Cargo Facts Consulting

5.2 Postal Networks: Financial Performance, Challenges and Outlook

Postal networks now can contribute to the growth and expansion of cross-border e-commerce transactions thanks to e-commerce. Global, regional, and local package delivery companies are all competing for delivery contracts in the parcel service industry. Meanwhile, online retail growth has slowed in numerous established e-commerce sectors in recent years, with significant e-retailers seeking to outsource their delivery operations. As a result, growth rates among postal businesses in 2020 have varied significantly.

However, not all postal operators have done well financially and in cases such as the United States Postal Service (USPS), their losses continue to grow. The Royal Mail (United Kingdom) or La Poste (France), on the other hand, have expanded their online presence and cross-border reach by leveraging e-commerce solutions and expanding their delivery capabilities. These organizations have expanded their services beyond traditional delivery to include warehousing or the development of their own e-commerce platforms to cater to small and mid-sized enterprises fearful of the big e-commerce players. Those postal firms that have been successful have consistently invested in both technology and infrastructure.

There are various needs and constraints when it comes to serving customers from various markets through cross-border transactions. E-commerce has the potential to increase the postal industry, but it comes with significant obstacles, such as the complexity of the postal product offering, the lengthy customs process, and a lack of suitable infrastructure support. Customers want simple and economical postal services, thus postal operators must take a customer-centric approach, offering a broad choice of cross-border e-commerce shipping alternatives that can fulfill customers' expectations on all levels.

We have analyzed the largest postal companies in the world in terms of volume and revenue. The consistent trend continues, and we keep observing revenue growth in their parcel business units, fueled by increased e-commerce activity while the mail business is in decline. The shift from traditional letters to parcels is irreversible and most postal operators are also developing solutions for international shippers to consumers (B2C) and expanding their cross-border portfolio of e-commerce services. Most of postal companies in the EU have developed a solution called the E-Parcel Group (EPG) to boost the reliability, speed and tracking of cross-border e-commerce.

Traditional mail remains an important source for the postal operators, but e-commerce is becoming the main driver for the delivery business, filing the gap caused by the declining volume in mail and increasing volume in parcels. Furthermore, our research shows that postal companies are often better positioned to service domestic networks, but they must rely on private logistics providers and express operators to fulfill their cross-border offer.

Table 2 shows the largest postal networks in the world ranked by revenue generated in 2020, their country of origin and volume of pieces handled annually. Furthermore, the table shows revenue and profit reported in 2020 and their main joint-ventures and agreements with large enterprises operating in their territory. Our analysis shows that there has been a clear trend of profitability over the last twelve months because of e-commerce volume growth. Most of the operators that reported losses last year are showing stronger profits in 2020. Even though operating costs have increased, the e-commerce expansion and parcel handling business seem to have offset these losses. The postal business has been disrupted by the digital revolution: although conventional letter delivery is declining, postal services face fierce competition in the e-commerce packages market.

The industry continues to grow profitably despite continuous structural changes. The postal sector has been shaken up by the digital revolution: although traditional letter delivery is declining, postal services face fierce competition in the e-commerce parcels market. While growth rates varied greatly among the postings examined, more than three quarters reported stable or increased sales over the course of 2020, with the majority citing e-commerce as a main growth driver.

Table 2 - Postal Network Summary: volumes, financial performance, and agreements

Postal Company	Country	Annual volume (no of pieces in million)	Ecommerce as % share of parcel business segment	JV & Agreements	2019 Revenue (USD in billion)	2019 Profit (USD in million)
China Post	China	NA	56%	Alibaba	$94.3	$4.7 (+7%)
USPS	US	67,954	71%	Amazon, USPS, Ebay	$73.1	-$9,176 (-4%)
Deutsche Post	Germany	22,780	77%	Amazon, Zalando, Bol.com	$19.3	$1,867 (+29%)
La Poste	France	16,115	72%	Cdiscount, Amazon	$14.2	$481 (2%)
Japan Post	Japan	21,760	70%	Rakuten, Amazon	$13.6	$234 (-23%)
Royal Mail	UK	17,209	75%	Amazon, Marks & Spencer	$11.8	$998 (+78%)
Canada Post	Canada	7,900	67%	Zulily, Amazon	$6.6	$176 (+16%)
Poste Italiane	Italy	3,617	70%	Amazon	$3.5	$328 (+85%)
Correos	Spain	2,945	77%	Amazon, Alibaba	$2.6	$18 (+4%)
Russian Post	Russia	5,690	68%.	Alibaba, Avito, Ozon, Ulmart	$2.9	$22.9 (-24%)
Korea Post	S. Korea	5,302	76%	Coupang, G-Market, 11St	$2.85	NA
India Post	India	6,511	49%	Blue Dart, Bombino, Amazon	$2.4	$1,714 (21%)
Australia Post	Australia	3,780	70%	Qantas, Toll, JD.com	$3.4	$73.1 (54%)
Singapore Post	Singapore	n.a.	n.a.	Lazada, Amazon, Shopee	$1.03	$47 (+52%)
Correos Mexico	Mexico	854	59%	Amazon, Mercado Libre	$0.6	$24 (+2%)
Correios	Brazil	1,348	56%	Alibaba, Mercado Libre	$0.3	$34 (+22%)

Source: Cargo Facts Consulting, Company Financials

The United States Postal Service (USPS) remains one of the largest players in the postal market the growth in parcel volumes has provided business opportunities for a range of suppliers across the transportation and logistics sectors. Amerijet, Japan Airlines and Kalitta Air saw the largest increases in revenues generated with the United States Postal Service in 2020. Table 3 provides and overview of the top air express and airline related suppliers to USPS over the past five years.

Table 3 - USPS Top Contractors FY 2016 - 2020

Rank (19)	USPS Supplier	FY2020 Spend, $ Millions	FY 2019 Spend, $ Millions	FY 2018	FY 2017	FY 2016
1 (1)	FedEx	2,224 (+8%)	2,051 (+2%)	2,001	1,610	1,679
8 (6)	UPS	203 (-4%)	211 (+2%)	206	172	169
9 (10)	Kalitta Air	197 (+15%)	171 (+68%)	102	83	78
15 (9)	United Airlines	166 (-6%)	177 (+6%)	167	165	161
25 (25)	Delta Airlines	93 (+12%)	83 (-2%)	85	74	72
35 (23)	American Airlines	66 (-22%)	85 (-13%)	98	93	86
40 (35)	Northern Aviation Services/ Aloha	58 (-3.3%)	60 (+2%)	59	56	57
41 (82)	Amerijet International	58 (+93%)	30			
65 (44)	Alaska Air Group	38 (-22%)	49 (+26%)	39	37	31
70 (75)	Everts Air Alaska	35 (+9%)	32 (+3%)	31	27	29
73 (-)	Transair Hawaii	35				
105 (116)	Japan Airlines Co., Ltd.	23 (+28%)	18 (-31%)	26	20	22
113 (115)	Lynden Air Cargo	21 (+10%)	19 (+27%)	15	13	14
	Total of above suppliers	3,215 (+8%)	2,986 (+6%)	2,829 (+20%)	2,350 (-2%)	2,398
	% of total Air Spend	93%	97%	98%	95%	97%

Source: Hush Blackwell (Feb 2020, 2019, 2018, 2017), Culhaine Meadows (Mar 2021), USPS 10K, Fiscal year ends September 30

As companies such as Amazon insource more of their volumes, this will also affect growth opportunities for the big USPS subcontractors.

5.3 Postal Networks: Beyond the Pandemic

During lockdowns, with residents staying home and shops closing their doors, e-commerce skyrocketed. In 2019, the United States had just two “two billion dollars” e-commerce days outside of the Christmas season; by August 2020, 130 days had reached that mark, including every single day in May and June.

Postal networks quickly adjusted their networks to provide an unanticipated volume increase which was bigger and far longer than any prior high across the world. Other common key trends in the crisis reported by posts were: B2C deliveries increased in most product segments (although trends are changing with lockdowns getting extended); local small and medium-sized companies sent additional parcels; home deliveries increased and postal webshops saw their online sales rise significantly.

Digitization continues to drive industry-wide mail volume decrease. In 2020, the average drop in postal volume increased to 7.2% from 5.4% in 2019. The COVID-19 crisis has accelerated structural changes in most countries and postal service has remained resilient despite difficulties. While e-substitution has seen a decline in revenues, improvements in mail rates and e-commerce packages have helped drive growth. As a result, postal revenue rose 5.3% in 2020 even though margins remain thin, in the 1-2% range according to the latest IPC report. Due to a high increase in the number of B2C parcels, these now account for more than half of overall revenue for some posts. In 2020 and 2021, postal networks reported that their parcel revenues keep increasing but prices are under pressure due to the bargaining power of larger operators.

To survive, postal companies must remain competitive and for that, they need innovate and provide an enhanced customer experience and service offering. Those players willing to innovate are looking to optimize their operations in the areas of delivery, transport, pick-up, sorting and handling and many postal networks remain leaders in parcel delivery due to their extensive physical presence and dense networks. Postal networks are working on automating their logistic centers with higher processing capacity, allowing them to meet all delivery time requirements and improving the tracing and tracking information so customers can manage volumes in real-time and more efficiently. Some of these initiatives include the adoption of new automation technologies to support production and sorting processes and the implementation of lean production systems with the goal of reducing the number of full-time employees across various sites. The long-term objective with this labor reduction is to lower operating costs.

The COVID-19 pandemic has demonstrated the importance of worldwide collaboration amongst post offices in ensuring the postal industry's commercial continuity. Cooperation will be critical in the years ahead, not just in recovering from the crisis, but also in addressing the long-term problems and possibilities that lie ahead.

5.4 The Universal Postal Union (UPU) and Cross Border E-Commerce

Established in 1874, The Universal Postal Union (UPU) is a special agency of the United Nations (UN) created with the goal of coordinating postal agencies among member nations. In the absence of individual bilateral agreement between postal authorities, UPU arrangements regulate onforwarding costs and service requirements for mail and parcel volumes moving between postal networks.

In October 2018 the United States informed the UPU of its decision to withdraw from the organization, effective in October 2019. However, this decision was revoked, and the US decided to stay in the Union with the condition of being able to set its own inbound postage rates. By retaining its membership in the UPU, the US retained the leadership in the global postal organization and served as a major stakeholder in the negotiations of new terminal dues. Starting July 2020, all countries with imports over 75,000 tonnes of mail can set their own charges for the final delivery of postal traffic from that country. Under this new rule, UPU members can raise their rates up to 70% of the price of domestic delivery and those countries below the 75,000 threshold can increase their charges after 2025. Postal operators are waiting for the US to make the first move and raise prices before other members follow.

Our research shows that this new regulation comes with a high level of complexity and postal companies will have to renegotiate agreements and rates on a case-by-case basis with the goal of remaining competitive. However, we expect that over time UPU terminal dues may become less relevant as cross border e-commerce moves towards a more controlled logistics chain which involves cross border movements taking place under a standard rather than CN38 postal waybill, with post-clearance onforwarding taking place under bilateral agreements between postal companies.

This also has an impact in the traffic carried by express operators that use USPS for final-mile deliveries. UPS and FedEx have a 2% margin on terminal dues if they manage the paperwork for the shipper (which is the case most of the time). We do not expect that the changes will have an impact in the flow of packages from China since many Chinese online platforms already have warehouse and distribution centers in North America and Europe while they use domestic logistics operators for final-mile services. We may see more Chinese companies increasing their inventory levels in those markets with the goal of speeding up deliveries and avoid import taxes.

The UPU oversees the Express Mail Service (EMS) program, a global service with the most customer access points in the world, providing last-mile coverage worldwide and supported by a premium postal delivery network. Some of its features include end-to-end tracking, priority handling, acceptance at any post office, pick-up from customer's premises, signature at delivery and delivery to addressee's premises. However, since cross-border international deliveries require the involvement of two postal companies, the EMS features vary depending on the services offered by each postal agency. EMS claims to be the fastest postal product, combining visibility, speed and reliability with an excellent customer service which continuously improves performance and responsiveness to meet the demands of e-commerce. However, our research shows that EMS growth has lagged the global integrators DHL, FedEx, and UPS.

Airmail is still an essential component in airline revenue but there are limited regulations and standards and the UPU in cooperation with IATA are trying to fill this gap by drafting a Framework Agreement. This document aims to become the standardized starting point for airlines and postal firms and will include more details pertaining performance, dangerous goods, liability, and messaging. This initiative will offer a new degree of openness to the airline-postal partnership, and it is confirmation of the already existing collaboration and dedication to quality.

6. Express Networks

Key findings:

- Express carriers have traditionally played an important role in the distribution of e-commerce, both in their regional and cross border networks.
- Business to consumer traffic share in express networks surged from around 48% in 2019 to 65% in 2020.
- The increase of business-to-consumer traffic in express networks is a longer term trend as has been accompanied by a decline of revenues per package particularly in domestic networks, although in 2021 we have observed a reversal of the yield decline.
- Recently, there has been a decoupling of integrators from e-commerce platforms as express carriers develop and expand their own end-to-end e-commerce products.

6.1 The Role of Express Carriers in E-Commerce Distribution

While postal networks are the primary fulfillment option for e-commerce packages, all the major global and regional integrators play an important role in both cross border as well as domestic distribution. In the context of this report, we have taken an in-depth look at the e-commerce product offering, current and expected future exposure to the business. Specifically, we have looked at DHL and its Indian subsidiary Blue Dart, FedEx, UPS, SF Express, EMS/China Postal Airlines and Aramex. All of these but Aramex have their own dedicated air networks. For the purposes of this analysis, we have excluded Purolator (Canada), Estafeta (Mexico), YTO (China), Toll (Australia) as well as the express air operation run by Australia Post. Our Air Express Market Outlook includes a more detailed analysis of the major global and regional express operators that focuses on the overall (and not just e-commerce-related) express business which will include all the express operators mentioned earlier. A new edition of the air express outlook is expected to be published within a month of this report.

Express companies participate in the e-commerce package delivery and fulfillment business on different levels, namely as:

- **Subcontractors to e-commerce platforms and major retailers**: In 2020, UPS generated 13% of its revenue with Amazon alone – up from 11.6% in 2019. FedEx and UPS generate significant volumes from companies such as Walmart, Target or sellers operating via Shopify. The bigger the ground network, the higher the B2C share; while we have seen significant B2C-driven growth of air shipments, lower-cost ground networks are the main means of e-commerce fulfillment. For example, U.S. domestic express yields average between $13 and $20 per shipment, and international yields are around $50 to $60 a shipment, which does not lend itself to a market where customers expect to receive free shipping.

- **Subcontractors to postal authorities**: for example, in FY 2020 the United States Postal Service spent $2.2 billion with FedEx and $203 million with UPS which included a sizeable portion for airport to airport delivery of priority mail and priority mail express. These volumes ultimately included e-commerce packages shipped via the Postal Service.

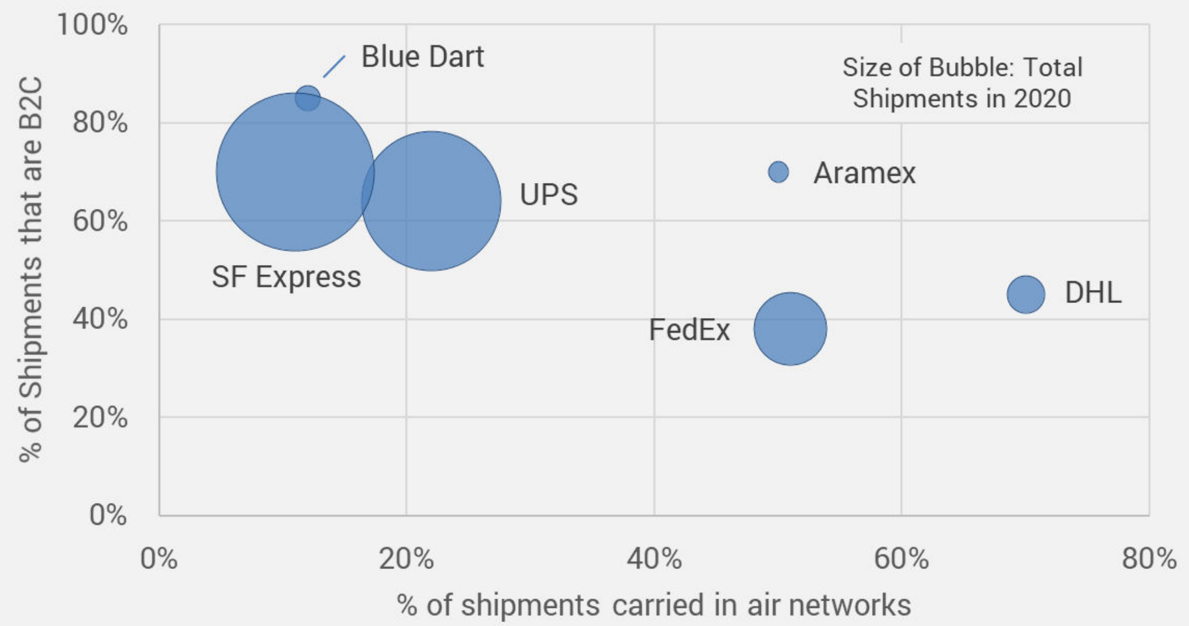
- **As a service provider for cross-border fulfillment**: Many of the customers in this segment are smaller to mid-sized retailers and major brands who operate their own-e-commerce platform independent offerings. FedEx became the first integrator to apply the new Chinese cross-border e-commerce sales policy in which export sales can be handled by a foreign warehouse delivery model or via a direct B2B mode. Customers of the Shopify platform can choose UPS, FedEx or DHL for their cross border fulfillment requirements.

6.2 Express Carrier Growth Increasingly Tied to E-Commerce

While all express carriers agree that the e-commerce is the key driver of future growth, they are less specific about the current level exposure of their businesses to this type of (primarily business-to-consumer) traffic. Our research has found that the biggest dependence on e-commerce traffic is in ground rather than air networks and that intercontinental and regional air networks carry a more diverse mix of traffic with business-to-business volumes outweighing business-to-consumer volumes.

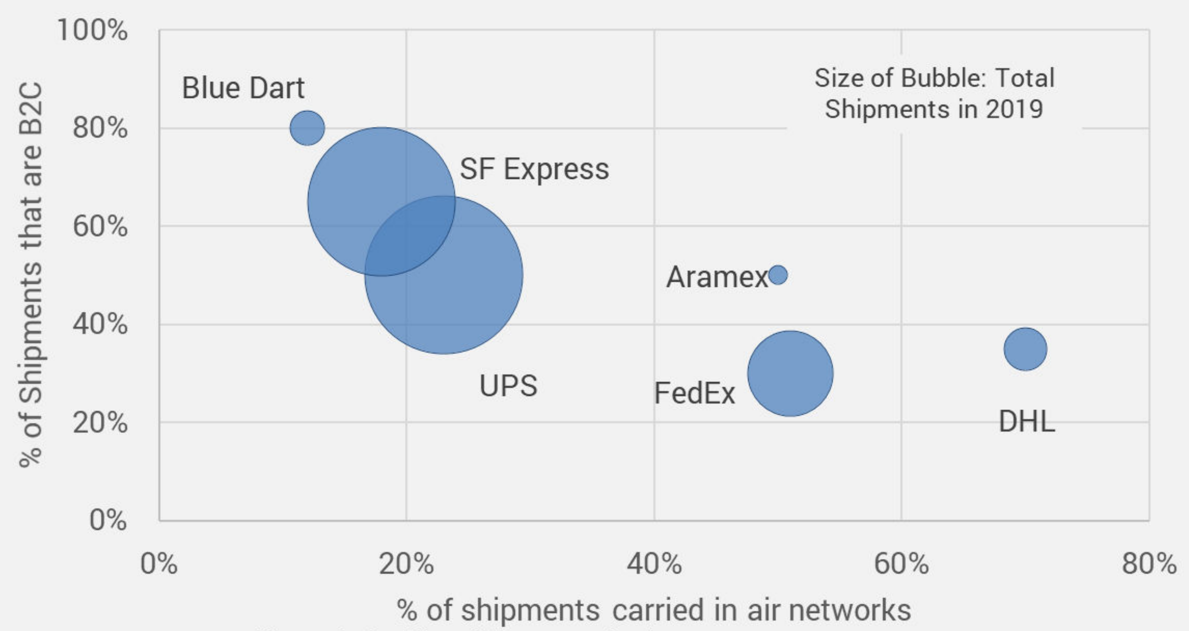
Across the express business, the share of business-to-consumer shipments that is increasing faster than business-to-business shipments currently stand at approximately 65% of shipment volumes. This is higher than in 2019, where closer to 48% of express traffic was B2C, primarily due to a pandemic induced surge in online shopping and drop in business-to-business traffic. Figure 19 illustrates our analysis of the share of business-to-consumer vs shipments carried by air for key global and regional express carriers in 2020, while Figure 20 provides an overview of 2019.

Figure 19 - Express Carrier Share of B2C vs Share of Shipments Carried by Air 2020



Source: Cargo Facts Consulting analysis of financial reports and estimates

Figure 20 - Express Carrier Share of B2C vs Share of Shipments Carried by Air 2019



Source: Cargo Facts Consulting analysis of financial reports and estimates

While FedEx, and DHL are primarily business-to-business focused air express providers, UPS, SF Express and Blue Dart operate extensive ground and last mile networks with maximum coverage.

B2C shares in 2020 were running at much higher rates than in 2019. For UPS the B2C share – usually at around 50% across all products increased to 67%. Its dependence on Amazon also increased from 11.6% to 13.3% in revenue which represents a 31% year on year growth. Meanwhile, Amazon reduced its dependency on UPS: in 2020, 18.4% of its global shipping spend was with UPS compared to 22.7% in 2019. DHL Express B2C share increased from 35%+ in 2019 to 45%+ in 2020. UPS B2C shipments represented 64% of average daily volumes in 2020 up from 54% in 2019. The differences in air share between companies are largely historical: DHL has been primarily and international air express company since its founding in the 1970s, while FedEx grew from an air only to a ground based operation through FedEx Ground and TNT. UPS has for most of its history been a ground based company. SF, China's main express providers has grown as a combined air and ground express company. Business to business traffic growth in 2021 has been improving and as such we see the business to consumer share coming back down closer to 2019 levels in the coming years.

While increasing e-commerce package traffic has been positive for utilization of sort facilities and both air and ground linehaul networks, it is increasing last-mile delivery costs due to the requirement to deliver to lower-yield shipments to lower-density locations. Furthermore, the increase of business-to-consumer traffic in express networks has seen a decline of revenues per package particularly in domestic networks.

Table 4 and Table 5 show the summary of yield and volume developments in 2020 and 2021 (year-to-date where data is available). US and China domestic have both seen a surge in volumes but yields have dropped. In domestic markets, 2020 was in many ways like 2019 – volumes were up, and yields were down as air express networks carried higher B2C shares. On international markets, express volume growth accelerated compared to 2019, but yield trends were similar. However, overall air cargo yields saw greater increases in 2020 – closer to 30% for the full year. When you are getting on average $55 per shipment there is not much higher you can go. 2021 has been somewhat different: volume growth is still strong, but in the US domestic market, per package yields have gone up.

Table 4 - Express Operators: Summary of Volume and Yields Development (2020)

Company	International Export Volume	International Export Yield	Domestic Volume	Domestic Yield
DHL (Jan-Dec 2020)	+ 10.5%	+ 1.8% (-1.8% in $)	- -	- -
FedEx (Dec 2019-Nov 2020)	+ 9.1%	-4.4%	+ 3.9%	- 4.3%
UPS (Jan-Dec 2020)	+ 14.5%	- 2.0%	+ 8.2%	- 4.0%
SF Express (Jan-Dec 2020)	- -	- -	+ 68%	-19%

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

Table 5 - Express Operators: Summary of Volume and Yields Development (1H 2021)

Company	International Export Volume	International Export Yield	Domestic Volume	Domestic Yield
DHL (Jan-Jun 2021)	+ 23%	+ 12% (+23% in $)	- -	- -
FedEx (Dec 2020-Aug 2021)	+ 21 %	+ 6.6%	+ 16%	+ 3.0%
UPS (Jan-June 2021)	+ 20%	+ 12%	+ 4.4%	+ 11%
SF Express (Jan-Aug 2021)	- -	- -	+ 41%	-14%
Aramex (Jan-Jun 2021)	+18%	+ 11%	+18%	- 2%

Source: Cargo Facts Consulting analysis of company financials, UPS domestic volumes exclude Ground, SF domestic volumes do not

6.3 Threat or Opportunity: How Express is Responding to E-Commerce

The growth of the big e-commerce platforms with own-controlled fulfillment networks are creating potential competitors for the big integrators. With its own parcel networks open to the public, JD.com and Otto (through Hermes) are the furthest in terms of creating their own integrated platforms.

In their financial filings, all the integrators acknowledge the threat of emerging competition from their customers. Some have chosen to draw a line under a selection of their platform relationships while others remain firmly aligned. In 2019, FedEx cancelled both its Ground and Express contracts with Amazon to focus on a future without the e-tailer and platform. UPS, meanwhile remains firmly aligned with Amazon and as the US giant expands its own network, UPS has the most to lose. In Europe, companies like Deutsche Post DHL have also seen volume growth slow as Amazon has insourced more volumes. This was particularly the case in 2020, where Amazon made a major switch to own controlled deliveries. However, in Europe the e-commerce market is more diversified than in the U.S., where Amazon is by far the most dominant player, so a loss of volume may not hurt as much there.

In recent years, DHL, FedEx, and UPS have gradually expanded their capital spending. All three have been investing substantially to solidify their global networks and seek an edge in the hotly contested e-commerce delivery sector, from aircraft and route optimization to robotics. Premium cross-border delivery remains a top priority: integrators control around 90% of the €24 billion international time-definite market. And, while they've typically served B2B clients, they're all increasing their focus to B2C.

While the geographical scope of these the different e-commerce platforms is very different, they share a lot of similarities – specifically a focus on own controlled logistics, increased reliance on third party sellers and a shift to faster shipping. This is having fundamental implications for companies providing logistics services. Platforms are becoming integrated commerce, logistics and financial providers, and have made moves to insource volumes where possible to drive costs down.

However, all integrators have been making changes to their businesses to profit from e-commerce growth possibilities without having to take the pain of higher last-mile delivery costs. Some companies are successfully implementing programs that involve concurrent investments and measures to reduce costs Our analysis has identified a series of actions that can help express carriers achieve this, including:

- **Service Expansion**: 7-day deliveries and pick-ups, same day capabilities, later cut offs. For example, both FedEx and UPS moved to offer 7-day delivery starting in early 2020. USPS, thanks to Amazon was the leader in offering 7 day delivery after Amazon pushed the company to do this following UPS service failures in the 2013 holiday season.

- **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. All the integrators use retail locations as part of their worldwide network to reduce the cost of last-mile delivery.

- **Cost Reductions:** shift from air to road (e.g., FedEx Express making greater use of TNT road network, including a major restructure of its European air network announced in 2021), realignment of their own networks (e.g., FedEx bringing Smartpost back inhouse).

- **Offerings for Small and Medium-Sized Business and cross border e-commerce:** this goes back to the root of the express business, which has traditionally focused on providing time-definite services including customs clearance to small and medium-sized businesses. However, the need for economies of scale mean that express carriers cannot afford to ignore e-commerce platform business opportunities.

While most of the growth in the business (at least in people's minds) has been focused around the big three, we find that the e-commerce space is becoming more diverse. Some of the highest growth rates are being achieved by platforms other than Alibaba, Amazon and JD.com. Shopify, a hosting platform for online stores, almost doubled the value of merchandise transacted via its system. The venerable Walmart now generates 12% of its U.S. revenue and 14% of its international revenue from online sales, up from 7% and 10%, respectively, in 2019 and 2020. Mercado Libre, the primarily Latin American platform saw its

GMV increase by 50% in 2020. This creates new opportunities for express companies to grow their traffic base without becoming joined at the hip with Amazon and co.

7. E-Commerce Demand for Aircraft Capacity

Key findings:

- Amazon is the only e-commerce platform that has committed to large scale dedicated air capacity while other platforms make use of air capacity though commercial arrangements with express companies and airlines. Amazon is now the fourth largest freighter customer worldwide.
- E-commerce is a growth segment and both airlines and airports can position themselves to take advantage of this growth by moving beyond being mere capacity providers and landlords.
- Participating in higher value-added activities requires both investments and partnerships.

These days, we tend to look at the air logistics business as a combination of four segments: general cargo, express, e-commerce and mail. General cargo accounts for roughly 80% of international and less than 5% of domestic cargo and is primarily driven by industrial production, global supply chains and perishables. Express accounts for around 18% of international and about 90% of domestic freight traffic. Mail – which consists of letters and small parcels accounts for about 3% of international airfreight. E-commerce accounts for about 17% of international airfreight, but is spread across multiple segments – air cargo, express and postal traffic.

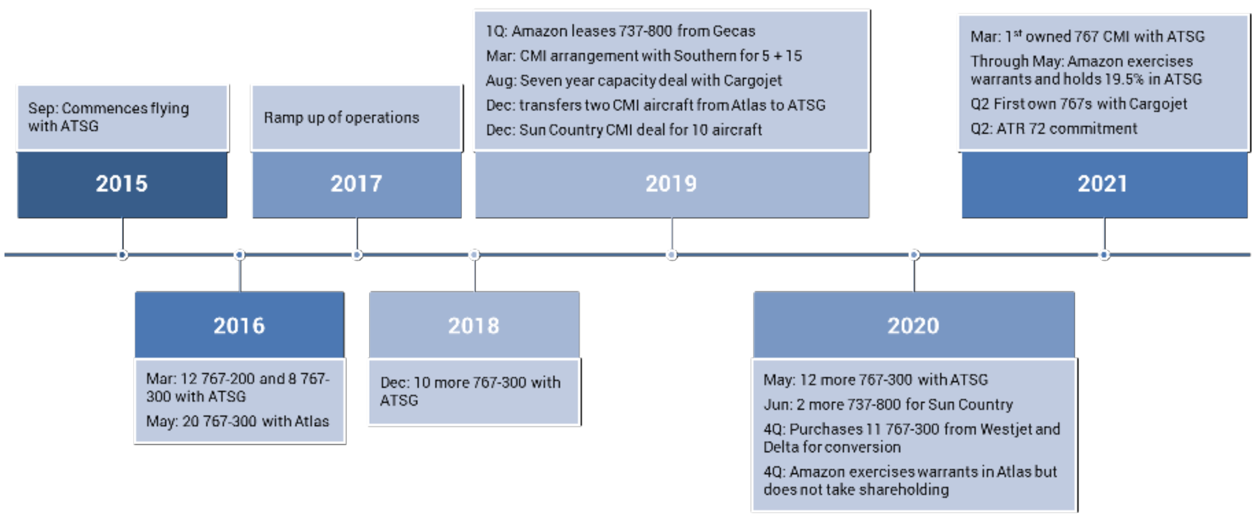
7.1 All about Amazon: Dedicated E-Commerce Networks and Contract Flying

Amazon is now the fourth largest customer for aircraft capacity, only behind FedEx, UPS and DHL Express, and ahead of SF Express. By the end of 2021, Amazon will be operating a dedicated fleet of around 100 aircraft, mainly 767s and 737s spread across the US, Canada, and Western Europe. This is 20 more aircraft than a year earlier. It is worth reminding that prior to the end of 2015, Amazon did not operate any dedicated aircraft.

Amazon's dedicated flying essentially consists of a two-part structure: aircraft leases and separate operating agreements. Additionally, the company pursues arrangements that give it the option to acquire at least a significant portion of its contractors.

Its network is operated by a mix of third-party subcontractors – ATSG Group, Atlas, Sun Country, and Cargojet in North America and ASL Airlines in Europe. The aircraft themselves are largely leased – from ATSG's CAM, Atlas' Titan and GECAS. However, in late 2020, Amazon also purchased 14 ex-Delta and Westjet aircraft outright which following conversion will be handed over to third party operator to fly. During 2021, Amazon also announced a commitment for turboprop capacity. Figure 21 provides an overview of the successive aircraft capacity commitments made by Amazon since commencing dedicated air operations in late 2015.

Figure 21 - Amazon North America Timeline



The leasing and operating arrangements with its North American contractors include warrants to purchase a shareholding, usually linked to certain revenue thresholds. Specifically, this includes:

- Up to 38% of ATSG. So far, Amazon has exercised a portion of the warrants and owns just under 20% of the company.
- Up to 40% of Atlas Air. Amazon exercised warrants for 20% of the shares of the company but sold the shares rather than taking a stake in the company.
- Up to 15% in Sun Country
- Up to 15% in Cargojet, Canada

Table 6 provides an overview of Amazon's current leases and recent aircraft purchases as of September 2021.

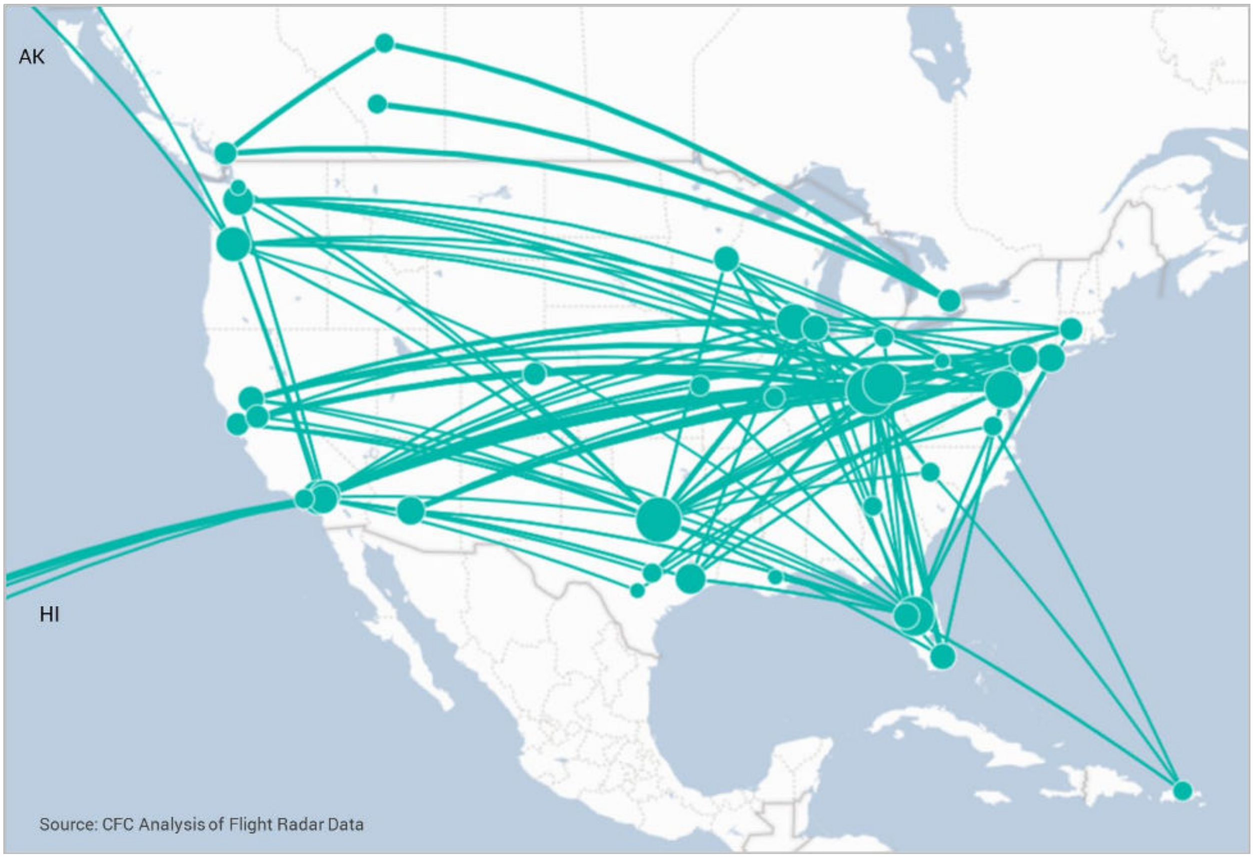
Table 6 - Amazon Current and Forward Fleet 2020 - 2021

Company	Aircraft Type and Number	Status
ATSG (CAM)	*Previous arrangements* - 12 767-200 - 8 767-300 *Dec 2018 Deal* - 6/4 767-300 *May 2020 Deal* - 1 767-300 - 11 767-300 - Warrant incentives to lease up to 5 additional freighters **Total: 31 767-200/300 (End of 2020)** - 42 (end of 2021), Possible increase to 47 thereafter	 Active Active Active Active Active/Delivery in 2021 Tbd
Atlas (Titan)	- 1 767-300 - 10 767-300 (11 – 1 hull loss) - 8 767-300 **Total: 19 767-300 (End of 2020)**	Active Active Active
Gecas	- 5 737-800BCF - 17 737-800BCF (2 operated in Europe) **Total: 22 737-800BCF (End of 2020)**	Active Active
ASL	- 11 737-400 on wet lease (in Europe)	Active
Purchased Aircraft - Ex Westjet - Ex Delta	- 4 Aircraft - 7 aircraft	3 Active (2 with Cargojet, 1 with ATI) remainder in 21/2022
Total (Leased & Owned)	- End 2020: 83 (12 767-200, 38 767-300 and 22 737-800, 11 737-400) - End 2021: 100 (12 767-200, 49 767-300 and 22 737-800, 11 737-400 + 6 owned 767s) - End 2022: At least 105 (12 767-200, 49 leased 767-300, 11 owned 767s plus 737s)	

Source: Cargo Facts Consulting analysis of company reports and fleet data, * 3 year extension option

Amazon currently operates a network with 160 flights per day or about 4800 per month. This compares to 15,000 and 12,000 monthly flights for FedEx and UPS, respectively. Figure 22 provides an overview of the company's air network in the US.

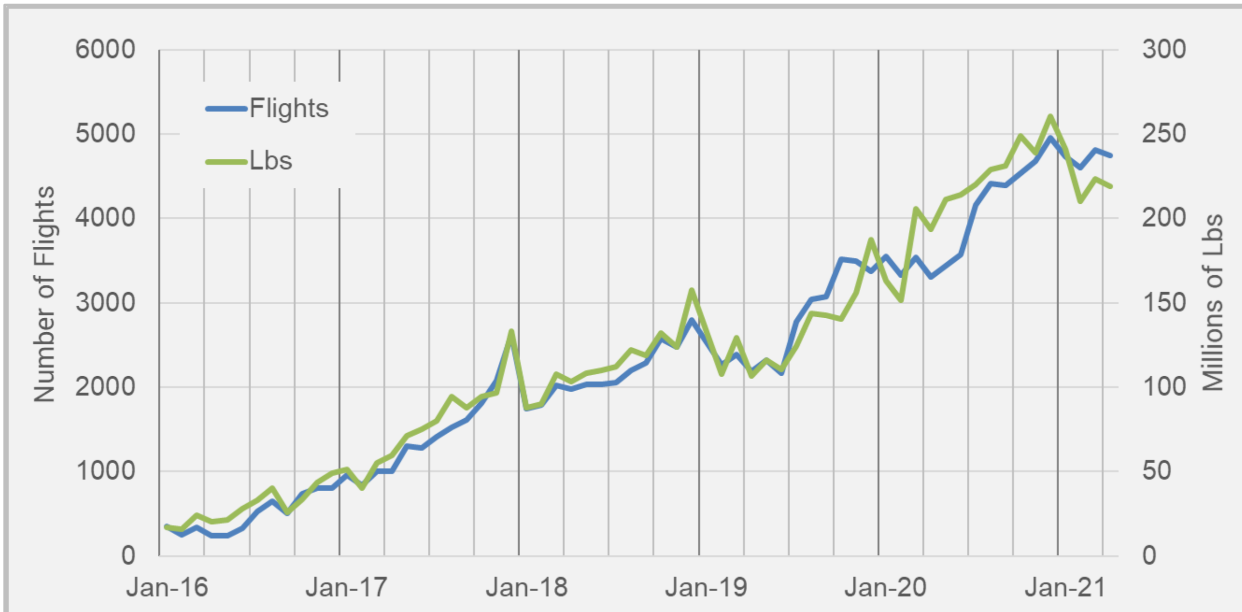
Figure 22 - Amazon Air Network, Summer 2021



In August 2021 Amazon commenced operations of its $1.5b Air Hub at the At Cincinnati/Northern Kentucky International Airport, (CVG), which will likely see a consolidation of existing Wilmington and Cincinnati services and more hub and spoke operations. The size of its air hubs in the US varies between 20,000ft^2 to 800,000 ft^2 (approx. 2000-75,000m^2).

Since its beginning in the last half of 2015 Amazon's air network has grown substantially in scale. Its air network moves about one third of the volumes moved by UPS and about one fifth of what FedEx moves. Figure 23 provides an overview of the evolution of the e-tailers dedicated air network since January 2016. Until mid-2019, the number of flights operated tracked tonnage flown, with a peak before Christmas. When the smaller 737-800 was introduced, flights naturally grew faster than tonnage. During the second quarter of 2020, volume utilisation on aircraft increased due to the increased e-commerce volumes and improved network management. In Q1 2021 and Q1 2020 Amazon grew its dedicated air network substantially, with flights increasing by 30% and 45%, respectively.

Figure 23 - Amazon Air Weight Uplifted and Flights Jan 2016 - April 2021



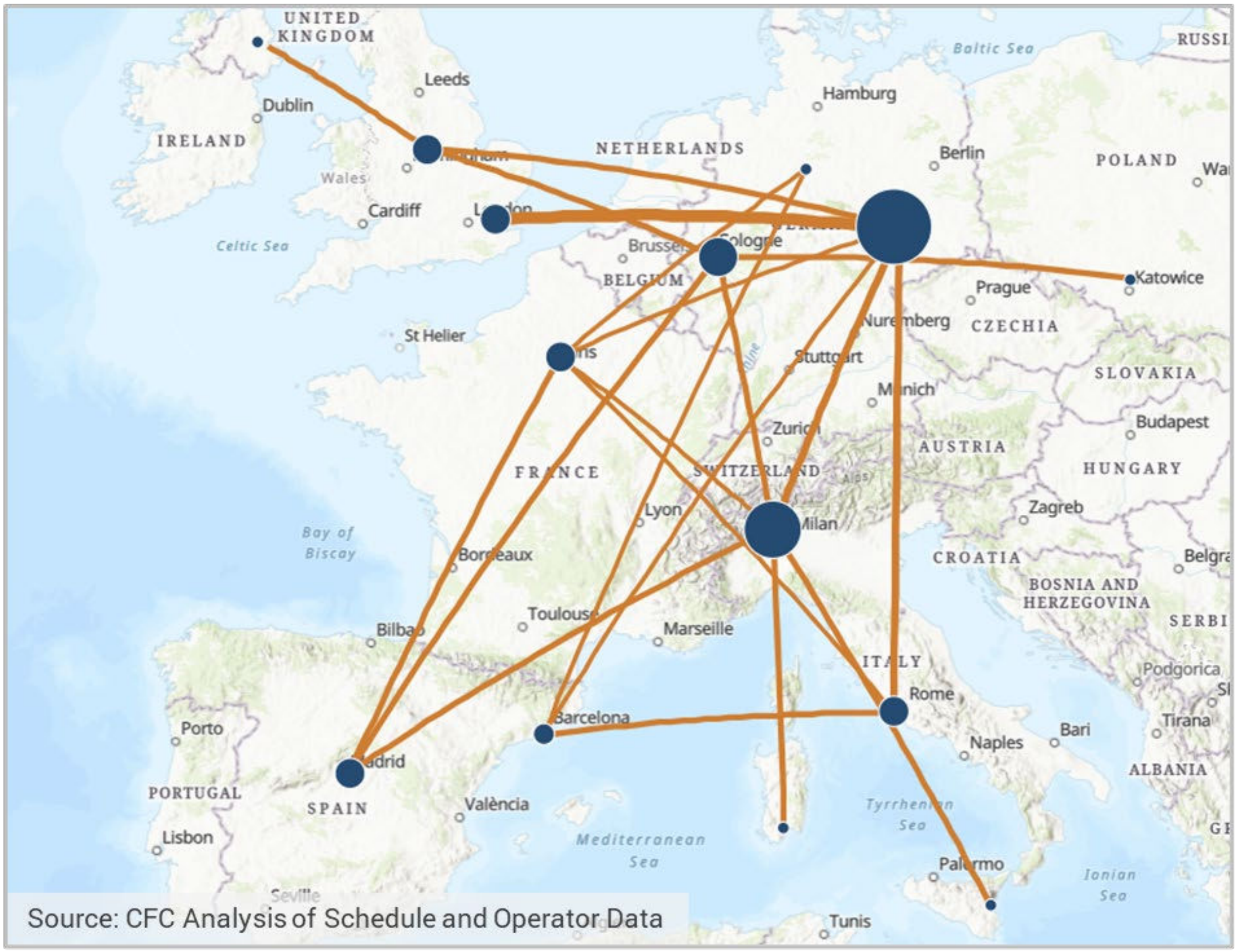
Source: Cargo Facts Consulting analysis of ATSG, Atlas and Sun Country flying for Amazon, Form 41 t100 segment data

Meanwhile, Amazon's European network has also seen significant growth. Within the space of a year, the Amazon dedicated European network has grown from then to thirteen cities and from thirty to forty sectors. All flights are operated by ASL Group airlines. As of the current summer season ASL has been operating a total fleet of 11 737-400 on and ACMI basis and 2 737-800 on a CMI basis for Amazon.

Europe represents the company's main international market, with Germany and the U.K. alone accounting for 8% and 6% of company revenue, respectively. In 2020, Amazon's European revenue increased by 36% to approximately $50 billion. Going forward, we expect a transition from 737-400 to 737-800 and larger aircraft but given geographical proximity of main markets it is unlikely that the European network will reach anything close to the scale of the US network.

Figure 24 provides an overview of Amazon's current network. Our interactive map application also provides additional detail on network evolution and flights by station.

Figure 24 - Amazon EU Air Network, August 2021



Currently, Amazon's network is focused around connecting UK, Germany, Italy, France, and Spain. Amazon has increased its investment in Leipzig, leading to additional intra-European connectivity but so far, there has not been any intercontinental traffic. In the last year, Amazon has started flying to Belfast in Northern Ireland and has increased frequencies across its key cities of Paris, Madrid, Cologne and Barcelona. Amazon's network expansion in Italy in the last twelve months is also noteworthy, with the addition of Rome, Cagliari, and Catania to the map. Its air network facilities are smaller than in the US – for example its Leipzig facility is only a quarter of the size of its new Cincinnati facility.

7.2 Dedicated Flying for Other Platforms

Amazon is unique in its large-scale push into dedicated and branded air capacity, but other platforms also make use of air capacity – either indirectly through use of express or postal distribution channels or though dedicated charters. Not all platforms have sufficient scale in the markets they operate to be able to justify large scale dedicated air operations. Alibaba and Jd.com do but have so far and they both keep expanding their air freight operations through different strategic partnerships.

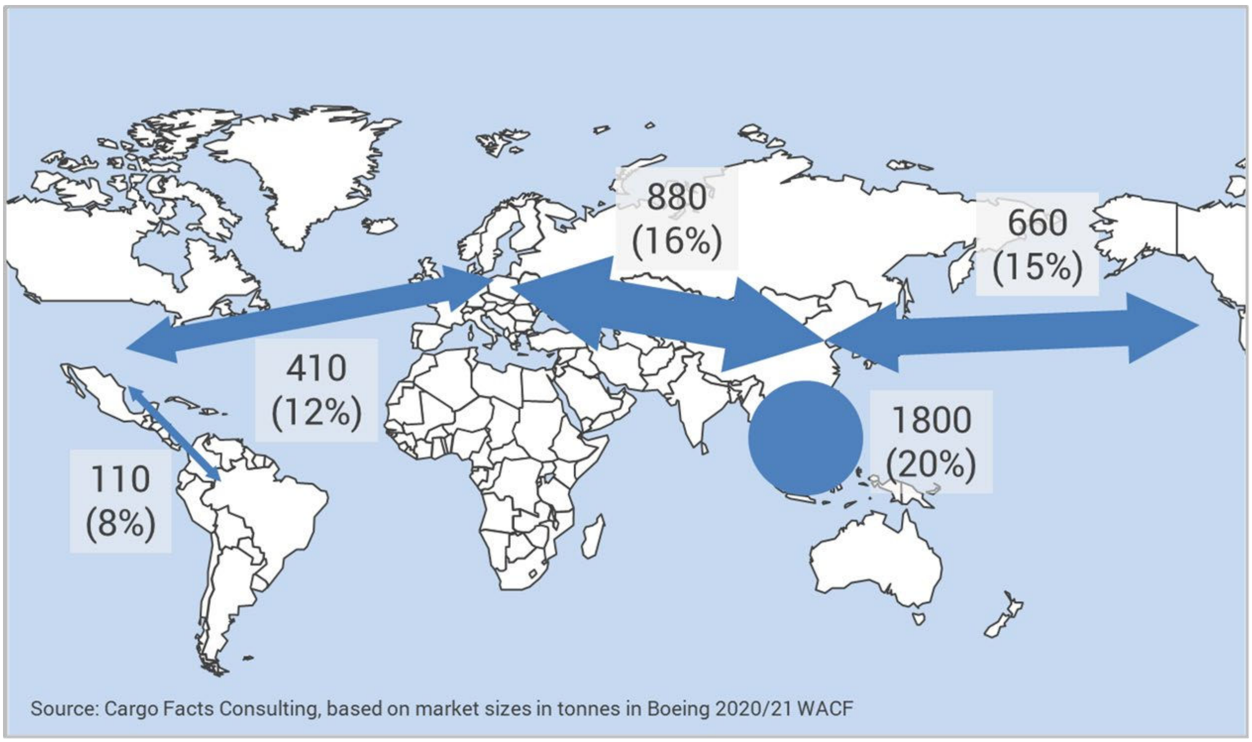
Alibaba's logistics arm Cainiao keeps increasing its cross-border charter activity and in 2021, they partnered with BEST, a leading supplier of logistics and supply chain solutions in China and announced the introduction of a full-chain logistics service to send packages from China to Vietnam, Cambodia, and Thailand. When shoppers in these countries choose this shipping option, their packages are sent from BEST's warehouse in Shenzhen to Hanoi, Phnom Penh, and Bangkok after clearing customs. But Southeast Asia is not the only region where this is taking place. Cainiao also partnered with LATAM and Atlas Air to expand its network in Latin America with the goal of linking Hong Kong to Bogota, Santiago, Sao Paulo, and Lima, in response to the increasing demand of e-commerce products from China to Latin America. The implementation of this service reduces the delivery times from China to Colombia, Chile, Brazil, and Peru by 50% (from 20 to 10 days). Within China, Cainiao has also opened logistics centres in 20 locations to combine packages and assist local export small and medium enterprises (SMEs). Now these companies can drop off their packages at a Cainiao logistics facility, and the company delivers them to a large distribution centre.

Jiangsu Jingdong Cargo Airlines is a new cargo carriers based in China that just gained preliminary approval by China's Civil Aviation Administration (CAAC) to start flying a fleet of 737-800 freighters. Suqian Jindong Zhanrui Enterprise Management, controlled by JD's founder Richard Liu currently owns 75% of this airline while the 25% remaining is owned by Jiangsu's Nantong Airport Group. This could be the first step for JD.com towards a dedicated air logistics fleet but so far, they mostly keep relying on charter services. The following months will be indicative of whether this express carrier could be able to compete with SF express.

7.3 The Invisible Traveler: E-Commerce in Scheduled Air Cargo Networks

Air freight is primarily a wholesale business that facilitates the movement of supply chain cargo and perishables. Approximately 70% of international airfreight consists of primary inputs, intermediate goods, components, parts and consumables and capital equipment. Our estimates show that about 17% of the global air cargo is e-commerce traffic moving through express, general, airfreight and postal networks. This excludes shipments into e-commerce distribution centers, which we do not view as e-commerce as its characteristics and service requirements are like cargo being transported to restock the inventories of large, fixed location retailers and wholesalers. By our estimates, some 75% of postal and over one third of international express traffic are e-commerce – this is a combined 9% of total cargo traffic. The remainder consists of e-commerce consolidations travelling under an air waybill as normal freight traffic for onward distribution in domestic or regional package delivery markets. Figure 25 provides an overview of the main regional cross border e-commerce flows based on 2019 traffic levels. While domestic networks saw a surge in air related e-commerce traffic, our estimates indicate that in 2020 the e-commerce share of air cargo traffic was much lower than 2019, due to lack of capacity and more COVID related commodities moving as air cargo and pushing out other commodities.

Figure 25 - Primary Cross Border E-Commerce Air Freight Traffic Flows



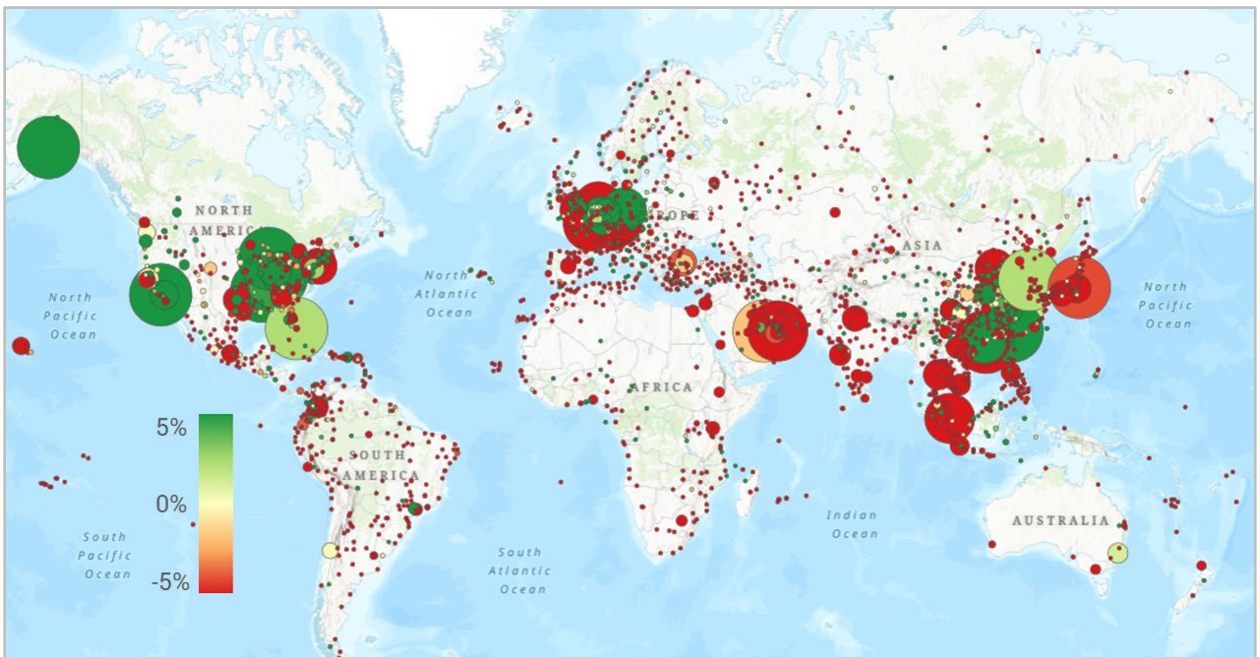
China is the largest source country for cross border e-commerce, and as such most flows are of Chinese origin, although Europe, the US, Japan, and Korea are also important source countries for intra-regional purchases or traffic to Africa and Latin America.

Airlines have been looking for ways to position themselves to achieve value from strong growth in cross border e-commerce. This requires companies to look beyond merely providing capacity to value added services including customs clearance and last mile delivery. Some examples are discussed in section 7.5.

7.4 Airports and Ground Handling

In 2019, the overall weak environment resulted in a drop in cargo tonnage across most airports worldwide, including major hubs such as Dubai, Hong Kong, or Los Angeles. In 2020, air cargo volumes among the top 30 airports showed an average decrease of 9.4% year-over-year. Among the top 30 cargo airports, ANC (Anchorage), ORD (Chicago), IST (Istanbul), LGG (Liege) and ONT (Ontario) displayed the strongest YoY growth. Chicago O'Hare (ORD) saw a significant increase in the exports and imports during 2020 and the airport registered a 23% increase in international cargo volume, the largest across all major gateways in the United States. Other regional airports in the area such as RFD (Chicago Rockford) or LCK (Rickenbacker International) benefitted from the increase in ORD and positioned themselves as alternatives to freight forwarders and trucks from the US Midwest region. Figure 26 provides an indicative view of growth around the world.

Figure 26 - Cargo Tonnage Growth by Airport 2020



Source: ACI, Cargo Facts Consulting analysis of company and regulatory filings

Eight of the top 10 cargo airports showed gains in 2020, mostly attributed to increased demand for e-commerce, pharmaceutical products, and PPE during the pandemic. Those airports focused on cargo, express operations and e-commerce keep reporting strong cargo volumes but large passenger hubs such as DXB (Dubai), CDG (Paris), PEK (Beijing), London (LHR) or BKK (Bangkok) saw the larges declines, driven by the reduction in passenger capacity. MEM (Memphis), FedEx's hub surpassed HKG (Hong Kong) and became the top cargo airport in 2020 with 4.61 million of tons handled while HKG handled of 4.47 million tons, a 7.1% decrease from 2019. With Cathay Pacific operating below 25% of its pre-pandemic passenger flight capacity in the first half of 2021, it is not likely to see HKG back on the top in the 2021 rankings.

LAX (Los Angeles) rose from number 14 to number 8, entering the top 10 airports and showing the strength of the trans-Pacific cargo trade lane over the pandemic, which has continued into 2021. We expect LAX and MIA to maintain their positions in the top 10 in 2021 also due to container shortages in sea freight and capacity reductions.

In August 2021, a small number of COVID cases at Shanghai Pudong airport led to the closure of the terminal. Logistics companies suffered longer transit times and delays due to suspensions. Shanghai handles more than 3.6 million tonnes annually and it is one of the main loading nodes in China and forwarders were forced to find alternative shipping methods and flights were diverted to Hong Kong and Beijing. The current lack of cargo capacity combined with a scarce infrastructure shows how fragile supply chains are.

Figure 27 and Figure 28 provide a comparative overview of the performance of the top 60 cargo airports worldwide in 2020. The average decline across all airports was 9.4% for the twelve month period.

Figure 27 - Top 30 Cargo Airports Growth and Decline 2020

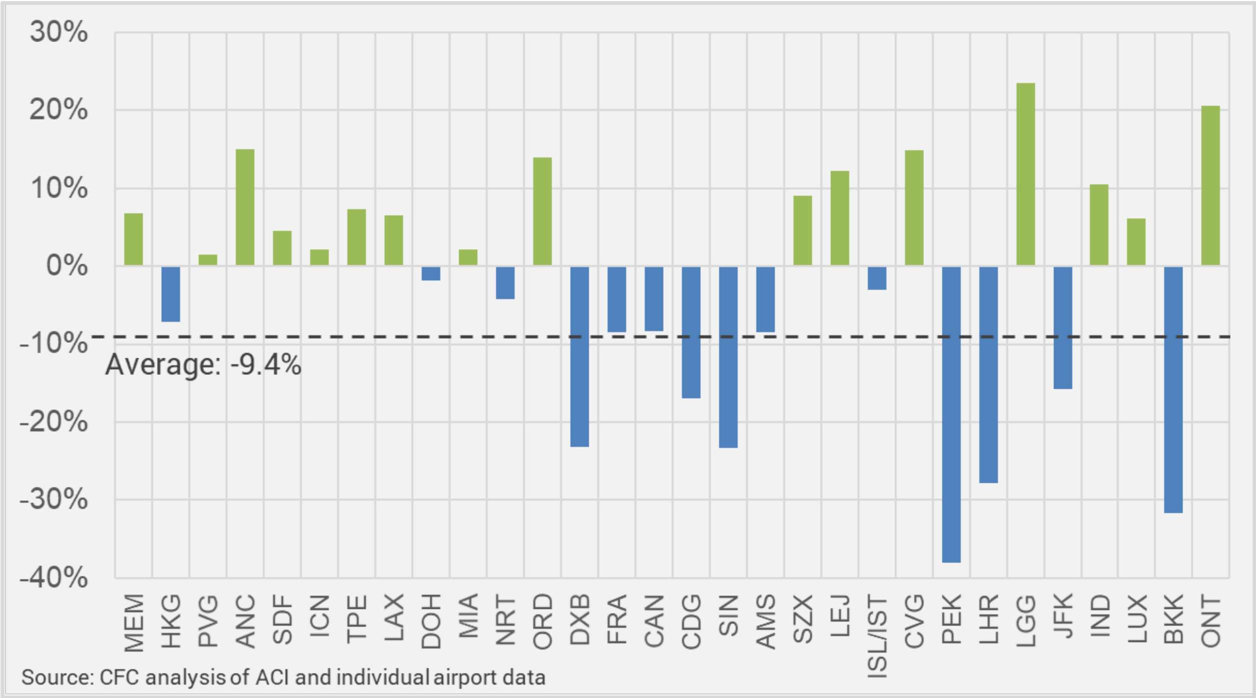
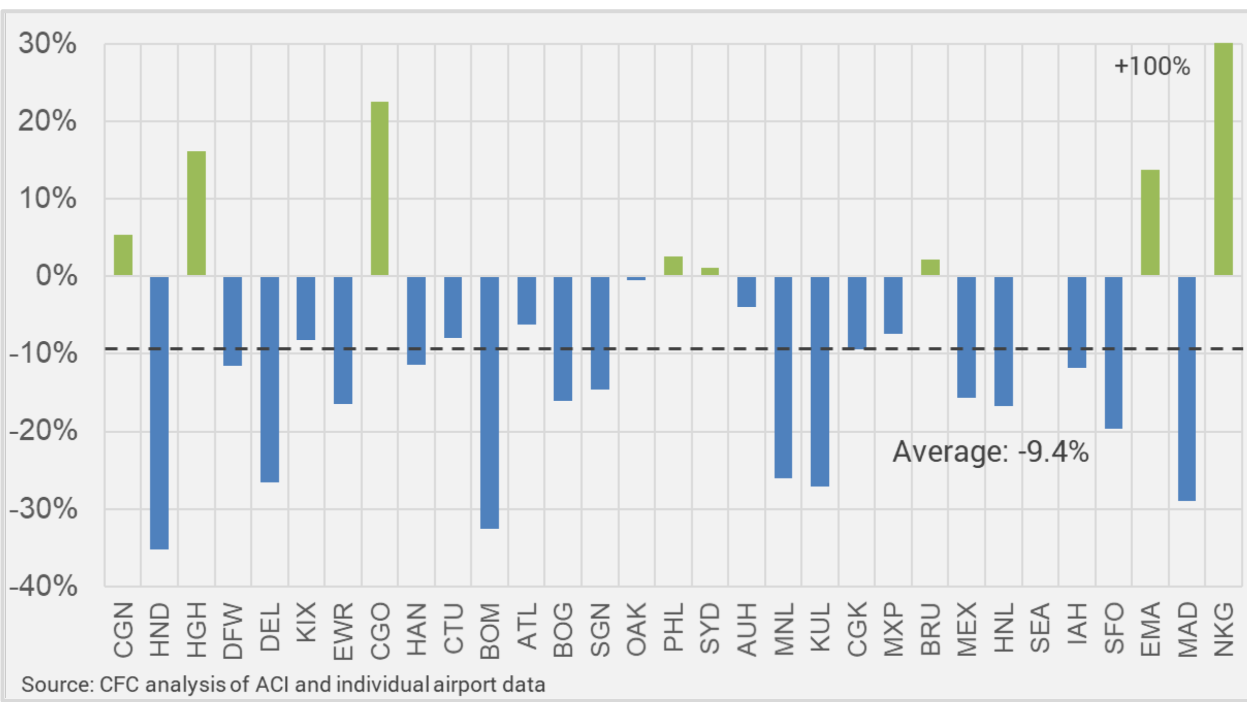


Figure 28 - Top 31-60 Cargo Airports Growth and Decline 2020



Airports play an important role in the distribution of cross border e-commerce as well as domestic or intra-regional shipments. General freight traffic tends to gravitate around the big combination carrier hubs such as Chicago, New York, Miami and Los Angeles in the United States, Frankfurt, Amsterdam, Paris, and London in Europe and airports such as Shanghai or Hong Kong. In contrast, express and increasingly e-commerce traffic is concentrated around cargo focused airports. E-commerce platforms gravitate naturally towards airports that already have established themselves as express hubs – such as Liege (LGG), Cologne (CGN), Leipzig (LEJ), East Midlands (EMA), Cincinnati (CVG), Shenzhen (SZX) or Hangzhou (HGH). However, developments in the US have also shown that secondary airports can use e-commerce traffic as a further springboard for growth – only about 14 of the 35 airports served by Amazon were large established passenger or cargo gateways and hubs.

7.5 E-Commerce Solutions for Air Cargo Airlines

For air cargo, 2020 was not a typical year. While demand fell by 10.6% year over year, cargo load factors, yields, and revenues all reached new highs. Volumes have steadily increased from the low point in April of 2020, and they are expected to return to 2019 levels in March 2022 according to the latest IATA reports. This recovery is fuelled by several factors. In terms of operations, as vaccination becomes more widespread, the return of international passenger travel will relieve capacity constraints. The global economic recovery and government aid packages will provide financial support to the industry and finally, shifts in shipper behavior (such as the recent push for supply chain sustainability and reliability) will have an impact on air cargo and e-commerce strategies in the future. Moreover, new COVID-19 variants discovered in various regions of the world are pushing governments to impose new restrictions and regulations, including the reintroduction of lockdowns in numerous nations. This situation, like in 2020, will provide an additional boost to e-commerce.

Overseas Courier Service (OCS), the forwarding unit of All Nippon Airways (ANA) based in Japan has started a new service aimed at facilitating cross-border transportation of e-commerce goods and packages from Japan. The program named iEC, will start operating in Singapore, Taiwan, and South before expanding to the United States, Europe, and China later in 2022. Even though the service excludes hazardous commodities or perishables, ANA claims that OCS will be able to transport e-commerce packages using its domestic and international flight network. This partnership allows OCS and ANA to offer a comprehensive door-to-door delivery program with services such as storage, fulfillment, inventory control, customs brokerage, duty deferral, and customer-defined Incoterms through its global network of 400 stations.

In March 2021, Air Canada launched Rivo - its own e-commerce platform which allows the integration of online retailers' operations into Air Canada Cargo's network. Parcels are picked up, scanned by the Rivo system, and subsequently distributed via air to destinations throughout Canada. Rivo provides last-mile delivery by picking up packages at the airport or delivering door-to-door for intra-city goods. This service was launched in Toronto, Vancouver, Edmonton, Calgary, and Montreal and now covers 55% of the Canadian population. Air Canada's cargo revenue increased by 28% year over year in 2020, to C$920 million (US$724 million), and the company aims to expand its cargo business by joining the e-commerce market.

Emirates, Lufthansa or IAG (parent company of British Airways, Iberia, Aer Lingus and Vueling) are examples of other numerous airlines that have established their own e-commerce delivery networks. Delta Airlines keeps expanding its same-day delivery service (DASH Door-to-Door) in partnership with the delivery service Roadie, which is available across most of the major metropolitan areas in the US while Singapore Airlines' KrisShop platform just launched a live inflight shopping experience where customers onboard can order products during their flight and have them delivered to their residences.

8. E-Commerce in Emerging Markets: Africa & Latin America

Key Findings:

- The pandemic led to a rapid increase of e-commerce activity in Latin America, transforming this region into the world's fastest growing e-commerce marketplace. Africa's e-commerce expansion is still limited by poor infrastructure, lack of experience with duties and taxes and restrictions with payment transactions.
- In emerging markets, e-commerce platforms are forced to partner with logistics companies that have the local knowledge, resulting in having a fragmented logistics network and not having control over the last-mile process.
- E-commerce is a key opportunity for economic development in emerging markets as it creates employment across the technology, logistics and payment service providers.

While much of the focus is on the three largest markets – China, the US and Europe, e-commerce share of retail in many other markets is extremely low – particularly across the African continent, but also across Latin America. E-commerce has arguably been a greater success story in Latin America than Africa – although both markets have similar regionally focused platforms – Jumia (in Africa) and Mercado Libre (in Latin America).

8.1 E-commerce development in Africa

E-commerce revenue in Africa is estimated to be around $20 billion annually or just short of 1% of total retail sales in the continent. Africa's 400 million internet users and e-commerce has the potential to play a bigger role in the economic activity of African countries but there are several barriers that imped the e-commerce expansion. The barriers Africa is facing include lack of infrastructure development, restrictions with payment transactions and lack of experience with custom and duty fees across countries. The adoption of a new way of shopping in Africa along with the challenges listed do not translate in encouraging results.

Another challenge e-commerce platforms face is that they rely heavily on individual sellers who sometimes do not manage marketing, stock, and inventory properly. Customers complain that these third party sellers do not show the real pictures of those products they are selling, and customers get disappointed at the end because they do not get what they ordered. This situation along with trust of online payment show how companies must work with governments to adopt policies that will help this industry flourish. Moving products from the merchants to the consumers remains as a challenge since most African towns and urban areas do not have an addressing system. E-commerce platforms are forced to partner with logistics companies that have the local knowledge, resulting in having a fragmented logistics network and not having control over the last-mile process Table 7 summarizes the major e-commerce platforms in the continent along with key developments in the recent months.

Table 7 - Major African E-commerce Platforms

Platform	Background	Recent Developments
Jumia	Jumia is the largest e-commerce platform in Africa. Founded in 2012 in Nigeria, the site is now present in 21 African countries with a network of over 80,000 sellers. Its products spans across the technology, retail, food and services industries.	Jumia's Q1 2021 revenue increased by a measly 4.6% year over year to $40.2 million but its GMV declined by 11% to 223.5 million as consumers shifted from high-value items like phones to everyday items like toiletries.
Takealot	Established In South Africa, its e-commerce success strategy relies on provide its customers with the very latest products in the market, coupled with up-to-date product specification.	The group grew revenue by 65% to $606 while trading losses decreased to near breakeven.
Konga	The Lagos-based site started selling beauty care in 2012 and it has grown to become a major online reailer. Konga's site allows traditional retailers to sell their products online. Sellers deliver their products to a Konga drop-off centre, and Konga manages the logistics.	Konga has announced the creation of over 500,000 employment opportunities in Nigeria and another 500,000 in other African countries by 2025.
Kilimall	Kenya's largest online shopping mall is relatively new in the e-commerce space but has managed to create an international brand since its launch in 2014. The site has expanded to Uganda, Nigeria and Ethiopia and has plans for further expansion across East Africa.	Kilimall registered over 2 million orders in 2020, an increase of 54% y-o-y.

In addition to the companies listed above, Alibaba and eBay have delivery capabilities in the region, but none have established as a major platform yet. However, Cainiao Smart Logistics Network has established its first air freight route between Hong Kong and Lagos, operating six times per week with the goal of shortening transit times in this fast-growing market. This connection can save about 30 days compared to the traditional air cargo route and Cainiao expects to expand its full-chain delivery services to other African nations in the short-term. Cainiao registered a 163% year-on-year rise in cross-border e-commerce parcel volume between China and Africa in May 2021.

Jumia's financials for fiscal year 2020 showed mixed results. Active customers and gross profit increased while orders and GMV fell. In March 2020, Jumia was trading at an all-time low of $2.15 after facing allegations for fraud but twelve months later, they hit an all-time high of $69.89. In early September 2021, the share price is trading at around $20. Jumia is aiming to become the platform of choice in one of the least developed e-commerce markets. In late 2018, Jumia chose profitability over growing their business and since then, their sales have increased, they have reduced their EBITDA loss year over year, and they have posted six consecutive quarters of positive gross profit. While Jumia seems to be in the course towards profitability, its numbers across revenue and losses in 2021 are not encouraging.

The 27th Universal Postal Union (UPU) Congress was held in Abidjan, Ivory Coast, in August 2021. The hosting of this event was the conclusion of the national government efforts to strengthen the country's international impact and actively contribute to the development of postal services in Africa and throughout the world. The UPU's ecom@Africa project seeks to establish the postal network as an e-commerce catalyst in Africa through an integrated, inclusive, and creative ecosystem of approved postal operators. The UPU picked Ivory Coast as the West African e-commerce center. In this congress, IATA and the United Nations Conference on Trade and Development (UNCTAD) announced the expansion of their partnership to make international trade, especially ecommerce, easier. This includes UNCTAD's automated customs administration system, ASYCUDAWorld, which successfully integrates air cargo communications standards (Cargo-XML). This will allow customs officials to exchange cargo and mail information requirements in advance across the digital supply chain because of this (cargo airlines, freight forwarders, ground handlers and third-party messaging service providers).

The future success of e-commerce in Africa depends on a deep understanding of shopper behavior and innovative sales strategies with low operating cost, creating value for customers and ensuring continuous profitability for the businesses. Particular attention should be paid to Africa's largest economies in the continent which are also the largest e-commerce markets: Nigeria, Morocco, Egypt, South Africa, and Kenya.

8.2 E-commerce development in Latin America

Retail e-commerce sales in Latin America grew 63% in 2020, reaching $105 billion and positioning the region as the world's fastest growing e-commerce market ahead of Asia Pacific, the Middle East and Africa. Brazil, Mexico, and Argentina account for approximately 70% of all e-commerce sales in the region. Before the pandemic, e-commerce penetration was around 5% of the regional economy but it doubled by the end of 2020. However, this rate is still far below the figures in the largest digital economies such as the European Union, United States and China, where e-commerce accounts for 15% to 20% of all transactions.

While the rest of the world saw multinational e-commerce platforms experiencing rapid growth during the pandemic, several local e-commerce retailers were able to establish themselves as the leaders in the region. MercadoLibre, the largest Latin American e-commerce platform, has steadily expanded its shipping business, logistics network and digital payments solutions, and managed to double its value in 2020, and is now worth $88 billion according to the Financial Times. Other emerging platforms such as Colombia-based Rappi, Canasta Rosa in Mexico and TiendaNube in Argentina posted record sales last year, but they cannot compete yet with MercadoLibre's service offer and logistics network. Amazon, which entered the Latin American market back in 2015, has doubled its market share in the region, reaching around 4% in 2020.

Last year, CFC wondered if the pandemic would provide an opportunity for MercadoLibre to expand its operations in Latin America and position itself as a leader in the market. This year, we confirm that the e-commerce leader continues to invest in the growth of its own logistics, as evidenced by the recently launched Meli Air fleet of four aircraft. Meli Air connects the hub of Queretaro in Mexico with Cancun, Culiacan, La Paz and Merida and the hub of Sao Paulo in Brazil with Goiania and Recife in the northeastern part of Brazil.

The challenges facing the development of air cargo transport in Latin America include needed improvements in air navigation, traffic handling, airport infrastructure and connectivity. A new multilateral agreement to liberalize air cargo services in the region has resulted in the expansion of seventh freedom traffic rights without restrictions for all-cargo services on routes and capacity. The agreement is currently in place across Brazil, Chile, the Dominican Republic, Ecuador, Guatemala, Panama, Paraguay, Peru, Uruguay, and Venezuela, and will remain in effect until the end of 2021, and will likely be extended beyond that time. The seventh freedom traffic rights agreement allows for a more efficient vaccine distribution right now, and in the long-term carriers could benefit from a greater liberalization in the aviation sector and, therefore, creates potential for cross-border e-commerce growth.

9. About Cargo Facts Consulting

Cargo Facts Consulting is a specialized air logistics advisory and research firm. Formerly also known as Air Cargo Management Group, we have been in business since 1978. We are a globally operating firm with staff based in Asia, Europe, and North America.

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 - E-Commerce Platform Profiles

Appendix A contains logistics profiles of the top global and regional e-commerce platforms. In general, data refers to the last full financial year, but where specified has been updated to reflect most recent available quarterly filings.

Platforms have been grouped in alphabetical order for ease of reference. The platforms included in this Appendix are:

The profiles include a description of the company, information on scale (in terms of GMV), profitability and growth, geographical scope of operations, main competitors, number of active buyers and sellers, percentage of business from third party sellers, number of items and shipments, as well as key information on the logistics setup. This includes information on the type of fulfillment network, whether it is open to third parties, the cost of the fulfillment network and information on the type of dedicated air network the platform operates, if at all.

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 platform (www.cfcinsights.com) for the first six months following publication of the report.

Table 8 - Alibaba Profile

Company	Alibaba (FY Year Ended March 2021)
Description	Founded in 1999, World's largest e-commerce platform. Includes Taobao Marketplace and Tmall. AliExpress is a global marketplace for international consumers buying from Chinese manufacturers and distributors. Tmall Global allows foreign brands to access Chinese consumers. Tmall World is a platform for overseas Chinese to purchase products from China. 1688.com is a platform for wholesale commerce in China. Alibaba.com provides global and cross border wholesale services. Lazada is Alibaba's e-commerce platform across Southeast Asia (particularly Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam). In September 2019, Alibaba acquired Kaola, another Chinese cross border e-commerce platform. During FY2021, Alibaba established Community Marketplaces business to better serve consumers by leveraging next-day pick-up services and supply chain and fulfillment capabilities of Freshippo, Sun Art, Lingshoutong and other partners
Headquarters, Employees	Holding Company incorporated in the Cayman Islands, individual subsidiaries incorporated in China. Cainiao is in Hangzhou.
Gross Merchandise Value (GMV)	$1.2 trillion (of which $1b = China Retail Marketplaces). Growth of 20%.
Profitability and growth	Revenue was RMB717,289 million (US$109,480 million), an increase of 41% year-over-year. Non-GAAP net income was RMB171,985 million (US$26,250 million), an increase of 30% year-over-year. Alibaba has been consistently profitable.
Main markets	Revenue Share: China Retail (Taoboao, Tmall/ Tmall World) 64%; International Retail 7%, includes AliExpress (mainly Russia, USA, Brazil, Spain, and France), Lazada (Southeast Asia) and Tmall Global; Chinese wholesale 3% (1688.com); International wholesale 2% (Alibaba.com). IN FY19 Acquired Trendyol (Turkey) and Daraz (Pakistan, Bangladesh).
Main competitors	JD.com, Pinduoduo
No of active buyers/ users (m)	891 million (China), of which 811 million on Taobao and Tmall and the remainder on YouKu, Ele.me and Feshippo. 240 million international users spread across Lazada, AliExpress, Trendyol, Daraz. Buyers are located across 190 countries. Annual active consumers for the Alibaba Ecosystem reached a milestone of over 1 billion.
No of active sellers (m)	Merchants on Taobao are primarily individuals and small business By March 2021, there were over 250,000 international brands and merchants on Tmall.

Company	Alibaba (FY Year Ended March 2021)
% Of Business from 3rd Party Sellers	Taobao, Tmall, AliExpress and Alibaba.com are marketplaces for 3rd party sellers. However, Lazada does sell its own products.
No of items and shipments	Average cross-border package volume for March 2021 exceeded 5 million.
Own controlled fulfillment?	Cainiao Network, owned 63% by Alibaba, founded in 2013. Vision is to be able to fulfil everything within 24 hours in China and 72 hours across the world. Uses logistics partners to run this network. Uses 15 “strategic express courier partners” with 1.6m delivery personnel and 190,000 hubs and sorting locations in more than 700 cities and 31 provinces in China. Cainiao Network has partnered with over 270 logistics partners to provide fulfillment services globally. Lazada also has an inhouse logistics network. Internationally, Cainiao and the logistics Arm of Lazada support Lazada, AliExpress and Tmall World. YTO, SF, STO, Yunda, and ZTO each have a 1% stake in Cainiao. Additionally, Alibaba holds a minority stake in three of the country’s top logistics companies; ZTO Express (10%), YTO Express (11%), STO (14.60%) and Best Express (29%). These investments strengthen ties with Chinese courier service giants through cross-shareholding.
% Of volumes through own controlled logistics?	35% (estimated), compared to 32% in 2019/20
Logistics network open to 3rd parties?	Yes, supply chain and logistics services are geared to fulfillment. Also offers trade financing and customs clearance. Services are billed to merchants.
Logistics Spend	Cainiao Network achieved solid revenue growth of 68% year-over-year, to RMB37,258 million (US$5.7 billion), representing 5% of Alibaba’s total revenue. Cainiao Network also reached an important milestone of generating positive operating cash flow during fiscal year 2021.
Dedicated Airfreight or Aircraft Capacity	No, but Cainiao partner and shareholder YTO operates an air network of 10 aircraft.

Reflects financial data up to quarter ended in June 2021

Table 9 - Amazon Worldwide profile

Company	Amazon Worldwide (2020)
Description	2nd largest global e-commerce platform. Also offers cloud computing services thought Amazon Web Services (AWS)
Headquarters, Employees	Seattle, WA 1.3 million full and part time employees worldwide, not including independent contractors.
Gross Merchandise Value (GMV)	\$490 billion (+38% vs. 2019). Amazon Retail: \$190 billion + Amazon Marketplace: \$300 billion If Amazon maintains at least 25% growth in 2021, it will reach \$600 billion GMV.
Profitability and growth	Net income in 2020 was \$21.3 billion with sales reaching \$190 billion (growing 40%). Amazon added \$55 billion in net sales growth. Net Sales in the US accounted for 61%, international 27% and AWS for 12%. International net sales grew faster (+40%) this year vs. 2019. Largest share of profits come from AWS, followed by US and International. Intl. Operations posted a profit of 717 million in 2020. Q1 2021: Net sales increased 44% to \$108.5 billion, compared with \$75.5 billion in Q1 2020. Q2 2021: Net sales increased 27% to \$113.1, compared with \$88.9 billion in Q2 2020. Profitability varies across the company's business lines, with AWS generating the highest margins of around 30%. On the retail/marketplace side, the North American operation is moderately profitable (5%). In 2020, the international operation became profitable, but Amazon loses significant amounts in key markets such as Europe and India.
Main markets	All segments (including Amazon Web Services, which accounts for 12% of total net revenues. United States (61%), Germany (7%), UK (6%), Japan (4%), all other markets (10%)
Main competitors	Domestic US: Target, Wal Mart International: Alibaba, regional platforms such as Flipkart, Jumia, Mercado Libre.
No of active buyers/ users (m)	Not available
No of active sellers (m)	Not available
% Of Business from 3rd Party Sellers	63% (estimated), compared to 58% in 2019 and 49% in 2014.
No of items and shipments	Not available

Company	Amazon Worldwide (2020)
Own controlled fulfillment?	Yes
% Of volumes through own controlled logistics?	Amazon does not provide any visibility on percentage of shipments managed through Fulfillment by Amazon, nor the share of third party vs inhouse delivery partners. We estimate that close to 100% is fulfilled by Amazon in the US, but lower in other markets. Evidence shows an increasing share of volumes fulfilled by Amazon. Third party carriers (such as UPS) account for 50% of deliveries in the US. Own deliveries in other regions are much lower.
Logistics network open to 3rd parties?	To third party sellers.
Logistics Spend	Fulfillment costs: $58.5b (+45%) Shipping costs accounted for a further $61.1 (+61%). UPS accounted for 18% of total shipping spend, down from 23% in 2019.
Dedicated Airfreight or Aircraft Capacity	Yes, dedicated air network capacity in North America and Europe, as well as use of integrator capacity.

Reflects financial data through to Q2 2021

Table 10 - Amazon North America profile

Company	Amazon North America (2020)
Description	Largest market for based online retail and marketplace platform
Headquarters, Employees	Seattle, WA.
Gross Merchandise Value (GMV)	$295 billion (estimated)
Profitability and growth	North America net revenue $170.8b (+21%). Operating margin dropped in 2019 from 5% to 4%.
Main markets	United States
Main competitors	eBay, Wal Mart, Target
No of active buyers/ users (m)	Not available
No of active sellers (m)	Not available
% Of Business from 3rd Party Sellers	Not available for USA. Overall Amazon Group figure is 66% (estimated), compared to 63% in 2019, 58% in 2018 and 49% in 2014.
No of items and shipments	Not available
Own controlled fulfillment?	Close to 100% However, Amazon uses third party carriers for delivery. Approximately 50% of packages in the US. UPS and USPS are the primary third-party contractors.
% Of volumes through own controlled logistics?	100% Sellers can choose to fulfil or use fulfillment by Amazon
Logistics network open to 3rd parties?	To 3rd party sellers.
Logistics Spend	Amazon does not provide breakdown of expenditure by region. We estimate a shipping spend of approximately $45b, which includes approximately $1b for the dedicated air network and $11.3b with UPS.
Dedicated Airfreight or Aircraft Capacity	Approximately 80 aircraft in North America, operated by ATSG Group, Atlas Air Group, Sun Country and Cargojet. Operates flights in the US and Canada, but not in Latin America.

Table 11 - Amazon Europe profile

Company	Amazon in Europe (2020)
Description	Largest international market for US based online retail and marketplace platform.
Headquarters, Employees	Luxembourg. Approximately 120,000.
Gross Merchandise Value (GMV)	\$75m (estimated). Net Revenues EUR 43.8b (approx. \$50b, +36%) which accounts for approximately half of international revenue
Profitability and growth	Losses have been increasing. EUR 1.187b in 2020 compared to EUR 704m, EUR 259m and EUR 876m in 2019, 2018 and 2017, respectively)
Main markets	Germany and UK account for an estimated 60% of European fulfilment center space, followed by Spain (10%), France (10%) and Italy (10%), Poland (8%). Polish fulfilment centers largely serve German customers.
Main competitors	Otto, About You, Zalando, Asos, Rakuten, AliExpress. European e-commerce is more fragmented than in the US.
No of active buyers/ users (m)	Not available
No of active sellers (m)	Not available
% Of Business from 3rd Party Sellers	Not available for Europe
No of items and shipments	Not available
Own controlled fulfillment?	Yes.
% Of volumes through own controlled logistics?	Not available. We estimate 85-90% in UK, Germany, 70-75% in France, Spain, and Italy. Poland and Nordics closer to 50%.
Logistics network open to 3rd parties?	To 3rd party sellers
Logistics Spend	Approx. EUR 10 billion (\$1.2b)
Dedicated Airfreight or Aircraft Capacity	Yes. Fleet of 737-400 and 737-800 operated by ASL.

Table 12 - eBay profile

Company	eBay (2020)
Description	Global commerce platform specialized in facilitating C2C and B2C sales through its website. eBay offers auction-style sales and instant shopping options for its merchandise.
Headquarters	San Jose, USA
Gross Merchandise Value – GMV	$100 billion (+11%), with 62% generated outside the US
Profitability and growth.	Revenues of $10.2 billion in 2020 (a 22% increase y-o-y), with net income of $5.67 b. a 221% increase from previous year Q1 2021 - eBay reported revenues of $3.02 billion, down 2% on a year ago and net income of $641 m (-81%) Q2 2021 – eBay reported revenues of $2.668 billion, and net income of $675 million eBay is losing ground in domestic markets while retaining strength in international markets.
Main markets	United States (41%), Germany (14%), United Kingdom (13%), South Korea (10%), Rest of the world (22%)
Main competitors	Shopify, Alibaba, JD.com, Amazon, wish
No of active buyers/ users	185 million buyers in 2020
No of active sellers	19 million sellers with 1.6 billion live listings globally
% Of Business from 3rd Party Sellers	100%
No of items and shipments	Not available
Own controlled fulfillment?	Previously, no. Recently eBay has made moves into own controlled fulfillment but so far, they have only leased a limited number of warehouses.
% Of volumes through own controlled logistics?	Not available
Logistics network open to 3rd parties?	Yes, eBay plans to use third-party providers to offer fast delivery and logistics savings to help the site’s seller compete for online consumers
Logistics Spend	Not available
Dedicated Airfreight or Aircraft Capacity	No

Reflects financial data up to latest quarter, ended in June 2021

Table 13 - Flipkart profile

Company	Flipkart (Year ended Mar 2020)
Description	Founded in 2007. 2nd largest Indian E-commerce Platform after Amazon. Walmart acquired 77% of diluted and 81% of outstanding stock of Flipkart in August 2018 for $16b. Wal Mart currently holds Flipkart through a Luxembourg based holding company FIT Holdings SARL.
Headquarters	Bengaluru, India. Holding company is incorporated in Singapore.
Gross Merchandise Value	Net revenue INR 346b (US$4.862b, +10%) Flipkart's financials have been fully consolidated under Walmart.
Profitability and growth.	Loss of approximately US$442 in 2019/20 and US$548m in 2018/19. In Calendar Year 2020 Wal Mart contributed an additional $1.3b to FlipKart, a substantial increase on the $140m injection in 2019, the year following the acquisition.
Main markets	India
Main competitors	Amazon. Based on reports, Amazon overtook Flipkart in size in 2016/17. Amazon losses in 18/19 and 19/20 were each over $800 million. Reliance Industries and TATA are building an all-in-one e-commerce app to compete with Flipkart and Amazon.
No of active buyers/ users	130 million
No of active sellers	Over 250,000
% Of Business from 3rd Party Sellers	Not available
No of items and shipments	500,000 deliveries per day. 180m / year.
Own controlled fulfillment?	1900 e-commerce sort centers. Supply Chain arm eKart has approximately 850 delivery hubs.
% Of volumes through own controlled logistics?	Not available. Based on warehousing costs, the majority is fulfilled by sellers themselves.
Logistics network open to 3rd parties?	To third party sellers on platform.
Logistics Spend	Not available
Dedicated Airfreight or Aircraft Capacity	No

Note: data from year ended Mar 2021 likely to be available in late 2021.

Table 14 - JD.com profile

Company	JD.com (2020)
Description	3rd largest E-commerce and retail infrastructure company, established 2004. The company has built its own nationwide fulfilment infrastructure and last-mile delivery network, staffed by its own employees, which supports both its online direct sales and its online marketplace businesses. JD.com launched its online marketplace business in 2010. NASDAQ IPO in 2014. Walmart has a 9.9% stake in the company and a non-compete agreement in China. JD.com has a controlling interest in JD Logistics, which is 19% owner by outside shareholders. In 2018 Google invested $550m in JD.
Headquarters	Incorporated in Cayman Islands, 284,000 warehouse and delivery personnel in China.
Gross Merchandise Value – GMV	$400 b (RMB 2,613 billion)
Profitability and growth.	Net revenues for the full year of 2020 were RMB745.8 billion (US$114.3 billion), an increase of 29.3% from the full year of 2019. Net income for 2020 of $7.5 billion Net revenues for Q1 2021 were RMB203.2 billion (US$131.0 billion), an increase of 39.0% from Q1 2020. Net revenues for Q2 2021 were RMB253.8 billion (US$139.3 billion), an increase of 26% from Q2 2020.
Main markets	Domestic China. Immediate expansion plans are in Southeast Asia (Thailand, Indonesia, Malaysia) and will research entry into US, Europe, and Middle East. Since early 2019 offers a selection of products via Google Shopping. JD worldwide sources products from 70 countries (particularly the US, Japan, and Germany) for Chinese consumers.
Main competitors	Tmall (Alibaba)
No of active buyers/ users	Annual active customer accounts increased by 30.3% to 471.9 million in 2020 from 362.0 million in 2019.
No of active sellers	31,000 suppliers. 240,000 3rd party sellers.
% Of Business from 3rd Party Sellers	Not available
No of items and shipments	Not available but approximately 90% of the total online retail orders processed through JD Logistics' network were delivered on the same day or the day after the order was placed, with over 60% of the total online retail orders covered by the 211 program.

Company	JD.com (2020)
Own controlled fulfillment?	Yes, set up in 2007. Now operates through JD Logistics. Views logistics as a core capability. As of December 31, 2020, JD's warehouse network covered almost all counties and districts across China, consisting of over 900 warehouses operated by JD and over 1,400 cloud warehouses operated by third-party warehouse owner-operators under JD Logistics Open Warehouse Platform. As of December 31, 2020, JD Logistics operated over 900 warehouses, which covered an aggregate gross floor area of approximately 21 million square meters, including warehouse space managed under the JD Logistics Open Warehouse Platform. In January 2021, JD Logistics signed an agreement with Chinese confectionary manufacturer Xu Fu Chi. Leveraging JD Logistics' technology capabilities, the collaboration will support Xu Fu Chi's supply chain management system digitalization efforts and enhance the confectionary manufacturer's omni-channel service capabilities across various distribution channels.
% Of volumes through own controlled logistics?	Most orders are delivered through JD logistics network.
Logistics network open to 3rd parties?	Since April 2017 to businesses and in October 2018 also to consumers for intra China. Clients include Nestle, NetEase
Logistics Spend	$7.4 billion (fulfillment expenses). Fulfillment expenses as a percentage of net revenues was 6.5% for the full year of 2020, compared to 6.9% for the full year of 2019. These primarily include procurement, warehousing, delivery, customer service and payment processing expenses. Fulfillment expenses, which primarily include procurement, warehousing, delivery, customer service and payment processing expenses, increased by 31.7% to RMB48.7 billion (US$7.4 billion) for 2020. This increase was primarily due to the increase in shipping charges, compensation costs relating to fulfillment personnel, rental expenses for their fulfillment infrastructure and payment processing charges
Dedicated Airfreight or Aircraft Capacity	Partnership with Tianjin Cargo since November 2018. JD notes that road and High-Speed Rail in China could reduce the need for air freight in the medium term.

Reflects financial data up to quarter ended in June 2021

Table 15 - Jumia profile

Company	Jumia (2020)
Description	Largest e-commerce platform in Africa. Founded in 2012. NYSE listing in April 2019. Integrated including payment platform and logistics. IPO proceeds $252.8m, including EUR 75 million investment by Mastercard. Pernod Ricard invested EUR 75m prior to IPO. Its logistics service enables the shipment and delivery of packages from sellers to consumers, and the company's payment service facilitates transactions among participants active on its platform in selected markets.
Headquarters	Headquarters in Berlin, management center in Dubai, operations center in Porto
Gross Merchandise Value – GMV	GMV decreased 16% from $1b in 2019 to $836m in 2020.
Profitability and growth.	Revenues of $165.7 million in 2020 and net loss of $3 million. Poor results are attributed to economic slowdown, volatility, and inflation across the African countries they serve. 1H2021: Revenues of $73.2 million (+3.5%) and operating loss of $92.2 million (-3%). In the past two years, Jumia has enhanced their business by posting positive gross profits after fulfilment expenses and strengthening their balance sheet.
Main markets	Operates across six regions and 11 countries in Africa. Local sites: Algeria, Egypt, Ghana, Ivory Coast, Kenya, Morocco, Nigeria, Senegal, South Africa, Tunisia, Uganda and. Its geographical segments are West Africa, North Africa, South Africa, East Africa, Portugal, France, and Germany. The firm generates most of its revenue from the West Africa segment
Main competitors	Varies by market. Souq.com (Egypt), Konga (Nigeria), Takealot, Superbalist (South Africa), Global E-commerce companies such as Alibaba and Ebay.
No of active buyers/ users, millions	Active consumers: 6.8m (+12%).
No of active sellers	110,000 in 2020. Majority of sellers are local but allows Chinese sellers access to platform. 1-4% of sellers are key accounts (major distributors), most are local professional traders, shop owners, manufacturers, and individuals. A small percentage of sellers are Chinese cross border sellers experienced in customs formalities.
% Of Business from 3rd Party Sellers	95% (compared to 93% in 2019).

Company	Jumia (2020)
No of items and shipments	Orders increased from 26.5 million in 2019 to 27.9 million 2020. Jumia Express product accounts for 30% of all items. Jumia Express involves storage in own warehouses and faster dispatch.
Own controlled fulfillment?	Yes, through Jumia Logistics. Uses over 300 logistics partners across Africa. 1,100 pick-up stations for consumers. Proprietary delivery fleet for express in select areas. Also operates fulfillment centers.
% Of volumes through own controlled logistics?	90%
Logistics network open to 3rd parties?	In the future, yes.
Logistics Spend	Fulfillment expense: $82.3 m ($92 m in 2019). No guidance is provided regarding the shipping share of fulfillment expenses. Fulfillment expense increase was due to a higher proportion of cross-border packages from overseas sellers and a higher proportion of packages delivered outside primary cities.
Dedicated Airfreight or Aircraft Capacity	For cross border inbound freight, but Jumia does not provide commentary.

Reflects financial data up to quarter ended in June 2021

Table 16 - Mercado Libre profile

Company	MercadoLibre (2020)
Description	Largest e-commerce platform in Latin America. Founded in 1999. Integrated including marketplace, payment, logistics, classified, advertising, and web shop solution. NASDAQ IPO in 2007. MercadoLibre's commerce segment (64% of revenue in 2020 includes online marketplaces in more than a dozen Latin American countries, display and paid search advertising capabilities (MercadoClics), online store management services (MercadoShops), and third-party logistics solutions (MercadoEnvios).
Headquarters, Employees	Buenos Aires, data centers in Virginia, USA. 15,546 (+23%) employees mainly in Argentina and Brazil.
Gross Merchandise Value (GMV), millions	$20.9b (+50%)
Profitability and growth	Net revenues grew 73% in 2020 to $3.9 billion; the increase was mainly attributed to an increase in gross merchandise volume and sales of goods. Net income of $81.3 million after two consecutive years of losses. 1H 2021: net revenues of $3.1 billion (up 132% y-o-y). Net income of $104.9 m (reported loss of $34 m during Q1 2021). MercadoLibre has not shown strong signs of profitability over the past few years and as of today, it has negative equity on its balance sheet. The next few years will be key to whether liabilities carried forward cancel out in the future.
Main markets	Brazil (55%), Argentina (25%), Mexico (15%). The company derives about 95% of its revenue from Brazil, Argentina, and Mexico.
Main competitors	B2W, Magazine Luiza, Amazon (in Mexico since 2015 and more recently, in Brazil)
No of active buyers/ users (m)	Buyers: 44.2 (+18%)/ Users: 132.5 (+74%).
No of active sellers (m)	13.5 (+17%)
% Of Business from 3rd Party Sellers	100%
No of items and shipments	Items sold: 719.3m (+89%)
Own controlled fulfillment?	MercadoEnvios warehousing and fulfillment. Shipping service through integration with local carriers and own transportation services. Service available in six countries (Argentina, Brazil, Mexico, Colombia, Chile, and Uruguay). Not available in Peru, Venezuela, Ecuador, Costa Rica, Dominican Republic, Panamá, Bolivia, Guatemala, Paraguay, Nicaragua, Honduras and El Salvador.

Company	MercadoLibre (2020)
	MercadoLibre relies on several local carriers to receive the inventories of third parties and ship orders to customers. Fulfillment centers in Axotlan and Tepozotlan, Mexico State, Mexico; Louveira and Cajamar, Sao Paulo State, Brazil; Buenos Aires, Argentina; Cross docking facilities in Cambinas and Villa Guilherme, Sao Paulo State; Sarandi and Mercado Central, Buenos Aires. Share of m2: Brazil (63%), Argentina (10%), Mexico (21%), Others (6%).
% Of volumes through own controlled logistics?	83% 2020, 80% in 2019. It used to be 66.1% in 2018; 56% in 2017 and 48% in 2016.
Logistics network open to 3rd parties?	No, but intends to maximize the utilization of MercadoEnvios
Logistics Spend	Unclear, but pay local carriers for shipping costs and then decide how much to pass onto their customers. Since 2017, the company has been subsidizing shipping to provide free shipping to its customers. In 2019 free shipping applied to 62% of volume purchased and 50% of units delivered. Shipping subsidy: $262.1m in 2019 (compared to $424.8m in 2018 and $181.6 in 2017). As of end of 2020, free shipping is offered to buyers in Brazil, Argentina, Mexico, Chile, and Colombia. Shipping subsidies decreased by 38.5% and the company implemented a flat fee charged to customers for transactions below a certain merchandise value by $90.8m. Most of the flat free is generated in Brazil. Company does not state whether this covers shipping costs so effective subsidy may be higher.
Dedicated Airfreight or Aircraft Capacity	In 2020, MercadoLibre launched Meli Air with a fleet of dedicated aircraft covering routes across Brazil and Mexico, with the intent of improving delivery times.

Reflects financial data up to quarter ended June 30, 2021

Table 17 - Otto Group profile

Company	Otto Group (12 Months Ended February 2021)
Description	Privately owned multichannel consumer goods retailer, with e-commerce, mail order and physical retail founded in 1949. Other segments include Finance and Logistics. Main companies include Otto.de, Bonprix, Crate & Barrel, Freemans Grattans, Heinrich Heine, My Toys, Sportscheck (sold in Feb 2020), Unito, Quelle, Witt. The About You marketplace was deconsolidated in 2018/19 following an investment by Heartland A/S, a Danish multi-brand fashion company but is still viewed as a focus company. About You was listed on the Frankfurt stock exchange in June 2021. Otto Group and family retain 43.5% and represent the largest shareholding in About You.
Headquarters	Hamburg. Approximately 50,000 (-4%) employees across 30 main subsidiary companies worldwide. 20,000 are in the service segment, which consists mainly of its logistics business Hermes.
Gross Merchandise Value – GMV	Revenue EUR 15.6b of which 12.1b were attributable to omnichannel retail. EUR 9.9b is attributable to online sales (+22%). Online share varies across business segments from 97% (+1) at My Toys, 96% (+2) at Otto, 88% (+1) at Bonprix, 68% (+19) at Crate and Barrel, 35% (+2) at Witt Group.
Profitability and growth.	Revenue growth of 9.7% in 20/21 (4.7% in 19/20, 3.5% in 18/19 and 9.1% in 17/18). EBITDA increased 28%, after doubling the year before. Company goal is to increase revenues to EUR 17b by 2022/23.
Main markets	Europe, North America, and Asia. Revenue share by market: Germany 58%, Europe (excl Germany) 24%, North America 14%. At 11.3% Germany grew stronger than other regions, which saw growth at about 7.2%.
Main competitors	Amazon, Zalando, Asos, boohoo. The European E-Commerce market is more diverse than in the US.
No of active buyers/ users, millions	Not available. 33% (29.5% in 2018 and 26.6% in 2017) are conducted via mobile devices.
No of active sellers	Not available, but the estimate is that Otto is making investments to move from being an e-tailer to becoming a platform. Invested EUR 236 in 20/21, 356 in 19/20, 413 in 18/19 and EUR 380 in 17/18, mainly in the multichannel retail and service (Hermes) segment. In 2019 stated that it expected to be hosting 3000 partners and brands by end of 2020, but in its Sep 2020 report stated that it would bring 1000 partners online on otto.de in “the coming months”. No further information was provided in latest report other than the transition remains central to the company’s strategy.
% Of Business from 3rd Party Sellers	Not available.

Company	Otto Group (12 Months Ended February 2021)
No of items and shipments, in millions	In 2020/21 Hermes shipped over 1 billion parcels (+11%). Hermes revenue increased 6.2%.
Own controlled fulfillment?	Yes, through inhouse parcel and logistics company Hermes. Hermes has subsidiaries and distribution centers in Germany, UK, Italy, Austria, Romania, Russia, Hong Kong, and the US Hermes Fulfillment handles around 300 million items and 60 million orders per year for Otto Group Companies. fulfillment centers in Germany including Haldesleben, Löhne and Ohrdruf and returns logistics center in Hamburg. In Feb 2020 a new center was opened Ansbach, southern Germany to serve the Eastern European Market. Effective 30 Nov 2020 Advent International, a private equity firm, acquired 75% of Hermes UK and 25% of Hermes Parcel Germany. An agreement to sell 100% of French subsidiary MONDIAL RELAY to InPost S.A. is awaiting competition authority approval.
% Of volumes through own controlled logistics?	100%.
Logistics network open to 3rd parties?	Yes. Parcel services to businesses and consumers. Hermes offers end to end e-commerce solutions to third parties, including pick up, sortation, airfreight, customs clearance. Also provides solution for foreign companies to sell on Chinese marketplaces such as JD.com or TMALL. Hermes claims they deliver one in three B2C parcels in Germany. Hermes key accounts include Amazon, eBay, and H&M, among others. 2/3 of Hermes business is with 3rd party clients. 43% of Hermes revenues are in Germany and 52% in other parts of Europe excluding Germany and Russia (2018/19, no data for 19/20 or 20/21). Based on Hermes Parcelnet filings approximately 25% of total Hermes logistics business in the UK.
Logistics Spend	EUR 1.27b (0%, +5%, +8.3% and +6.6% growth in 20/21, 19/20, 18/19 and 17/18, respectively). The Services division, which includes Hermes generated external customer revenue of EUR 2.74 (+6.7% in 20/21 and 11.6% in 19/20, compared to about 1% in preceding years).
Dedicated Airfreight or Aircraft Capacity	As an air freight consolidator between North America, Europe, and China. No regional dedicated capacity.

Updated 30 Aug 2021.

Table 18 - Pinduoduo profile

Company	Pinduoduo (2020)
Description	Founded in 2015, Pinduoduo is now the largest online marketplace for agricultural products in China. The company went public on Nasdaq in 2018. Pinduoduo integrates with social platforms such as Weixin or QQ to
Headquarters	Shanghai, China
Gross Merchandise Value – GMV	$42 b.
Profitability and growth.	In the three months to June 30, it reported net income attributable of 2.41 billion yuan ($372 million) compared with a net loss of 899.3 million yuan a year ago and revenue of 23.05 billion yuan ($3.56 b)
Main markets	China
Main competitors	Alibaba, JD.com
No of active buyers/ users	200 million active buyers and 788 million annual active users in 2020, surpassing Alibaba
No of active sellers	Not available
% Of Business from 3rd Party Sellers	Not available
No of items and shipments, in millions	38.3 billion orders in 2020
Own controlled fulfillment?	No. Upon an individual purchase on the platform, the merchant handles the fulfillment, selects the most suitable third-party logistics service provider, and arranges for the delivery of products to the buyers.
% Of volumes through own controlled logistics?	Not available
Logistics network open to 3rd parties?	Not applicable
Logistics Spend	Not available
Dedicated Airfreight or Aircraft Capacity	No

Table 19 - Rakuten profile

Company	Rakuten (2020)
Description	E-commerce and Internet company established in 1997. It's a B2B2C e-commerce platform with base in Japan which offers e-commerce solutions internationally. The internet services segment comprises businesses running various e-commerce sites, including Rakuten Ichiba, an internet shopping mall; travel booking sites; portal sites; and e-book businesses as well as businesses for advertising.
Headquarters	Tokyo, Japan
Gross Merchandise Value – GMV	$49 billion (+35%)
Profitability and growth.	Rakuten reported $326 million in loss and revenues of $13.7.6 billion in 2020 and a loss of $1.07 billion Domestic e-commerce increased by 13% in 2020 YoY. About 83% of revenue is generated from the Japanese market and the firm has been scaling back its unprofitable overseas business in the past years. Their overseas business is expanding steadily. 1H 2021: $7.2 billion (+17%)
Main markets	Japan, Korea. Also active in Europe and the US (through Webgistix)
Main competitors	Amazon, Walmart, JD.com
No of active buyers/ users	123 million
No of active sellers	46,000 active sellers
% Of Business from 3rd Party Sellers	Not available
No of items and shipments, in millions	Not available
Own controlled fulfillment?	Yes, Rakuten Super Logistics (RSL) is a leading ecommerce order fulfillment company that provides the scalability, flexibility, and cost savings retailer's demand. RSL allows Rakuten to have a global fulfillment network that provides online retailers and consumers with fast and efficient distribution solutions for cross-border e-commerce.
% Of volumes through own controlled logistics?	Not available
Logistics network open to 3rd parties?	Yes
Logistics Spend	Not available
Dedicated Airfreight or Aircraft Capacity	No

Reflects financial data up to latest quarter ended on June 30, 2021,

Table 20 - Shopify profile

Company	Shopify (2020)
Description	Leading cloud-based, multi-channel e-commerce platform. Shopify builds web and mobile based software and lets merchants set up online storefronts, enabling them to manage product inventory, process orders and payments, ship orders, build customer relationships, source products, leverage analytics and reporting.
Headquarters	Ottawa, Canada
Gross Merchandise Value – GMV	120 billion, GMV up 96% from 2019 Second-Quarter GMV Growth ($42.2 billion) of 40% Year on Year
Profitability and growth.	Shopify reported revenues of $2.9 billion (up 86%) along with net income of 319.5 million, compared to net loss of $125 million in 2019. Revenue in Q1 2021 was $988 million, up 110% y-o-y. Revenue in Q2 2021 was $1,119.4 million, up 57% y-o-y. In 2020, Shopify expanded their multichannel offering to help merchants reach more buyers. This included Pinterest, Instagram, Facebook, TikTok and Walmart.
Main markets	Canada, United States, United Kingdom, Australia
Main competitors	eBay, Amazon
No of active buyers/ users	457 million shoppers in 2020, a 30% increase vs. 2019
No of active sellers	1,749,000 merchants from 175 countries use Shopify, geographically dispersed: United States (50%), UK (8%), Canada (6%), Australia (6%), Latin America (4%) and rest of the world (29%)
% Of Business from 3rd Party Sellers	100%
No of items and shipments, in millions	Not available but in 2020, Shopify processed an average of 121 million orders per month or 4 million orders daily.
Own controlled fulfillment?	Shopify was not responsible for the fulfilment. However, in June 2019, they announced the launch of Shopify's Fulfillment Network and acquired a warehouse automation company (6 River Systems) in late 2019. This fulfillment network has been growing and Shopify now has fulfillment centers in California, Georgia, New Jersey, Nevada, Ohio, Pennsylvania, and Texas. Shopify is aiming to support up to 30,000 packages per day.
% Of volumes through own controlled logistics?	Not applicable

Company	Shopify (2020)
Logistics network open to 3rd parties?	Not applicable
Logistics Spend	Not applicable
Dedicated Airfreight or Aircraft Capacity	No

Reflects financial data up to latest fiscal quarter ended June 30, 2021

Table 21 - Target Profile

Company	Target (2020)
Description	US based omnichannel retailer, founded in 1902. The company sells its products through its stores; and digital channels, including Target.com. The company operated approximately 1,897 stores. Total of 409,000 employees in the US. Target.com owns and oversees the company's e-commerce initiatives.
Headquarters	Minneapolis, USA.
Gross Merchandise Value – GMV	$8 billion (+17%)
Profitability and growth.	$93.6 billion of revenue in 2020 (+20%) Net income of $4.3 billion (+33%). Q2 2021: total revenue of $25.2 billion grew 9.5 percent compared with last year,
Main markets	United States exclusively
Main competitors	Walmart, Amazon
No of active buyers/ users	198 million visits in December 2020. Guests receive a 5 percent discount on nearly all purchases and receive free shipping at Target.com when they use their Target Debit/ Credit card.
No of active sellers	Exclusively own retail.
% Of Business from 3rd Party Sellers	No third-party sales
No of items and shipments, in millions	Not available
Own controlled fulfillment?	46 owned distribution centers and 20 office locations globally.
% Of volumes through own controlled logistics?	Not applicable
Logistics network open to 3rd parties?	Not applicable
Logistics Spend	Not applicable
Dedicated Airfreight or Aircraft Capacity	No

Reflects financial data up to latest fiscal quarter ended June 2021

Table 22 - Walmart Profile

Company	Walmart (Year ended Jan 2021)
Description	US based omnichannel retailer, 11,500 physical stores. E-commerce websites under 54 banners in 26 countries. Incorporated in 1969. First foray into e-commerce in 2000 with Walmart.com. Acquired Flipkart (India) in 2018 and entered minority shareholding of JD.com in 2016. Walmart International segment conducts business in 25 countries as of September 2021. Walmart is the largest private employer in the world with 2.2 million employees.
Headquarters	Bentonville, AK. 2.2m employees, of which 0.8 m outside the US
Gross Merchandise Value – GMV	GMV for Walmart is estimated to be $64.9 (+63%), of which $43b is generated in the US, $5.3b as part of Sam's Club (which is present in the US, Mexico, Brazil, and China), and $16.6b in international markets.
Profitability and growth.	FY 2021 revenue grew $35 billion y-o-y to $559.2 billion, which primarily comprised net sales of $555.2 billion. Operating income was 22.55 billion (+9.5%) US operating income higher than from its international business.
Main markets (2019)	US (67% of net sales) and International (22% of net sales) with operations in Africa, Argentina, Canada, Central America, Chile, China, India, Japan, Mexico, and the United Kingdom, as well as Brazil Main e-commerce markets in US, Mexico, UK, Canada, and India. 40 dedicated eCommerce fulfillment centres in the US and 88 internationally.
Main competitors	Target, Amazon
No of active buyers/ users	265 million customers
No of active sellers	Exclusively own retail
% Of Business from 3rd Party Sellers	No third-party sales
No of items and shipments, in millions	Not available
Own controlled fulfillment?	83 dedicated e-commerce fulfillment centers and 2,500 e-commerce sort centers in India Walmart has approximately 7,300 pickup and 5,200 physical stores.
% Of volumes through own controlled logistics?	US: 80% of store merchandise shipped through 162 distribution facilities, the remainder directly from suppliers International: 85% of Walmart International volumes through own distribution facilities. There is a total of 221 distribution facilities outside the US in Canada, Central America, Chile, China, India, Mexico, South Africa, Japan, and the United Kingdom.

Company	Walmart (Year ended Jan 2021)
Logistics network open to 3rd parties?	No
Logistics Spend	Unclear. Free two-day shipping on over 2 million items launched 2017. FedEx is the delivery partner for this. In Jan.2020, Walmart launched NextDay Delivery to more than 75 percent of the U.S. population, launched Delivery Unlimited from 1,600 locations in the U.S. and expanded Same Day Pickup to nearly 3,200 locations. In early 2021, Walmart+ was launched. This new membership offers unlimited free shipping and delivery from store with no order minimum.
Dedicated Airfreight or Aircraft Capacity	No

Reflects financial data up to latest fiscal quarter ended July 2021

Table 23 - Wish Profile

Company	Wish (2020)
Description	E-commerce platform founded in 2010. One of the most popular platforms for cross border e-commerce, accounting for about 10% of all cross-border transactions. In 2015, both Amazon and Alibaba offered to purchase Wish for $10 billion. Wish is publicly traded on Nasdaq now (WISH) and its market capital is $4.36 billion. Wish went public in December 2020 at $24/share. The stock initially slid below its IPO price and now it's about $7/share.
Headquarters	San Francisco, USA
Gross Merchandise Value – GMV	Not available.
Profitability and growth.	In 2020, $13 million in goods were sold by third-party sellers on the Wish Marketplace just within the US. Total revenue was $2.5 billion, an increase of 34% y-o-y with total costs and expenses of $3.2 billion. Wish reported a net loss of $745 million in 2020 and currently have accumulated a deficit of $2.2 billion. In the first half of 2021, Wish reported revenues of $1.1 billion, an increase of 25% y-o-y.
Main markets	Globally but with a focus in China, Europe, and North America. The US accounts for 22% of its online visits per month.
Main competitors	Alibaba/ AliExpress, MercadoLibre, Amazon, EBay
No of active buyers/ users	100 million monthly active users (19% growth in FY2020).
No of active sellers	Over 500,000 merchants but almost the majority (95%) are in China. Most of Wish's merchants are in China, exposing the company to challenges regarding custom fees, tariffs, and trade war headwinds.
% Of Business from 3rd Party Sellers	100%
No of items and shipments, in millions	Over 150 million of items available for sale and over 2 million products sold per day. Shipment number not available.
Own controlled fulfillment?	No
% Of volumes through own controlled logistics?	None
Logistics network open to 3rd parties?	Wish logistics offering for merchants is designed for direct end-to-end single order shipment from a merchant's location to the user. Logistics services include transportation and delivery of the merchant's products to the user. Merchants are required to prepay for logistics services on a per order basis.
Logistics Spend	Not applicable

Company	Wish (2020)
Dedicated Airfreight or Aircraft Capacity	No

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