



## Amazon.com, Inc (AMZN)

- **Company Description**

Amazon.com has become a giant in the e-commerce sector, developing from an online retailer of books in the 1990s to a multi-faceted platform spanning software services (Amazon Web Services), e-book readers (Amazon's Kindle) and even restaurant delivery operations. It also has a significant logistics operation, offering fulfilment services to its customers across the world. The company is listed on the NASDAQ exchange in the United States.

- **Logistics strategy**

Amazon first began its journey as a logistics provider when Fulfilled by Amazon (FBA) was launched in 2006. Aside from Amazon Web Services, logistics represents the most obvious sector in which Amazon is exercising its policy of developing internal services for external consumption.

Expenditure on fulfilment and outbound shipping totalled 27.7% of Amazon Net Sales in 2016. The maintenance and expansion of the company's logistics activities is both vital to the success of the company's marketplace operations, and a massive cost centre for the business. As such, the company has embarked on a deliberate course to market its various internal supply chain services, with the dual aims of maintaining a leading internal supply chain to support its own operations, and to diversify the business into a sector which offers substantial top-line growth prospects.

### Step One – Reduce Costs

Amazon's strategy has been to achieve economies of scale through its ownership of a vast network of warehousing and fulfilment centres and is justified by the volumes of material it puts through them.

This strategy can be applied to air, road and sea to leverage buying power and, if appropriate, in-sourcing.

### Step Two – Drive revenue growth

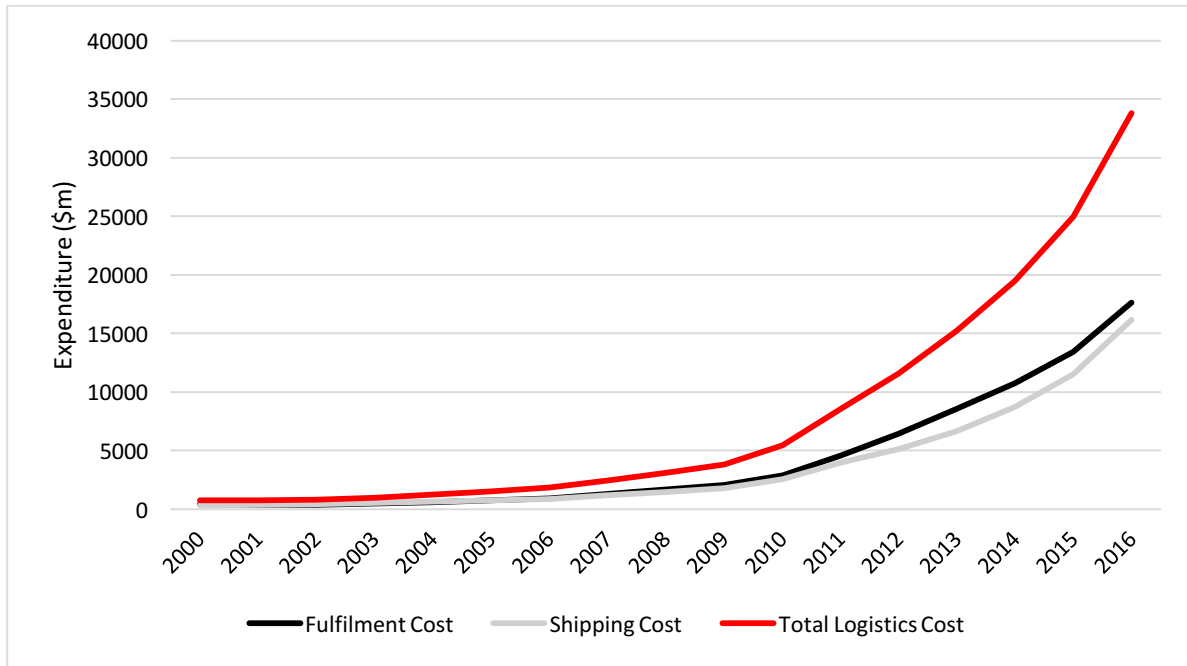
Mirroring the strategy of Amazon's cloud computing arm, Amazon Web Services (now the company's fastest growing unit), Fulfilled by Amazon (FBA) provides services for external customers. Its services are accessible by retailers from its fulfilment centres.

In the future, provide third party transportation services for other shippers, thereby maximising asset utilisation (and reducing costs).

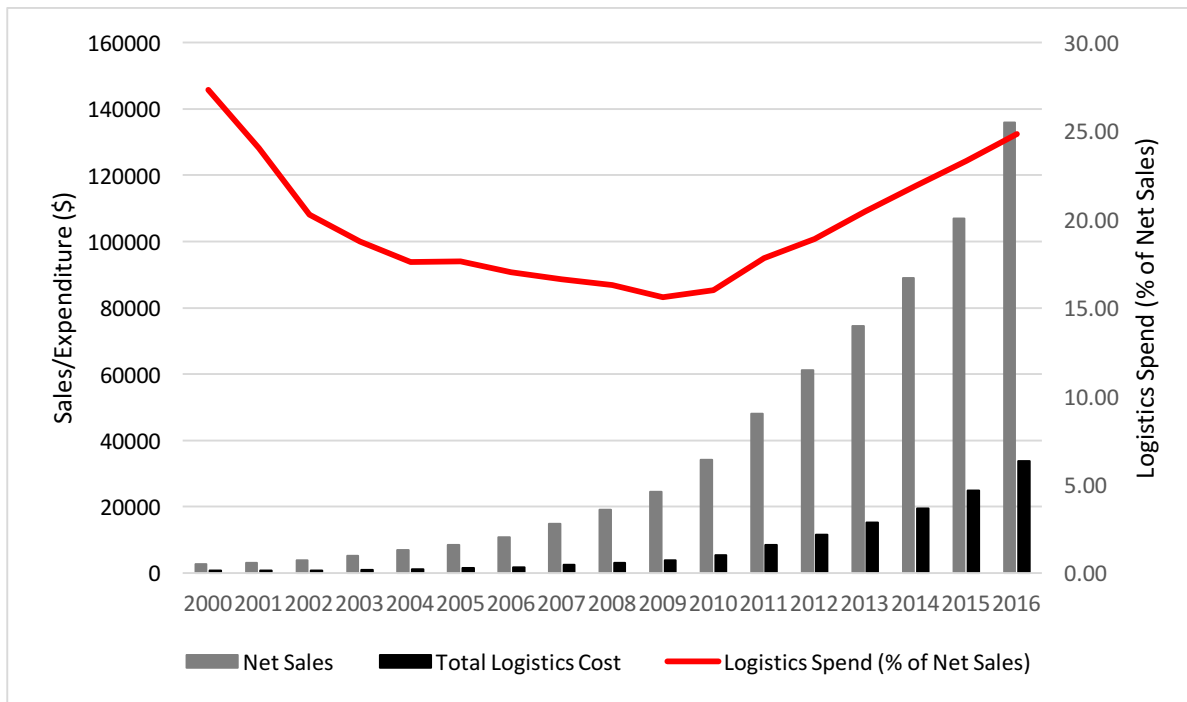
*'We know we're very good at logistics. Why shouldn't we turn that into an infrastructure offer that others can use?' - Roy Peticucci, Amazon's European head of logistics.*



Amazon Logistics Expenditure: 2000-2016



Amazon Logistics Spend as a Proportion of Net Sales



December 15, 2017

Amazon is at various stages of developing a compelling service offering within four core logistics markets: Contract Logistics/Value Added Warehousing; Express; Freight Forwarding; Road Freight.

### Amazon and key competitors



- **Contract Logistics/Value Added Warehousing**

Amazon's logistics offering is underpinned by Fulfilled By Amazon (FBA). FBA targets small to medium size businesses and individual sellers, and provides such services as pick and pack, labelling, shipping, and inventory and returns management. In order to support these services, the company has had to develop a sophisticated inventory and order management capability, which faced teething problems in the early stages.

Nonetheless, it has grown dramatically. In 2016, the service handled 2bn items, with FBA adoption amongst Amazon sellers increasing by 70% year-on-year. Significantly, FBA units shipped outside the USA increased by over 80% during the year. The growth of FBA has led the company to develop a sophisticated system for warehouse fulfilment, based on robotics technology acquired from Kiva Systems in 2012. By deploying robots designed to bring picking shelves to human pickers for the fulfilment of customer orders, Amazon is able to increase the velocity of inventory fulfilment within the warehouse by as much as 75%, whilst increasing inventory capacity by as much as 50% due to the lack of picking aisles. All in all, installation of the system reportedly cuts operating costs by around 20%.

By the end of 2016 Amazon had installed 45,000 Kiva robots, across 20 of its fulfilment centres. As of Q3 2017, the company stated it had added an additional 55,000; bringing the total to 100,000.

Besides the development of these advanced systems to improve fulfilment operations, Amazon has also begun to develop dedicated distribution services through its Seller Fulfilled

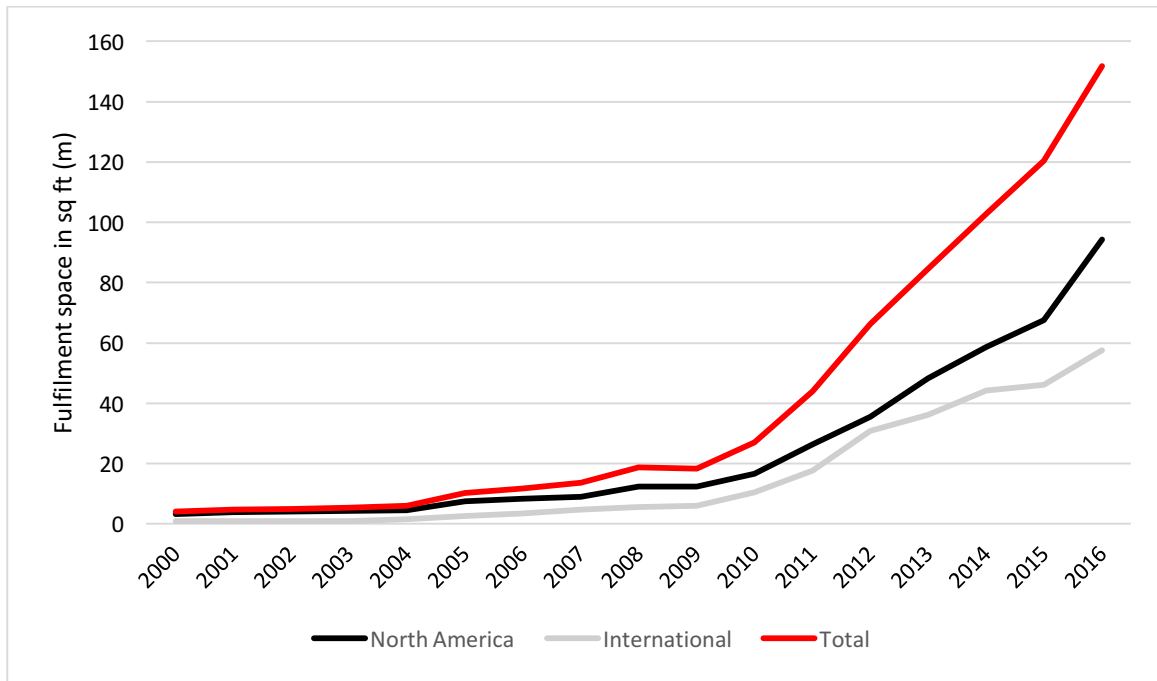


December 15, 2017

Prime and Seller Flex programmes. Launched at the end of 2015, Seller Fulfilled Prime (SFP) allows Amazon marketplace sellers to ship to Amazon Prime customers from their own warehouse, rather than by routing products through Amazon fulfilment centres first.

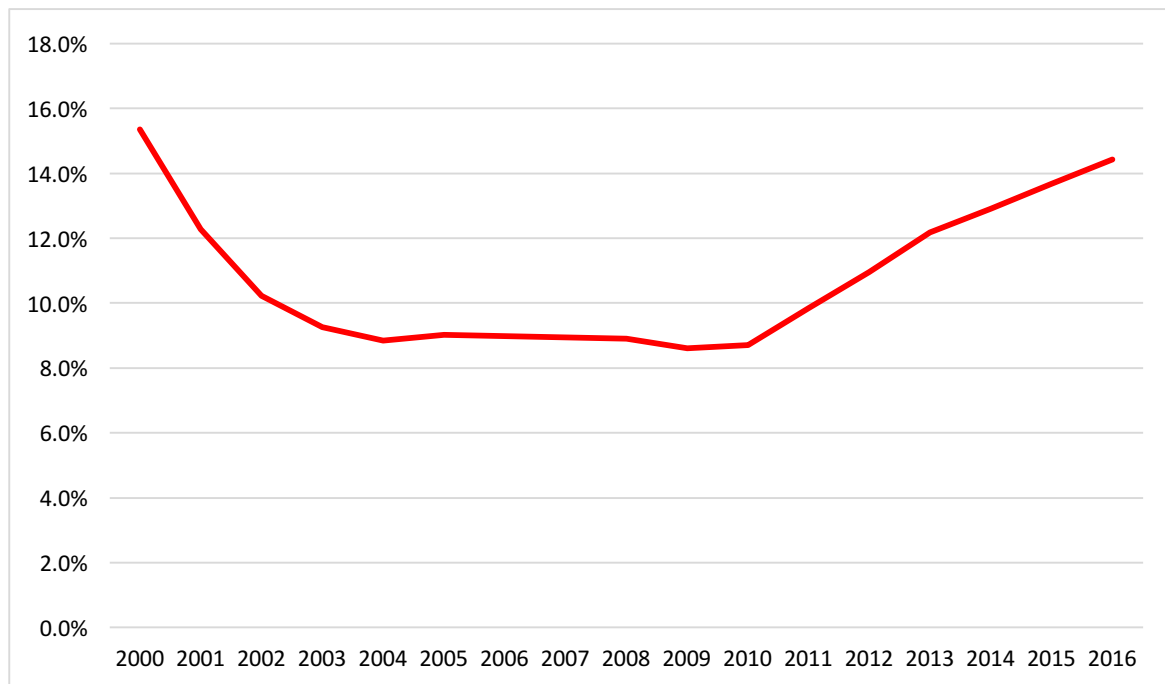
In order to qualify for the programme, sellers must maintain an on-time shipment rate of at least 99% on Prime orders, use buy shipping services for at least 95% of Prime orders, and hold a cancellation rate of less than 1% on Prime orders. All distribution is coordinated through Amazon Logistics, a technology service layer which coordinates order and inventory management across a network of subcontracted delivery companies.

**Amazon Fulfilment Space: 2000-2016**



**Amazon Fulfilment Costs as a Proportion of Net Sales: 2000-2016**

December 15, 2017



- **Express**

Amazon initiated its last mile logistics programme in 2014, following a significant number of missed US deliveries by UPS and FedEx during the 2013 Christmas period. Besides the negative impacts of this specific instance, Amazon considers the reduction of logistics expenditure to represent a major strategic objective, and as such, the company continues to explore ways in which it can lower its overall shipping costs. In December 2015, the Wall Street Journal reported that Amazon paid UPS \$1bn for shipping in 2014, and the price of service will have doubtless been increasing over the years, as the latter company looks to cover its own rising costs. Creative ways in which Amazon has sought to offset such expenditure include the sale of advertising space on parcels and the continued expansion of alternative delivery options through the roll out of an increasingly large network of lockers and Pick-Up & Drop-Off (PUDO) points.

A more decisive change, however, has been Amazon's coordinated efforts to bring shipping in-house, under the auspices of Amazon Logistics. A significant point of interest is that Amazon Logistics does not hire its own drivers or use its own trucks; rather, the operation consists of subcontracting last mile delivery to a multitude of small companies and owner-operators, nominally independent contractors who are inclined to partner with Amazon on the grounds that they will receive substantial volumes of goods on a regular basis, and thus a contract that more or less guarantees repeat business. Amazon Logistics benefits from the relationship as it is able to exercise greater bargaining power over these contractors than it would in negotiations with the likes of UPS, and can therefore pay a lower rate for their services.

Key to their express offering is service, reliability and speed. Amazon identified at an early stage that this was more important to their customers than the brand or livery of the delivery company. This has allowed it to use local suppliers and once more pay less than they would to branded alternatives.



December 15, 2017

---

- Europe

Whilst Amazon Logistics does not use its own transport assets, the company does provide the depots from which its contractors operate, leasing more than 20 such facilities in the UK alone. Though the network of such facilities used by the company is continuing to grow at a rapid rate, it is likely that the increased control and gains in bargaining power over contractors will result in enabling Amazon Transport & Logistics to shave costs from its outbound shipping bill.

Amazon has also opened a sorting centre in Munich, employing 130 workers as a first step to cut out larger parcels companies (DHL and Hermes). It has also established a parcel locker network. In the city, Amazon now has 240 delivery vans operated by six sub-contractors and on launch this operation reportedly took a third of DHL's volumes.

In other countries, the company has acted more directly to achieve the same aim. For example, in France Amazon acquired a 25% stake in parcel delivery provider Colis Prive during 2014.

- India

In India, Amazon established its logistics service in 2012 and launched a third-party logistics service in 2013. Furthermore, in 2014 it introduced assisted shipping that allows sellers to ship products from their own warehouses using Amazon's logistics services. As part of its plan to ensure next day delivery to customers across India, Amazon entered into an air cargo alliance with Patel Logistics in 2014, whereby the LSP moves goods from one airport to another. Once the products reach the respective airports, Amazon's other vendors such as Gati, Blue Dart and FedEx provide last-mile delivery.

- Middle East

In the Middle East, Amazon's acquisition of Souq at the start of 2017 has been quietly followed by the takeover of the subsidiary's primary express supplier, Wing, in September. Wing has been developed with an IT infrastructure which supports mobile and web-based delivery solutions for businesses and individual consumers, and this base dovetails nicely with Amazon's emphasis on visibility and software integration.

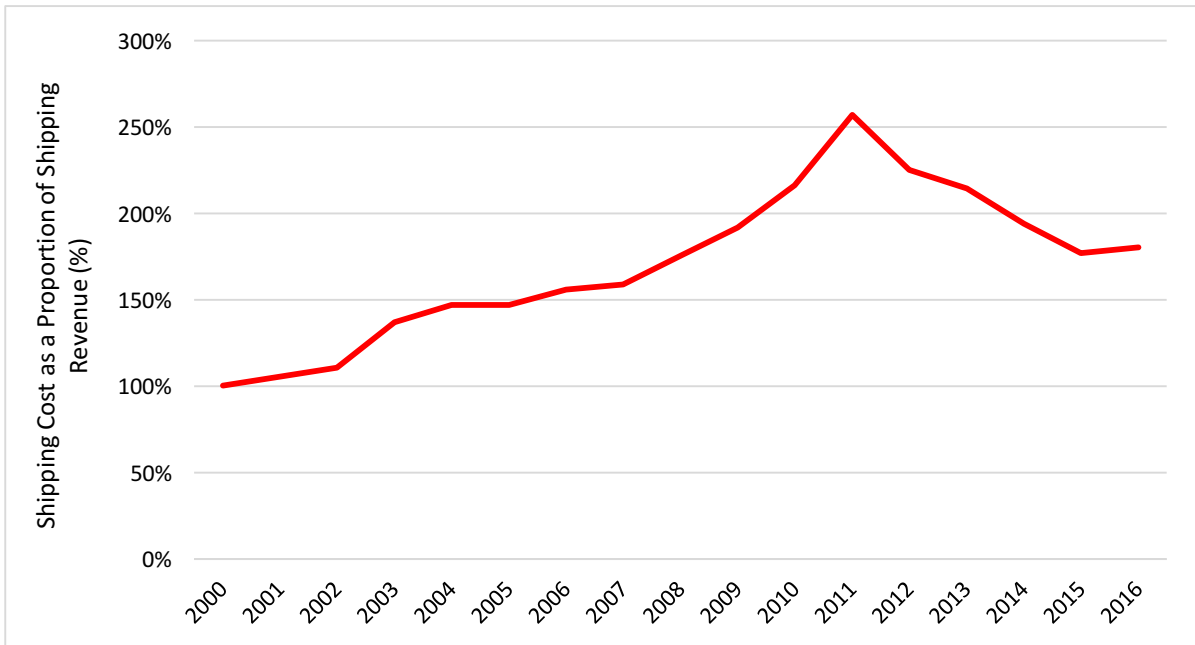
- United States

In the United States, the company has mainly focused on shifting its package delivery requirements towards the low-cost United States Postal Service, and away from the likes of FedEx. The rise of Amazon Logistics, however, has presented another option for last mile delivery. Furthermore, whilst Amazon Logistics aims to cut costs by employing independent contractors, the company is also working on an even more radical solution to the last mile problem: adopting the business model of Uber and crowd-sourcing last mile delivery. Named Amazon Flex, this operation was initially trialed in Seattle in 2015 and has since been rolled out to multiple cities in the US and Europe. Amazon commonly deploys Flex drivers to service Prime orders, as the company is able to scale this resource up during peaks in demand.

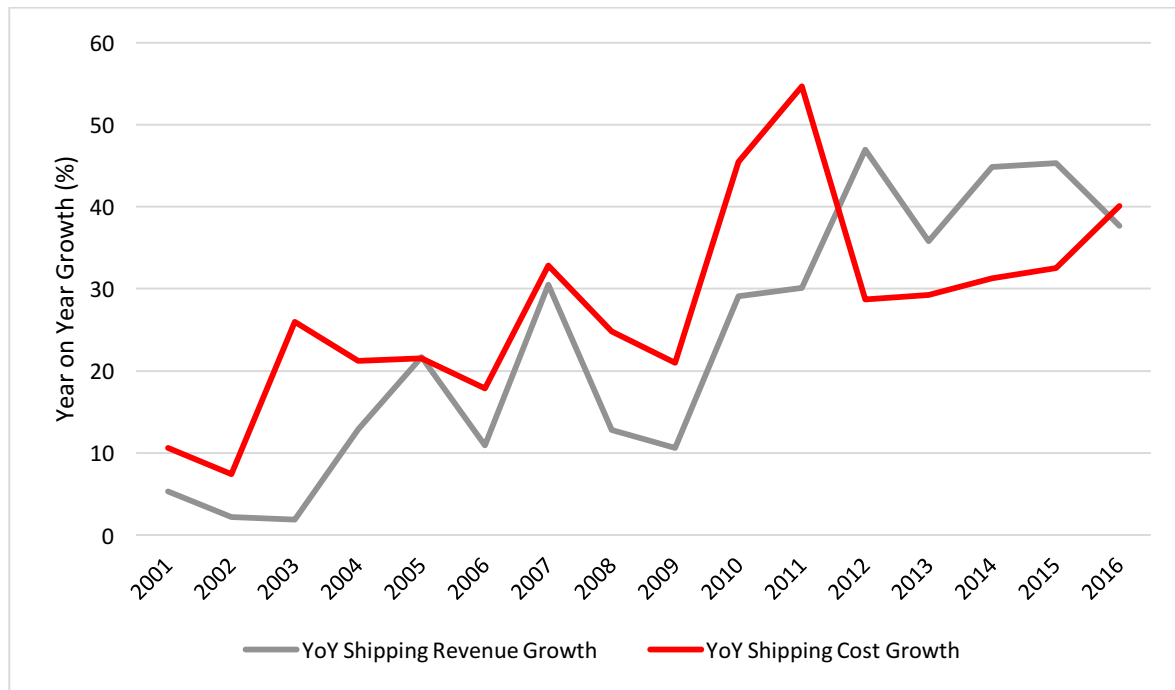
### **Amazon Shipping Costs as a Percentage of Shipping Revenues**



December 15, 2017



December 15, 2017

**Growth in Amazon Shipping Costs vs Amazon Shipping Income: 2001-2016**


- **Freight Forwarding**

In January 2016, Amazon's Chinese subsidiary, Beijing Century Joyo Courier Service Co., was granted an NVOCC licence from the US Federal Maritime Commission, enabling the company to provide ocean forwarding services. This is consistent with the company's past supply chain actions, as it ostensibly represents an effort to improve its economies of scale. As China is one of Amazon's largest sources of goods it seems unsurprising that this is the first place where it would seek to in-source its ocean freight management requirements.

Large-scale sellers on Amazon's marketplace may be deterred from booking their freight forwarding with the company, as Amazon's NVOCC status allows the company visibility over both the supplier of the goods being shipped, and the wholesale price paid by the importer. This threat of disintermediation is therefore a massive red flag to retailers, but for small sellers and producers, it offers a potential goldmine; a streamlined cross-border e-commerce solution, which purports to handle all marketing, order management, logistics and distribution right out of the factory gate.

Amazon has also explored opportunities for the deployment of air freight as a forwarding solution. Following a trial period in 2015, whereby Amazon tested the use of contracted aircraft flown by ATSG, it embarked upon chartered air freight operations in North America and Europe during 2016. In the former region, Amazon arranged to lease 20 aircraft on crew, maintenance and insurance (CMI) contracts with Atlas air, as well as another 20 on a five-year CMI agreement with ATSG. Moreover, the deals allowed Amazon to acquire 19.9% of ATSG's stock and 20% of Atlas stock, with a possible expansion to 30% for the latter, if the companies deepen their co-operation. As of February 2017, 16 planes are in active service on behalf of Amazon.



**December 15, 2017**

---

The logic behind Amazon's move into air freight is relatively simple: by acquiring its own fleet of aircraft it will have better visibility and control over its fulfilment operations. Due to the control and improved supply chain visibility brought about by such a move, Amazon will have a much more flexible and responsive capability to redirect inventory between parts of its network.

By insourcing part of its air freight requirements, Amazon is strengthening its ability to serve its customers during peak times, when its logistics partners have previously struggled to cope with a surge in package volumes. Having the extra capacity on hand will allow Amazon to relieve some of the pressure applied to its supply chain at such times and will supplement the services of its current partners. That being said, Amazon is a long way from being able to handle the entirety of its air freight requirements in-house and it is debatable that it will ever do so.

Nonetheless, in the long term, there exists the possibility that Amazon will sell space on its freighters to companies looking to outsource their logistics, and truly challenge the business of companies such as UPS and FedEx. It already offers fulfilment services to businesses selling through its website and with an integrated logistics network boasting supply chain visibility and computing power superior to that of many traditional express and parcel companies, Amazon could seriously disrupt the industry.

As things stand, Amazon's North American air freight operation is centred upon a facility in Wilmington, Ohio: the base of its primary air freight provider, ATSG. During February 2017, however, it was announced that Amazon would construct a new hub facility at the Cincinnati/Northern Kentucky airport. This location is also home to DHL Express and is attractive due to its geographic position within the USA. As there are restrictions on owning air fleets in both the United States and Europe at the same time, Amazon's flights in the latter region are chartered. Amazon has been trialling such an operation since November 2015, securing a B737 chartered from ASL Airlines France, through DB Schenker, and operating this aircraft five times a week on a regular route between the UK, Germany and Poland.

Whilst Amazon embarked upon this operation in order to gain greater control over 'guaranteed' capacity, it has not truly vertically integrated air freight into its operations. This is important because doing so would present Amazon with the problem of managing expensive, rapidly depreciating assets. The flip side of this, however, is that Amazon's control over its air freight is necessarily limited. This was highlighted by the impact of industrial action by unionised pilots working for ATSG in December 2016.

- **Road Freight/Trucking**

Amazon's road freight operations are nascent by comparison to its manoeuvres in the markets outlined above. Nonetheless, the company has taken a number of steps which position it to compete with external road freight companies in their own markets.

In December 2015, Amazon announced that it had purchased thousands of trailers in the US, to "increase capacity for package delivery from fulfilment centres to sort centres." The significance of this move is that Amazon will be gaining a uniform fleet of trailers optimised to interact with its existing logistics infrastructure, and therefore providing greater efficiency in the process of distributing inventory from hubs to spokes within its network. In addition, the

December 15, 2017

---

company will have a greater capability to reallocate inventory when demand shifts cause a shortage in a certain parts of the network.

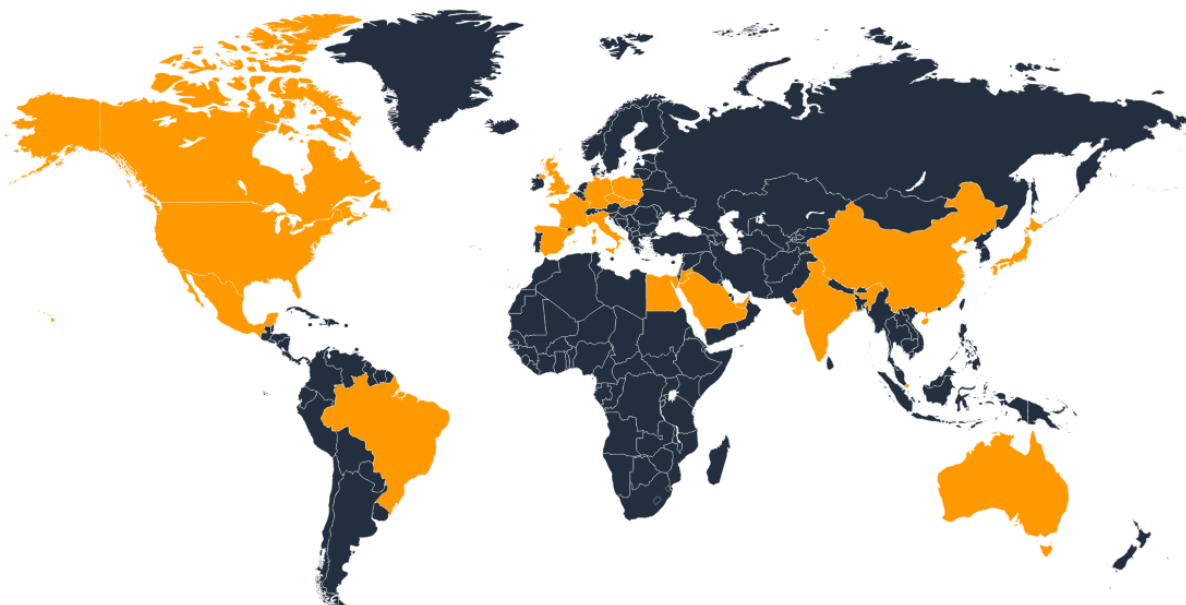
Importantly, there was no indication that Amazon will be purchasing trucks, just trailers. As such, the company will still be contracting out the actual business of performing linehaul road transportation. Nonetheless, the move is designed to tighten the company's control over its logistics requirements, and in conjunction with manoeuvres to achieve a similar result for its air freight requirements (elaborated above), Amazon aims to achieve a more efficient, integrated inbound logistics system in support of its sortation and fulfilment centre network.

In May 2016, it was reported that Amazon was reaching out to logistics start-ups with the objective of licencing software for the scheduling and tracking of road freight. In December, presumably following a number of rebuttals, it was reported that the company was setting out to develop such software itself, following the mobile-first strategy of Uber and other on demand companies. Whilst there has been a recent proliferation of companies operating in this area, Amazon's advantage is that they do not need to worry about demand as many of these platforms do; the company itself can already offer plenty of work to the labour pool of owner-operators, but the use of a mobile app represents a more efficient way to interact with them.

Furthermore, Amazon is clearly preparing for a future of autonomous vehicles, and accordingly, January 2017 saw the company awarded a patent for a network that allows autonomous cars to navigate reversible lanes. *Recode* reported that the system appears to be designed so any carmaker's vehicles can take advantage of the technology, suggesting that Amazon has stopped short of directly participating in the race between Tesla, Uber and others, and is instead hedging its bets.

In November 2017, Amazon launched Relay, a dedicated app for truck drivers servicing its facilities. It allows truck drivers to enter information about their cargo in advance and then scan their phones to quickly check in and check out of facilities.

- **Amazon Physical Presence (Logistics Infrastructure)**



**December 15, 2017**

---

Having launched in the US during 1995, Amazon was quick to expand into the UK and Germany shortly after, opening its first in-country fulfilment centres in these countries during 1998 and 1999, respectively. The company opened its first Japanese fulfilment centre in 2000, and subsequently opened up in Canada during 2002. This group of countries represents much of the core of Amazon's physical logistics network, and with the exception of Japan, where the e-retailer comes second to Rakuten, it is the largest e-commerce player across each of these markets.

Amazon established a physical presence in the Chinese market through the acquisition of Joyo in 2004. However, it has been unable to gain traction in the country having been outcompeted by local players such as the dominant Alibaba. Thus far, China is the only country the company has seemingly failed to crack, possessing only a minor e-commerce market share of around 1.2%.

Whilst Amazon launched a French website in 2000, the company did not establish a physical presence within the country until 2007, instead shipping from its other European facilities. The company opened up its first logistics sites in Italy and Spain during 2011 and 2012, respectively; closely following its launch of dedicated websites for each country.

The company's other European facilities, in Czech Republic (opened in 2013), Poland (2014) and Slovakia (2017), have all been established to serve other European markets; principally Germany, where Amazon has endured difficult industrial relations with its employees.

The company's most significant market entry since 2004 has been its establishment of in-country operations in India in 2013. Amazon's hierarchy views India as vital to its long-term growth, with expectations that it will eventually constitute the company's second-largest national market after the US. Amazon has been keen to avoid the mistakes of its 'copy and paste' approach to entering China, and has adapted to the idiosyncrasies of the Indian market, backing up its expansion in the country with a \$5bn investment commitment in 2014.

Shortly after its expansion into India, Amazon also invested in physical facilities in Latin America, with fulfilment centres opened in Brazil (2014) and Mexico (2015). Unlike India, however, the company has not committed as significantly to expansion in these territories; it has since added a handful of facilities in Mexico, but has not build on its presence in Brazil. This is set to change though, with reports in 2017 indicating that Amazon is gearing up for an expansion in Brazil, broadening its product offering and physical presence.

The company's latest expansions have focussed on the Middle East and Southeast Asia. Amazon opened up in Singapore and Australia towards the end of 2017, with its entry into the latter market expected for some time.

December 15, 2017

Earlier in the year, the company established itself in the Middle East, through the acquisition of Souq, the largest e-commerce player in the region. The takeover of Souq has provided the company with a well-developed logistics infrastructure in the UAE, Saudi Arabia, Jordan and Egypt.

Amazon: National Markets Served Through Dedicated Sites			
Country Served	Year of Entry	Market Position	Main Competitors
USA	1995	1	Wal-Mart, eBay
UK	1998	1	Tesco, eBay
Germany	1998	1	Otto Group, Zalando
France	2000	1	Cdiscount, eBay
Japan	2000	2	Rakuten
Canada	2002	1	Wal-Mart, Costco
China	2004	< 7	Alibaba, JD, Suning, Tencent, Yihaodian, Vipshop, Dangdang, Gome
Italy	2010	2	eBay
Spain	2011	1	El Corte Inglés
Brazil	2012	5	Americanas, MercadoLibre, Via Varejo, Magazine Luiza
India	2013	2	Flipkart, Snapdeal
Mexico	2013	3	MercadoLibre, Linio, Wal-Mart
Australia	2013	Unclear	Myer, David Jones, JB Hi-Fi, Harvey Norman, Super Retail Group
Netherlands	2014	< 7	Wehkamp, Bol, Zalando, Coolblue, H&M, Hema, Thuisbezorgd
Singapore	2017	N/A	Lazada (Alibaba)

- **Threats**

On the logistics front, Amazon's threats appear to be fairly limited. Whilst the company faces competitive threats from UPS and FedEx, as well as DHL Express to a lesser extent, it has rapidly set to work diversifying its exposure to services provided by these companies, continuing to retain their services as one of many express options.

A more significant concern for the company is the potential threat posed by regulators. As a seemingly ever-expanding conglomerate, Amazon is increasingly attracting negative media attention for its ability to negotiate robustly with suppliers and outcompete rivals. Perhaps most emblematic of this is Amazon Prime, which offers a highly cost-competitive bundle of services irreplicable elsewhere. It has been estimated that there are 80m Amazon Prime members in the US, which corresponds to approximately 64% of households. Amazon can cross-sell at massive scale to these consumers, binding them into its ecosystem of products and services and building switching costs.



**December 15, 2017**

---

The most valuable aspect of Prime to Amazon is the data it allows the company to gather on its customers. This allows it to develop highly customised services based on an intimate knowledge of the individuals it serves, and thus confers significant advantages on the company.

However, it also runs the risk of regulatory scrutiny, particularly in the EU, where privacy concerns have prompted regulators to act much more forcefully than in the US.

Moreover, Amazon's ability to subsidise its International division through profits garnered at AWS invites scrutiny. In the past, the company has sold below cost to compete with rivals such as Diapers.com in the US, and if such behaviour is exhibited again in future, it is likely the company will face repercussions now that it displays a higher profile.



## About Ti Insight

Ti Insight is a leading UK-headquartered logistics and supply chain market research and analysis company providing:

- Supply Chain and Logistics Market Research Reports
- Global Supply Chain Intelligence (GSCi) online knowledge platform
- Consulting and Market Research projects
- Training, Conferences and Webinars.

Ti has acted as advisors to the World Economic Forum, World Bank, UN and European Commission as well as providing expert analysis to the world's leading manufacturers, retailers, banks, consultancies, shipping lines and logistics providers.

Expertise includes:

- Analysis of the corporate strategies of leading express, freight forwarding and logistics companies.
- Global usage and perception studies of shipper and logistics provider behaviour.
- Micro-economic analysis of key logistics segments: express, freight forwarding, road freight, contract logistics, warehousing, air cargo, shipping and e-commerce logistics.
- Analysis of supply chain strategies employed in industry vertical sectors: pharmaceutical, fashion, high tech, oil and gas, chemical, cold chain, automotive and retail.
- Market sizing and forecasts of key logistics segments.
- Intelligence on emerging markets logistics sectors in Asia, Africa, Latin America, Eastern Europe and Middle East.

What Sets Ti Apart?

- Led by leading industry experienced experts
- Globally recognised and trusted brand
- Global Associate Network provides a multi-country, multi-disciplinary and multi-lingual extension to Ti's in-house capabilities
- More than fifteen years of knowledge delivery to global manufacturers, retailers, banks, consultancies, shipping lines and logistics providers
- Unique web-based intelligence portals
- On-going and comprehensive programmes of primary and secondary research.

All rights reserved. No part of this publication may be reproduced in any material form including photocopying or storing it by electronic means without the written permission of the copyright owner, Transport Intelligence Limited.

This report is based upon factual information obtained from a number of public sources. Whilst every effort is made to ensure that the information is accurate, Transport Intelligence Limited accepts no responsibility for any loss or damage caused by reliance upon the information in this report. This is not a complete analysis of every material fact regarding this company. The opinions expressed here reflect the judgment of our analysts at this date and are subject to change.