



# Transport Tracker

## **Global Transport**

Market trends and views



June 2018



[kpmg.com](http://kpmg.com)







A blurred high-speed train is moving from right to left across the frame. In the foreground on the left, there is a modern transit shelter with a glass and metal structure. The background shows a city street at dusk with trees, streetlights, and a yellow fire hydrant. The overall scene is captured with a long exposure, creating a sense of motion and modern urban infrastructure.

We are delighted to present the ninth edition of the KPMG International Transport Tracker, a regular publication looking at the latest market indicators and trends in the global transport market.

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# Market fundamentals

## Share prices (end of October 2017 YoY):

14%

Transport and Logistics overall<sup>(a)</sup>

14%

Transport infrastructure<sup>(b)</sup>

28%

Airlines<sup>(c)</sup>

15%

Road and Rail<sup>(d)</sup>

24%

Shipping<sup>(e)</sup>

## Consistent growth, but diversified?

The global economy appears to continue with its recent steady recovery, growing almost consistently since significant uncertainty following major global events in 2016. World Trade year-on-year growth reached a recent high of just over 6% in October 2017, in stark contrast to the negative growth seen in October 2016<sup>(f)</sup>; indeed 2016 was one of the slowest for growth in trade and output since 2008.

The growth expectations for 2018, having been originally revised down for 2018 by the World Trade Organisation, have now been set at 4.4%<sup>(g)</sup>, following a sharp acceleration in global trade at the start of the year and towards the back-end of 2017. This is in contrast to the relatively conservative 2018 growth forecast figure of 3.2%, made in late 2017<sup>(h)</sup>.

Despite the positivity, disruption is far from over and the risks of protectionism, geopolitical tension and natural disasters remain into the upcoming 2018 forecasts. The world watches, for example, as uncertainty around tensions on the Korean Peninsula and between the US and China affect business confidence, potentially compromising the current outlook. Indeed, even between traditional allies there appears to be increasing levels of self-protectionism, the Boeing vs. Bombardier trade discussions and US steel tariffs being prime examples.


The transportation of physical goods and passengers will undoubtedly remain the core business model of most transport companies; it is the method by which this outcome will be achieved that appears to be changing, at a faster rate than ever before. Traditional business models are being challenged at every turn and disruptors to the market may become the new key players in record time.

Despite this, businesses have to continue their operations under the current operating environment, and orders for new physical assets have remained high, e.g. new aircraft and rolling stock. These new assets are providing the latest technology to transportation businesses, enabling lower operating costs and occasionally an increased bottom line.

This highlights firms' confidence in the growth of traditional core business of moving physical goods and passengers around the globe, seemingly buoying the rise in share prices across all Transport modes and an overall rise of 7% across Transport & Logistics since the start of 2018.

On the flipside, new studies claim that in this age of digitization, flows of data and information now generate more economic value than the global trade of physical goods. This combats the theory that globalization is coming to a halt, it actually lives on but in the guise of soaring numbers of data exchanges across the globe. This opens up a wealth of opportunities and markets for agile, innovative digital market entrants but at the same time serves to threaten the business models of established industry leaders.

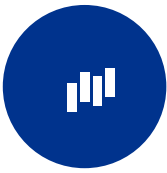
There will also be additional business opportunities around the data flows that these companies manage – but still do not fully exploit. Venture capital funds have already discovered the disruptive power of digital market entrants in this physically-focused industry<sup>(h)</sup>.



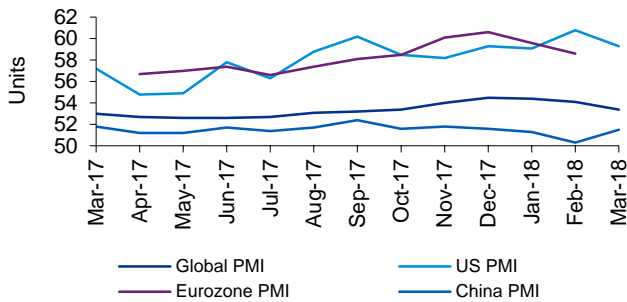
**Dr. Steffen Wagner**

Global Head of Transport & Leisure

- Note: (a) Source: Bloomberg World Transportation Index  
(b) Source: MSCI World Transportation Infrastructure Index  
(c) Source: Bloomberg World Airlines Index  
(d) Source: MSCI World Road & Rail  
(e) Source: Bloomberg Shipping Index  
(f) [https://www.wto.org/english/news\\_e/pres17\\_e/pr800\\_e.htm](https://www.wto.org/english/news_e/pres17_e/pr800_e.htm)  
(g) [https://www.wto.org/english/news\\_e/pres18\\_e/pr820\\_e.htm](https://www.wto.org/english/news_e/pres18_e/pr820_e.htm)  
(h) [http://www.slideshare.net/KPMG\\_Deutschland/startups-in-logistics-forwarding](http://www.slideshare.net/KPMG_Deutschland/startups-in-logistics-forwarding)

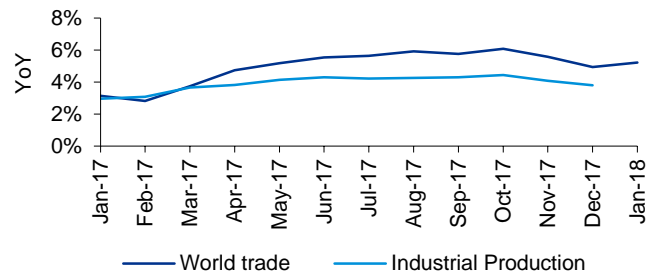


### Global Purchasing Manager Indices (PMI)



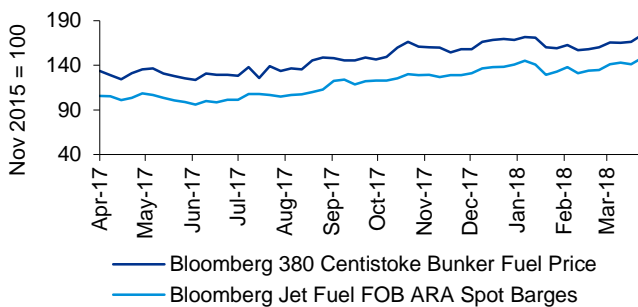
Note: Values above 50 indicate growth  
 Source: Institute for Supply Management (ISM), Markit, JP Morgan, China Federation of Logistics & Purchasing

### World trade and industrial production



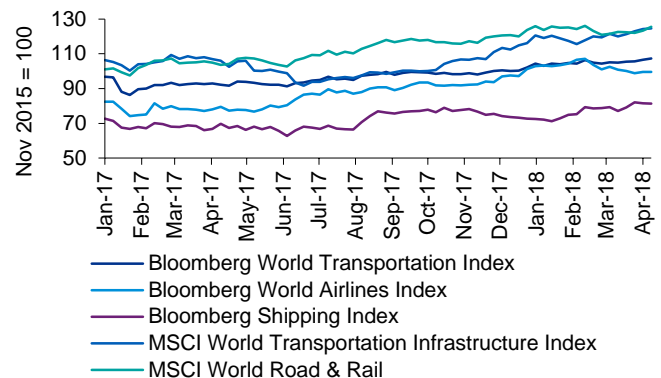
Source: CPB Netherlands Bureau for Economic Policy Analysis

### Fuel and oil prices



Source: Bloomberg, ICE (Intercontinental Exchange)

### Share prices of transport subsectors



Source: Bloomberg, KPMG Research

The Chinese economy (GDP) expanded by 6.8%<sup>(a)</sup> in the first quarter of 2018 – identical to the growth level in the third quarter of 2017 and beating the 2018 projected growth value of 6.3%. This appeared to be at odds to the fear of a slowdown of China’s economy and the concerns around the sustainability of this. Despite the sustained growth, it is still widely acknowledged that China continues to look to fulfil short term targets.

The Purchasing Manager Indices for Global, US, China and Eurozone, having all finished 2017 above the 50 percent growth mark, have slowed somewhat during the first quarter of 2018, potentially indicating a declining economic health of the manufacturing sector around the globe. Indeed China, the world’s largest manufacturing nation, saw its PMI fall to almost below 50% growth in February 2018, though did show a stark increase in March 2018.

The IMF has projected global growth at 3.9% in 2018, revised up by 0.3% from April 2017 due to notable pickups in investment, trade, and industrial production, coupled with strengthening business and consumer confidence supporting the recovery<sup>(b)</sup>. Certain risks to economic growth remain however, which include geopolitical crises, terrorist threats and protectionist measures which are high on the agenda of most country leaders. For further analysis on the effects of Brexit, please visit our [web page](#).

Oil prices remained relatively stable over the course of 2017, having recovered dramatically since the record lows at the start of 2016. The oil price began to show a rise during the third quarter of 2017 and has increased consistently since August 2017 to new highs in March 2018; an increase in some areas of almost 40%. As ever, the price is linked to supply and the execution of the OPEC agreement to reduce production by about 1.2 million barrels per day beginning in January 2017<sup>(c)</sup> coupled with recent oil outages in key supplier countries appears to be having a material impact. There is no shortage of speculation over how oil will fare over the remainder of 2018, and potential further price increases are expected as the OPEC cuts continue and the trade between key countries flourishes.

Share prices for road, rail and transport infrastructure more generally have shown a decline on recent levels, whilst airline and shipping sector share prices have displayed significant increased growth. Airlines are particularly sensitive to the potential impacts of Brexit and its implications for airspace freedoms, but have recovered remarkably well over the course of the last 18 months. Shipping companies suffered at the hands of the global shipping crisis but have since started to recover as the gap between demand and capacity continues to narrow and freight rates start to rise.

# Shipping and sea freight

## The future of Shipping

### The future of business models in the shipping industry

The industry is facing a huge change process. One challenge chases the other and one question stands above all others: How will the future of shipping look?

Looking at the market and its developments, one can come to the conclusion that “change” is potentially not the right word for what is currently taking place. It is more a transformation process that is not only already going ahead; but has long since started. The transformation process raises even more questions and one of the most important ones remains unanswered. Has the business model that shipping companies have followed for decades now expired?

In the course of the recent consolidation waves, the structure of the market has significantly changed. As a result, the four biggest shipping companies hold more than 50% of the worldwide capacity and are currently leading the market. Further, almost all shipping liner companies are organized in three alliances that operate similar to oligopolies and cover all of the main sea routes around the globe. The big shipping liner companies, especially, are working on innovation mainly focused on an efficient ship operation in all its facets.

“The structure of the shipping market is in a state of constant change”

**Monique Giese**, Global Head of Shipping

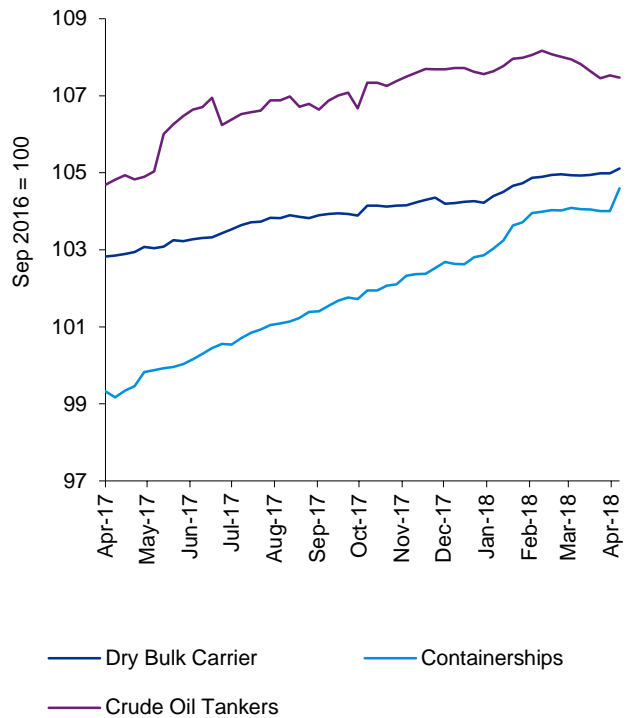
The trend to mega sized vessels is still continuing. These vessels are more cost efficient and therefore lead to a competitive advantage. Mega sized vessels, however, also require new infrastructures especially in harbors and a reorganization of the supply chain. Thus, smaller vessels e.g. feeder vessels might experience a renaissance as the mega sized vessels cannot enter all harbors around the globe.

This complements a new organization of transport and this is where planning and coordination of supply chains by digital platform models kicks in. In the past the transportation of freight was organized by brokers and agents and their global network. This type of work might potentially be replaced by digital models e.g. platforms created by high tech start up companies pushing into the market. This disruption of the market will impact future business models of transportation companies. Along with other market disruptions, this leads to the question of whether an asset holding model and the concentration of just single parts of the supply chain e.g. the shipment of goods are the right way to structure a future orientated shipping company. Indeed, we have seen new non market players entering the market with different business models.





## Total Fleet Capacity in DWT



We have seen a recent shift in online retailers expanding their portfolio of goods immensely. In addition, they have implemented their own supply chain system. Starting with using delivery services from usual market players like DHL or UPS and shipping companies for their overseas transportation, online retailers are now building up their own in-house logistics center. They act as their own freight broke, which might become a threat for other well-established market players in the transport sector. This does not only concern road logistics but also shipping.

A complex warehousing system which is based on customer preferences and their shopping behavior supported by delivery robots underline that global online retail players are not dependent on traditional goods-transportation methods. Online retailers' trucks are now on the road, airlines in the sky and these companies are now setting their transport sights on the sea as well. The first ships are registered. This is just an example that shows the disruption of the traditional, well-established business models in the shipping industry.

# Shipping and sea freight

This leads to next question. Players like Alibaba and others started to take over the full supply chain for the transport of their goods. In this context the question arises: Do they need to own vessels? If the answer to this is yes, the consequence is that it would not only be a disruption of the global transport market but also a disruption of the ship owning business model.

We have seen a lot of companies that have disrupted long-lasting and successful business models without having one single tangible asset, companies such as Uber or Airbnb.

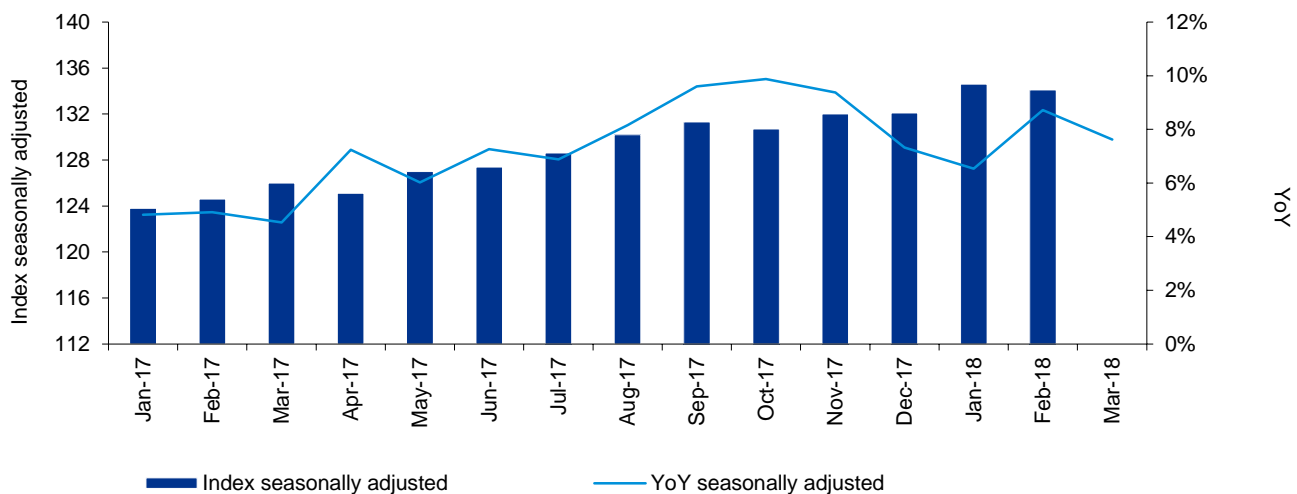
As a matter of fairness it has to be said that a ship is, to a certain extent, not directly comparable with cars or with real estate as it is an even higher investment and the operation of vessels requires respective experience and a global network. Therefore, the business model of Uber and Airbnb might potentially not be directly transferable to the shipping industry.

However, is this truly the case? Similar to Uber and Airbnb in terms of assets, the global liner companies do not own all of the vessels they are operating. The charter market plays an important role in this regard which might be a good business opportunity for ship owning companies. But what happens if the charterer is not a global liner company but a retailer?

Are there additional requirements to be fulfilled to be able to be competitive in this market as a ship owning company? Looking at German ship owning companies, a major ship-owning country, questions arise as to whether they would be ready to compete on a global level. Reporting and transparency requirements might be different. Further a green footprint of transportation will play an important role for global traders. There will be different views on environmental issues not only because of emission regulations that will be implemented in 2020 but also on efficiency and effectiveness of ship management activities. This will definitely lead to an increase in competition.

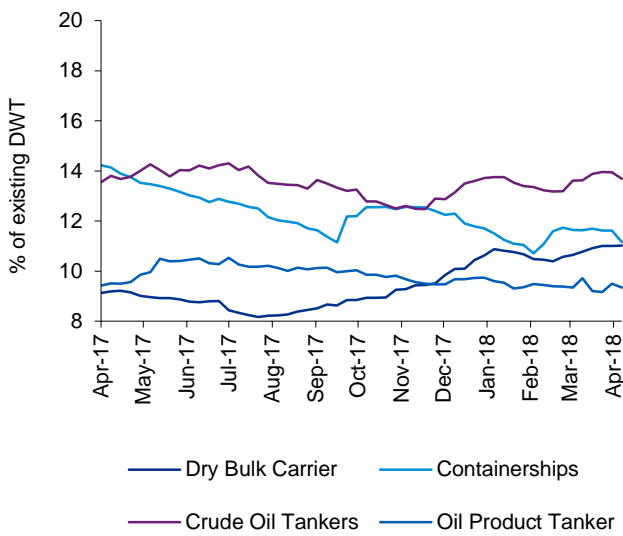
To summarize, there are going to be changes in the business model of shipping companies. This does not only refer to the operation of vessels, which needs to be done more cost efficiently but also to non-market players entering the market as potential ship owners or vessel-charterers. Further, environmental regulations and digitalization will have a big impact on the transformation process. Shipping companies are required to face the new future of their business.

## Container Throughput Index

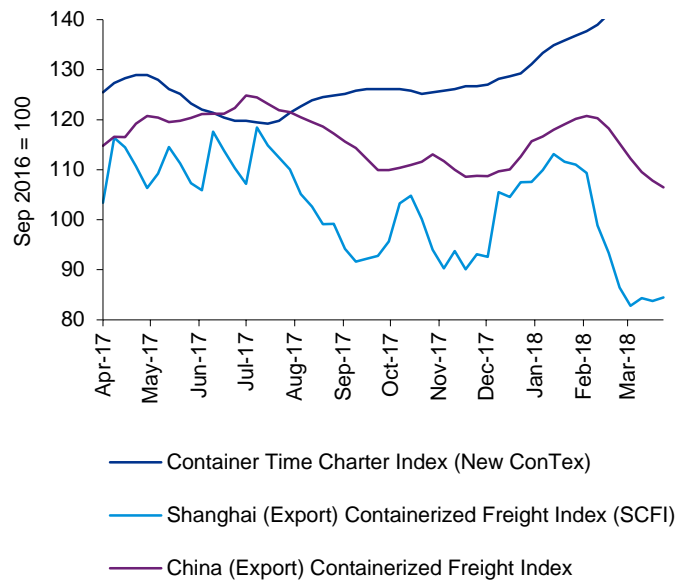




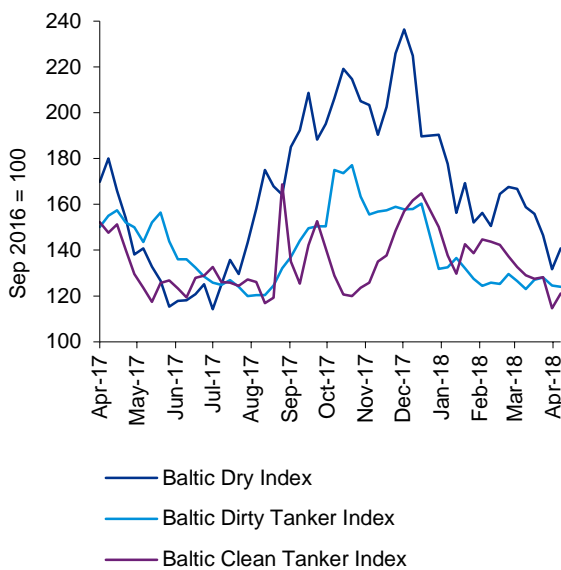
### Orderbook in % of capacity



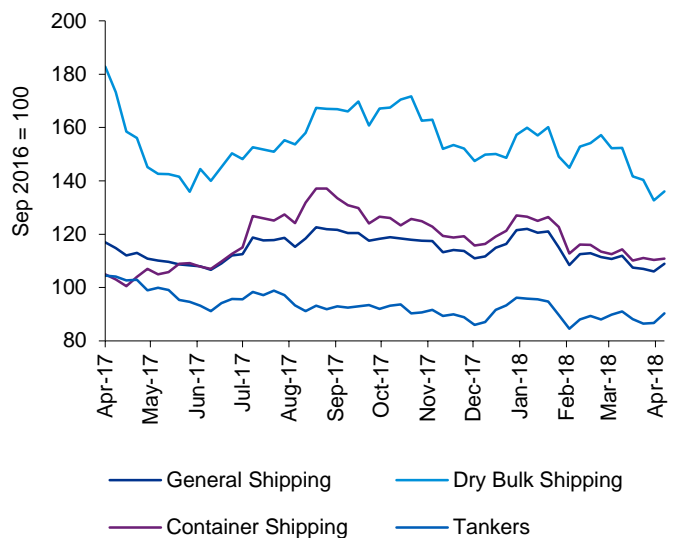
### Container freight and time charter rates



### Baltic shipping indices



### Share prices of shipping subsectors



# Aviation

## Tailwinds and headwinds – industry performance by region

According to a recent update from IATA, airline performance in Q1 2018 has shown an improvement year-on-year with marginal improvements to EBIT margin across most regions and revenue passenger kilometers (RPKs) increasing by 9.5% over the year, exceeding the 5 year average of 6.8%<sup>a</sup>.

Passenger growth is placing increasing pressure on airport infrastructure globally with the recent ongoing discussions for runway approvals at Heathrow and Vienna a good example of why capacity constraints should be considered a key challenge for industry stakeholders to avoid bottlenecks and support the growth of air travel.

Performance should be considered in the context of a challenging climate for aviation with oil climbing to its highest price since 2015 and cost increases felt more keenly against rising competition from new market entrants and low cost carriers (LCCs).

### Americas & LATAM

Growth in passenger volumes for North America of 6.5% yoy (Feb-18 RPKs) and strengthening of the US economy point to a reasonable start to FY18 for carriers in the Americas, although there are concerns around a potential dampening of traffic flows should there be an assertion of more protectionist policies over the short term<sup>c</sup>.

Socio-political factors present an additional complexity to forecasts, including the recent withdrawal of the Trump Administration from the JCPoA<sup>b</sup> with Iran and subsequent reimposition of sanctions. This has implications for the two largest aircraft manufacturers although initial comments from Boeing CEO suggest that this would not impact 737 production, with none of the orders included in their firm order backlog. Uncertainty around Brexit ramifications persist now that the UK would no longer be covered under EU-US open skies, negotiations towards the establishment of a new US-UK bilateral air service agreement (ASA) continue with reminiscence of 'Bermuda II' understandably causing a certain apprehension. On a positive note, and of some reassurance to regional airlines would be the recent passing of the FAA Reauthorization Act of 2018 which is expected (among other things) to help ensure investment into US airport infrastructure.

“Order of the day for carriers would be to maintain a degree of strategic agility to accommodate legislative flux”

LATAM presents a climate of optimism with ALTA reporting pax and RPK increases of 5.4% and 9% YoY (March 2018)<sup>c</sup> respectively, with positive sentiment reflected in route growth into Asia, through Mexico and Panama. However, some uncertainty is still to be expected ahead of the next elections in Brazil and Colombia and not all carriers have fared equally with some of the larger low cost carriers (LCCs) having posted losses over FY17.

### Europe

Brexit continues to loom large, with a prevailing shade of uncertainty around exit terms with the EU and negotiation of a new US-UK bilateral air service agreement which will be of vital importance to both sides of the Atlantic. The ongoing EASA / CAA negotiations also threaten to ground all traffic into and out of the UK, if not resolved prior to 29 March 2019.

Re-evaluation of airline ownership structures (e.g. BA / IAG, easyJet, Ryanair), airport access and traffic rights are expected and at this stage the order of the day for carriers would be to maintain a degree of strategic agility to accommodate legislative flux.

- Note:
- (a) 'Airlines Financial Monitor', IATA (March – April 2018), <http://www.iata.org/publications/economics/Reports/afm/Airlines-Financial-Monitor-Apr-18.pdf>
  - (b) Joint Comprehensive Plan of Action
  - (c) 'Airline CEO Insights – a strategic look at the world's aviation markets, hot and otherwise', Blue Swan Daily (10 May 2018), <https://blueswandaily.com/airline-ceo-insights-a-strategic-look-at-the-worlds-aviation-markets-hot-and-otherwise/>
  - (d) 'ALTA pax up 5% to 21.5m in Mar-2018, cargo up 9%', CAPA (10 May 2018), <https://centreforaviation.com/news/alta-pax-up-5-to-215m-in-mar-2018-cargo-up-9-799117>





Europe (cont.)

Sizeable aircraft orders for European carriers bode well for continental trade flows with 2,379 aircraft orders outstanding as at 30 April 2018<sup>e</sup> and should offset to some extent the potential loss of firm order backlog by Airbus post re-imposition of sanctions on Iran.

LCCs continue to forge ahead with growth, Wizz Air having the largest fleet orders on the continent (273<sup>e</sup>) for delivery, in part reflecting the landmark purchase order of Indigo Partners at the Dubai Airshow in 2017. It will be interesting to see how European LCCs fare in the face of competition from ultra low cost carriers (ULCCs) such as those emerging in the far east and Canada as they grow their market share.

Asia

Recent IATA predictions suggest that China may displace the US as the world’s largest aviation market in 2022, with other markets such as India and Indonesia both expected to surpass the UK by 2025<sup>c</sup>. These markets hold significant untapped potential for future travel with only around 5% of both China<sup>f</sup> and India<sup>g</sup> populations holding a passport in 2017.

Although the future of India’s national carrier remains uncertain, other airlines in the market including low fare options continue to thrive in a market that may continue to see solid growth over the next few years.

Similarly, South East Asia continues to be a space to watch for increasing LCC traffic flows with approximately 50% of total regional seats attributable to carriers following this model and estimates of over 1,000 aircraft on order<sup>c</sup>.

Middle East and Africa

As higher fuel costs push up costs for carriers, network planning, rebasing of operating costs and streamlining of systems and processes to support enhanced passenger flows are at the top of agendas. Partnership and codeshare agreements such as the recent collaboration of Emirates and flydubai afford optionality for airlines to leverage networks to bolster breadth and roster frequencies.

Strong aircraft demand in the region continues, with Emirates’ having reinvigorated the A380 program with an order for 36 of the aircraft (20 firm orders) in January 2018 and Boeing expecting the region to require 3,350 new aircraft over the next two decades<sup>h</sup>.



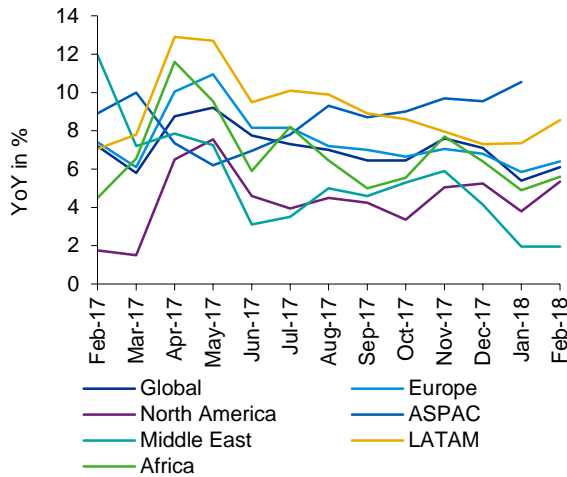
# Aviation

“The relationship with the customer and improving their experience is of paramount importance”

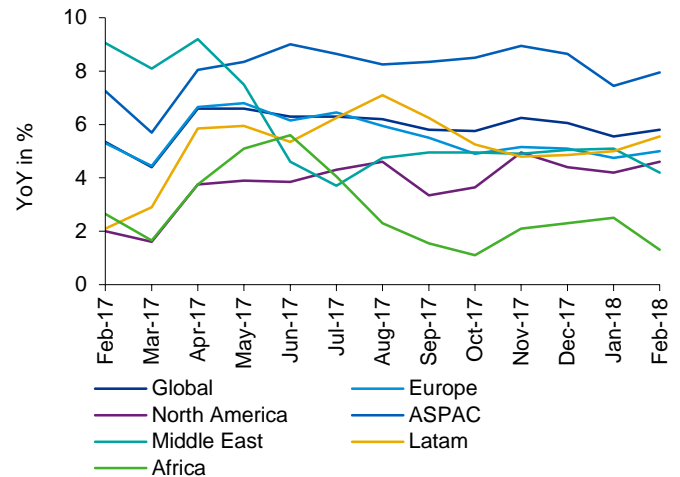
**Mal Ramsay**, Global Head of Aviation



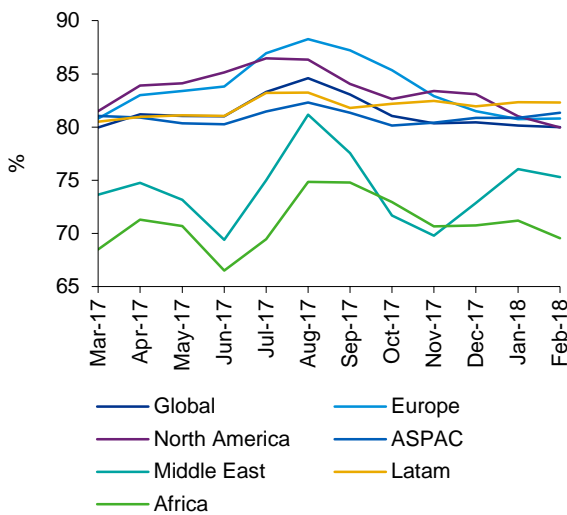
### Passenger traffic growth (RPK) (Moving two months average)



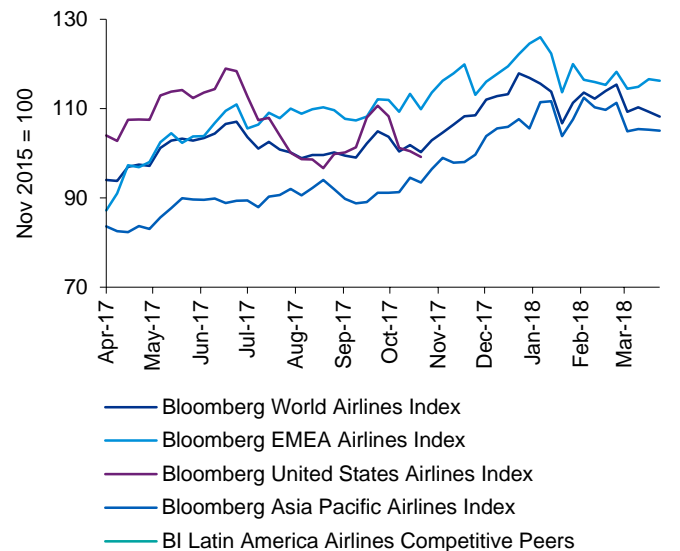
### Passenger capacity growth (ASK) (moving two months average)



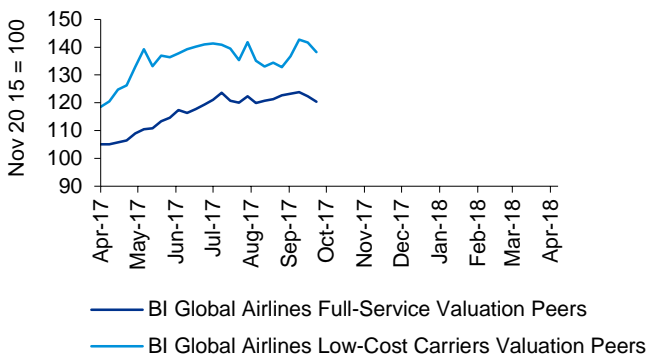
### Passenger load factor (moving two months average)



### Share prices by region



### Share prices by business model



# Aviation

## Middle East and Africa (cont.)

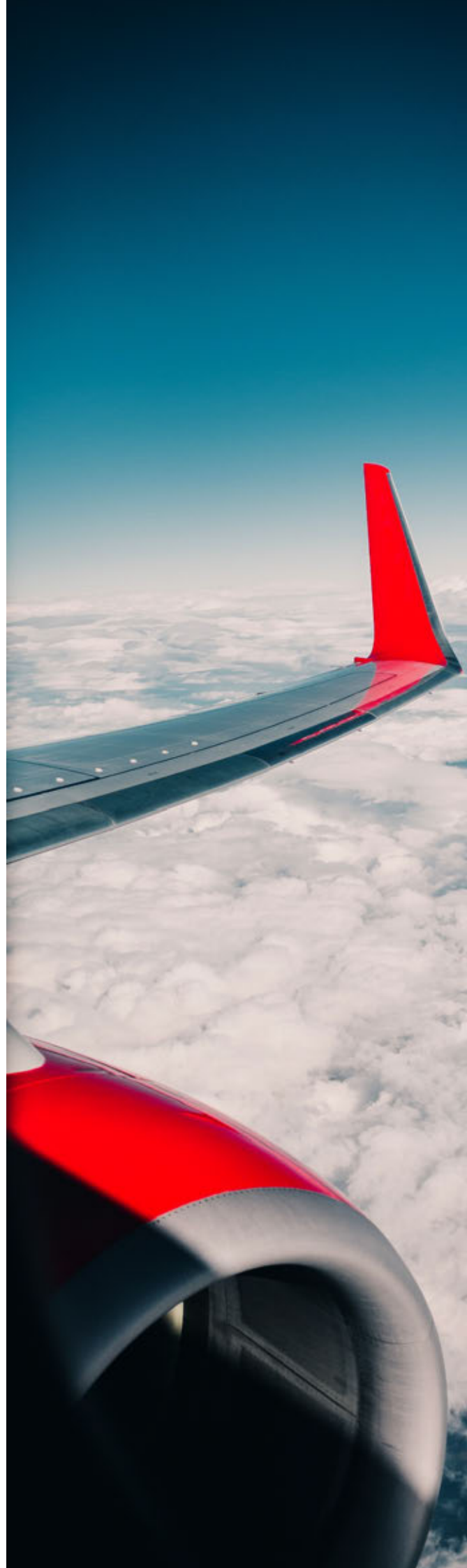
Regional LCCs are continuing to find favor with customers in the region with the launch of a new LCC in Saudi Arabia and flydubai having lodged large bulk orders, their order for 125 737 MAX 8 aircraft at the Dubai Airshow being the largest single aisle order in the region's history<sup>l</sup>.

Aviation in Africa has faced a tough period of late, with SAA posting a loss for the year after a decline in sales, exacerbated by a strengthening Rand that has negatively impacted revenue. Recent agreement signed between ICAO and New Partnership for Africa's Development Planning and Coordinating Agency (NEPAD) would look to promote the industry and its infrastructure on the continent and this would no doubt be watched by industry spectators in the hopes of impacting real change.

While regional experiences have varied over the last year, one factor that will impact all airlines globally is the impact of digitalization. Innovation in data analytics and AI are expected to usher in an evolutionary shift for the traditional airline model and revolutionize the interaction between carrier and customer.

“Innovation in data analytics and AI are expected to usher in an evolutionary shift for the traditional airline model”

- Note:
- (e) 'Europe's airlines: Who's growing fastest? Look at fleet orders', CAPA (1 May 2018), <https://centreforaviation.com/insights/analysis/europes-airlines-whos-growing-fastest-look-at-fleet-orders-414795>
  - (f) 'Only 5% of China's population holds a passport; CNTO notes China tourism potential', CAPA (21 April 2017), <https://centreforaviation.com/news/only-5-of-chinas-population-holds-a-passport-cnto-notes-china-tourism-potential-664859>
  - (g) 'Only 5.5 per cent of India's population have passports', Business Today (24 July 2017), <https://www.businesstoday.in/current/economy-politics/passport-seva-project-passport-seva-kendra-mea-data-passports/story/257002.html>
  - (h) 'Current Market Outlook 2017-20136', Boeing (company website)
  - (i) 'Boeing receives the largest ever single-aisle jet order from the Middle East', CNBC (15 November 2017) <https://www.cnbc.com/2017/11/15/boeing-receives-the-largest-ever-single-aisle-jet-order-from-the-middle-east.html>







## Digitalization – Cleared for the approach

The shifting landscape of travel and the pace of technological change has altered the way in which an airline needs to connect with its customer base. It is vital to better understand the experience expectation from consumers in a climate of increasing carrier optionality and non-prohibitive switching costs. Consequently the aviation industry of today stands at a crossroads – either adapt and embrace the onset of digitalization, or to continue as before and risk falling by the wayside.

“Digitalization can help carriers to better understand customer behavior and generate efficiencies that can translate directly to the bottom line”

## Utilization of big data and AI to enhance customer experience

As successful carriers are fully aware, the relationship with a customer and improving their experience is of paramount importance – the cornerstone of which is service delivery. To this end, airlines look to develop an understanding of the personal preferences of each of their customers which in turn enables them to better tailor their offering to the individual based on their previous interactions and requests.

Growing capabilities of big data and AI mean that airlines are able to significantly enhance the degree of personalization through ‘learning’ from customer data, while at the same time effecting significant efficiencies and cost savings through robotic process automation (“RPA”). Implementation of such solutions mean that airlines can help to eliminate human traction and provide more targeted and reliable service 24/7.

It is also important to consider the responsibilities taken on by the carriers in respect of both collection and storage of sensitive customer data. This is highlighted by the onset and extraterritorial application of General Data Protection Regulation (GDPR), departure from which can incur significant penalties.

Note: (j) ‘Dubai Airports CEO Paul Griffiths, speaking at the CAPA Global Airport Leaders’ Forum (7 May 2018), <https://centreforaviation.com/news/dubai-airports-ceo-technology-will-improve-service-delivery-while-human-touch-is-important-797920>  
(k) ‘e-logs not trees’, MRO Management (vol. 20 March 2018), <http://www.mromanagement.com/feature/e-logs-not-trees>

# Aviation

## Opportunities for cost savings and ancillary revenue growth

While differences in operating model, culture, geography and jurisdiction prevent a one size fits all approach to digitalization, the technology provides considerable application potential for back office modernization that could help deliver cost savings and further streamline processes. Digitalization offers the potential to shake up the way in which airlines and airports interact with customers, suppliers, partners and Global Distribution Systems (GDSs), identifying those areas where “simple, repetitive transactions where speeds and convenience could be better delivered by automated processes”<sup>i</sup>. These process improvements would be supplemented by airport technology enhancements such as smart technologies to improve passenger flow and queue management.

Changes in technology will also shake up airline supply chains and support services, one such example being within maintenance, repair and overhaul (MRO) as ‘dirty fingerprint’ records give way to paperless work packages and electronic aircraft records which can reduce down time and productivity<sup>k</sup>. Partnerships with ecommerce platforms and seamless integration of onboard media suites with a passenger’s personal devices could boost ancillary revenue opportunities from purchases and cross-selling, while more widespread utilization of smart contracts could drive greater transparency and profitability that would help push up profit margins.

## Conclusion

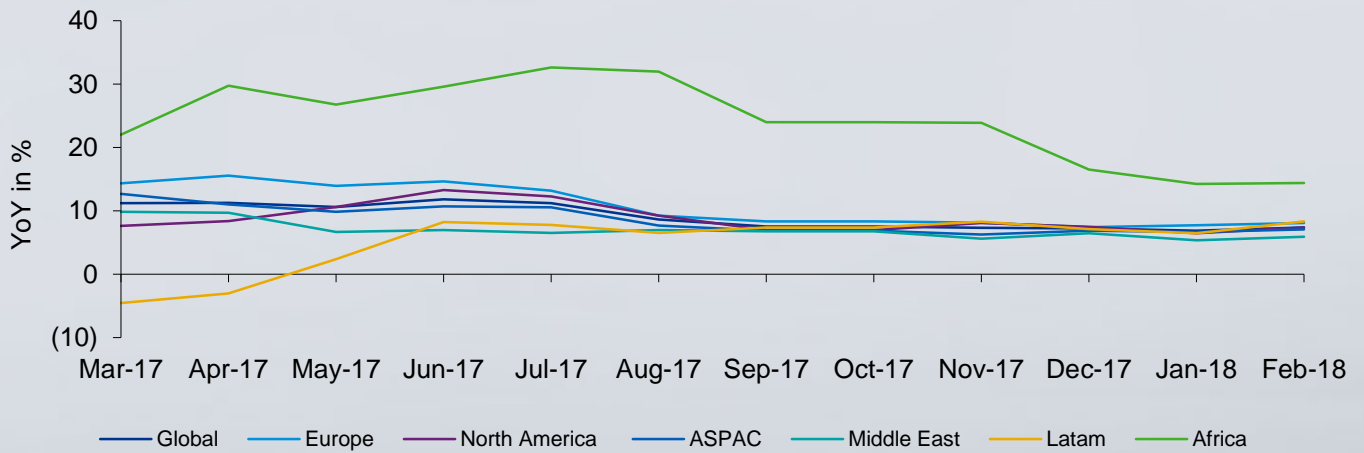
Ultimately digitalization can help carriers to better understand customer behavior and generate efficiencies that can translate directly to the bottom line. The pace of technological innovation continues to be a stimulus for the evolution of air travel and we shall be keeping a close watch on future developments, how this can add value to the objectives of carriers and customers alike, and to strengthen the aviation industry – the business of freedom.

Note: (j) ‘Dubai Airports CEO Paul Griffiths, speaking at the CAPA Global Airport Leaders’ Forum (7 May 2018), <https://centreforaviation.com/news/dubai-airports-ceo-technology-will-improve-service-delivery-while-human-touch-is-important-797920>  
(k) ‘e-logs not trees’, MRO Management (vol. 20 March 2018), <http://www.mromanagement.com/feature/e-logs-not-trees>

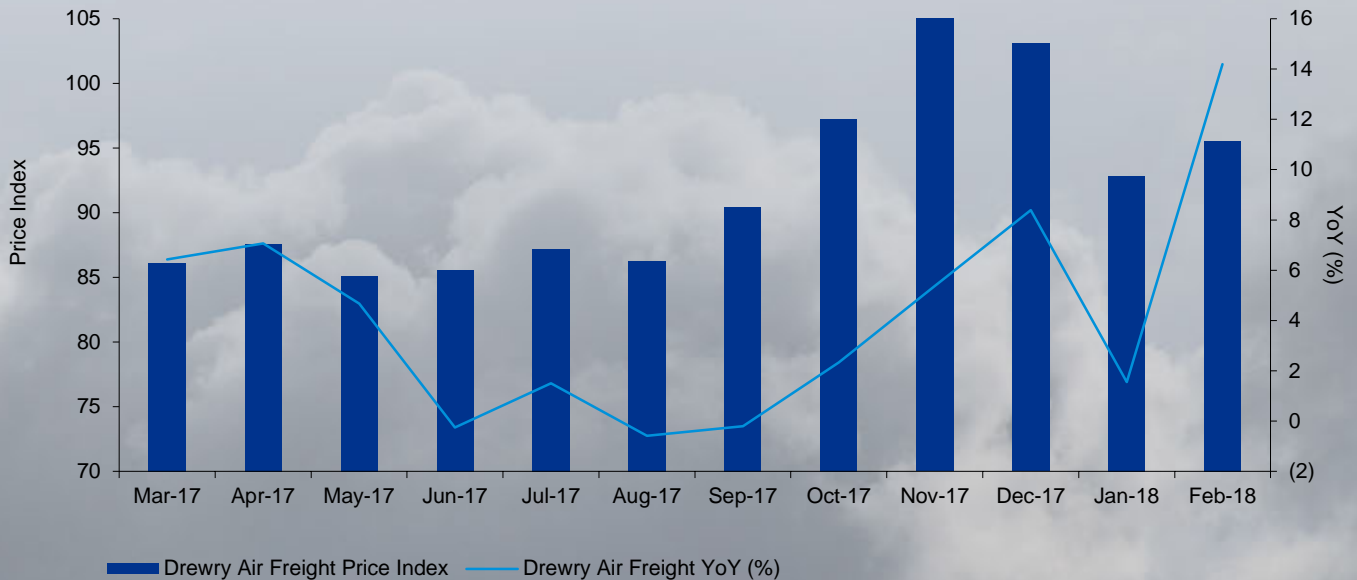




### Freight traffic growth (FTK) (moving two months average)



### Air freight price index





# Automation

## Automation in Logistics

**Internet of Things, Artificial Intelligence and Big Data are all topics that have been out in the open and discussed at length by numerous industries recently. Some people have been talking about a fourth industrial revolution that will have a similar impact created by the first industrial revolution at the end of the 18th century.**

While certain sectors have already managed to integrate various new technologies, other sectors have quite some catching up to do. Different studies proclaim, that digitalization in the logistics sector is relatively low, compared to other sectors such as finance or trade for example. In general, logistics service providers tend to have a relatively reserved degree of digitalization. Despite this, the logistics sector increasingly finds itself confronted with the need for change, especially when it comes to implementing automated processes.

### **Drivers for the increased need for automation in logistics**

One of the main drivers of innovation is the significant growth in demand for logistic service providers; as e-commerce continues to grow, so does the need for transportation. At the same time, there has been a continuous decline in the size of available workforce in this field, mainly due to demographical change. By implementing new technologies and thereby automated processes, increases in the levels of productivity, efficiency, speed and quality should be the outcome; enabling logistics service providers to equalize capacity and meet their customers' demand.



There is an ever increasing multitude of technological advances from which logistic service providers could draw great benefit; for example certain technological advances such as autonomous vehicles or Blockchain technology have been greatly praised by the media. However, before they become an industry standard, a basis needs to be created. In the meantime, the setup of digitalized and automated processes will permit logistic service providers short-term benefits, such as attaining a higher service level, as well as preparing them for the future development of the market.

Increasingly seen throughout multiple industries and sectors, the combination of Process Mining and Decision Modelling provides the basis to create business process automation, also known as robotic process automation (RPA). These RPA technologies can be found in different degrees of complexity. There are simple, automated processes which accelerate certain tasks by using specific sets of rules, screen scrapings and workflows. More complex RPA processes are capable of structuring and organizing data and information. Virtual Assistants that use text and language processing to interact.

Ultimately RPA technology can lead to a complete cognitive automation process. In the logistics industry, the automation process is able to integrate adaptive alterations, natural language processing, big data analytics, artificial intelligence, machine learning and large-scale processing.

One crucial element in the creation of truly automated technologies is artificial intelligence. The main discussion around this subject has been focused on robots – Digital Labor – which could replace human beings. This has also been referred to as “super intelligence”, which is able to assist with or take over specific tasks or knowledge from one domain and transfers it to another domain. The degree of artificial intelligence we are dealing with today though, is classified as “narrow intelligence”.

The systems which work with narrow intelligence have capabilities that equate to human intelligence, but with a restricted scope and they can generally only focus on one small aspect of a larger topic. Another underutilized asset in the industry is the high volume of data that supply chains generate, which is most likely to increase exponentially in the future and lead to even bigger “Big Data” than we know today. This generated data will be extremely valuable and handling it in the right way could determine a logistic service provider’s future. This is where Artificial intelligence will play a major role. As logistic companies are highly dependent on networks (physical and increasingly digital), it is crucial that their networks function neatly amid high volumes, low margins, lean asset allocation, and time sensitive deadlines.

Artificial intelligence can enable logistics companies to optimize these network orchestrations to a degree which could not be achieved with a human workforce alone. The logistics industry could thereby use the excessive amount of data to their advantage by redefining behaviors and practices, shifting operations from reactive to proactive, planning from forecast to prediction, transition services from standardized to personalized and processes from manual to autonomous.

By focusing on smaller scale automation technologies (such as bots), instead of autonomous vehicles and robots with “high intelligence”, logistics service providers will be able to automate simple, repetitive processes in the short term. Taking this approach will allow certain tasks to be taken over entirely by machines, whilst others will still require human supervision and/or intervention. Employees will therefore be enabled to spend more time on important and complex tasks, while the lack of employees in this sector will be cutback at the same time.

- Bots/RPA – back office/ operations customer relations

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- Where does this lead CEP log serv providers? (benefits, challenges...)

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- How will AI change CEP log serv providers? (short term, long term)

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- Sharing Economy

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- Synchronization of data and goods flow

# Express logistics

## The Blockchain, a cornerstone of tomorrow's economy – also in CEP & Postal?

One of the most hotly discussed topics globally in recent times is Blockchain. Despite this, many people are still unaware of what Blockchain is and what it does. A few key questions: (1) What exactly is this promising technology? (2) Which areas stand to profit from it? (3) How can investors benefit?

There is a lot of excitement surrounding Blockchain technology. Though it is still too soon to say precisely what role it will play for the economy and for society as a whole, it seems clear that it will result in fundamental changes to the systems used in both. What does this technology have to offer for CEP? How is it currently being employed in practice? Where its development might be heading? How far advanced is it at present?

Transactions, contracts and the ways they are recorded are vital elements of our economic system, but they have not really kept up with the digital transformation.

The Blockchain – a distributed ledger that records and stores transactions securely, permanently and efficiently – now promises to solve this problem. It is a special kind of database that digitally documents and authenticates transactions between two parties, be they companies like forwarder and logistics companies or individuals.

This permanent record manifests a single point of truth, as the records cannot be altered after the fact. The Blockchain can be described as a universal ledger for financial and physical transactions of all kinds, a technology that is available everywhere and designed to ensure absolute transparency in transactions by strictly adhering to rules-based procedures.

We can draw a comparison with the familiar technology of the Internet, especially since many experts see the Blockchain as the next step in the evolution of the World Wide Web. The first generation of the digital revolution brought us the Internet of information. The second generation – driven by Blockchain technology – is bringing us the Internet of value.

What does the future have in store? There is certainly no shortage of ideas as to how the Blockchain could be used.

The Blockchain technology usually appeals to trust-based interactions where today we have an intermediary in place. The first (and perhaps most obvious) of these is the financial Blockchain, with applications such as cashless payment and peer-to-peer models for settling transactions without an intermediary. The aim is to increase efficiency and simplify processes through enhanced transparency.

The digital transformation we are talking about is in other words a solution that enables reliable and efficient optimization of business operations through intelligent automation of business processes. Making the Supply Chain another applicant for the technology. The nature of Logistics today, requires a large number of organizations and transactions in order to fulfill a single shipment.

Cross-continentially, that can easily add up to some 30 different organizations and over 200 interactions.

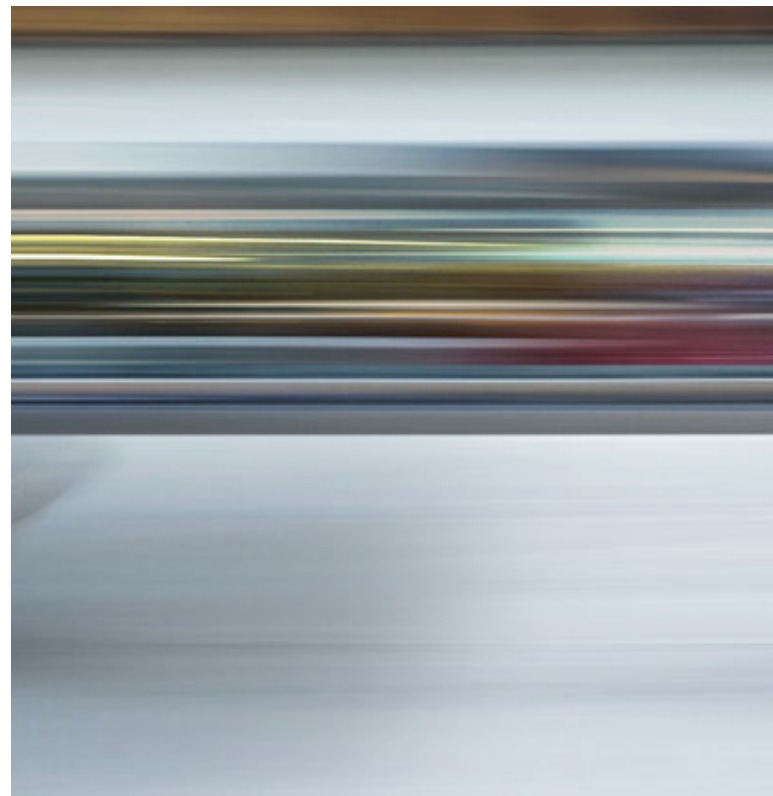
Through the increase of customer expectations and the advancing digitalization of business processes, the steering and monitoring of the Supply Chain becomes continuously more dynamic, complex and diverse.

The increasing deregulation, especially with regard to the proof of origin in the Supply Chain makes it more difficult to adapt and automate the business models in such a vibrant environment. The Blockchain technology enables flexible automation and more intelligent solutions to the given challenges towards the Supply Chain.

Process optimization and process innovation based on Blockchain technology could not just streamline operations within and between stakeholders of a supply chain but could even open the market to new business models and enable a Transparent Supply Chain. The synchronization of the flow of data and goods will be key in order to meet customer expectations.

The Transport and Logistics industry will thus profit the most from two aspects of Blockchain technology.

First of all Smart Contracts, they are designed to reduce bureaucratic complexity and costs. Cargo can be manifested and predetermined contractual clauses recorded and executed automatically.





This makes them ideal for bringing the benefits of the Blockchain to Internet of Things (IoT) applications. Machines do not just communicate with each other, they execute agreements among themselves, and Smart Contracts based on Blockchain technology could be used to automate these.

Second Track and Trace Technology, enabling the communication of all container, units or parcels with all freight forwarders, storage units and the end customer. The idea is for the Blockchain-based cargo tracking to produce an unalterable dataset recording transactions throughout the entire supply chain that can be shared with all the companies involved in real time. Every firm in the supply chain can thus see all the necessary details of every individual transaction as part of a single information flow.

The resulting transparent supply chain, in an open ecosystem, could be leveraged by logistics companies to result in a Shared Economy, where cost and efficiency effects can be realized through sharing the capacity in the network, eliminating overcapacity and minimizing redundant bureaucracy.

Experts estimates that the financial benefit of Blockchain technology in 2017 was USD 4 billion. This, it claims, will have risen to USD 176 billion by 2025 and as much as USD 3,100 billion by 2030, which equates to an estimated compound annual growth rate of about 67%.<sup>(a)</sup>

Is Blockchain a technology for another revolution in CEP and postal? All Blockchains are actually Event Sourcing systems. They all work with streams of transactions coming from different sources into a limited number of actual chains. For carriers that transport normal parcels from Point A to Point B within 24/48 hours, Blockchain has some value but not that much, due to the straightforward nature of the transaction.

However, Blockchain may be used as an incubator to create new products or to enhance existing services in the transport of valuables or other critical goods. At the same time complex supply chains will benefit from Blockchain when many participants share their information between shipper and consignee. This requires a certain level of trust of all involved parties and an increased demand for Cyber Security.

Note: (a) Practical Blockchain: A Gartner Trend Insight Report



# Express logistics



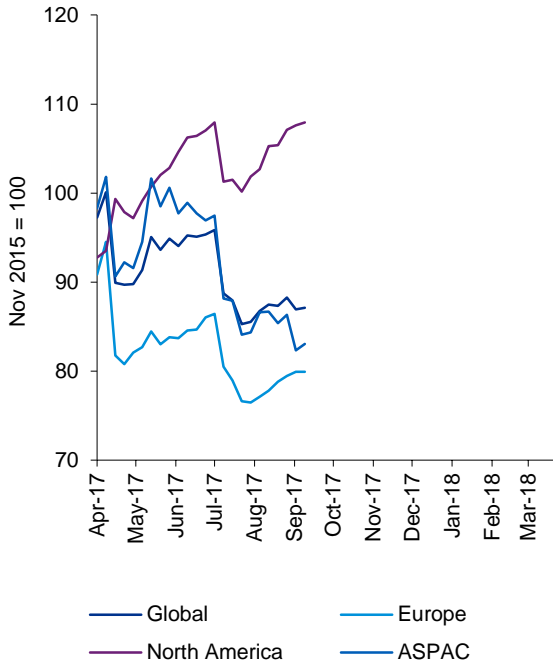
“ Is Blockchain a technology that can drive a revolution in the Courier, Post and Express industries? ”

**Justin Zatouff,**  
Global Head of Post and  
Express Logistics

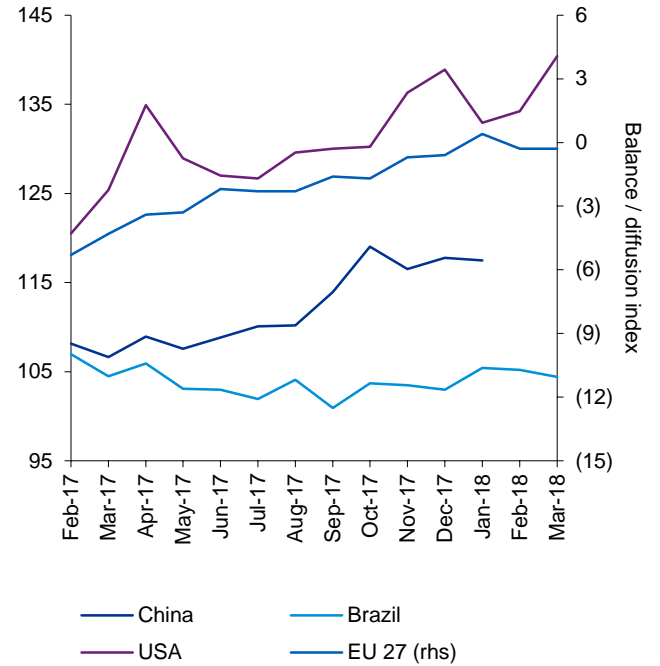




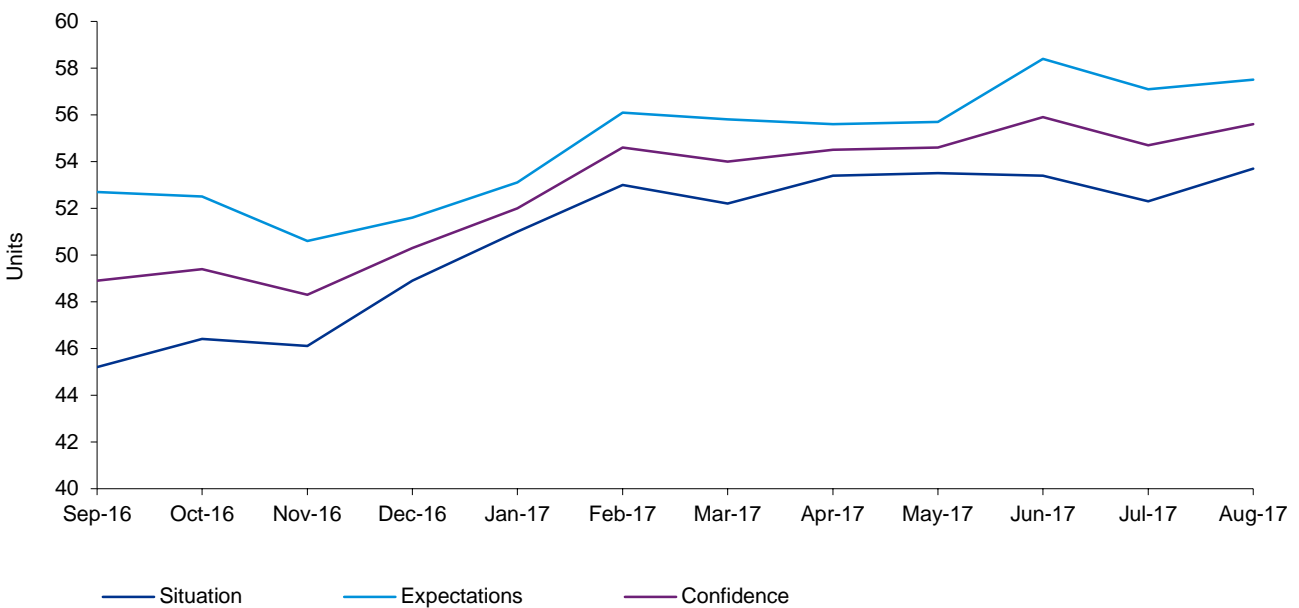
### Express logistics share prices



### Consumer confidence indices



### Logistics Confidence Index



# Global case studies in transport and logistics

## Leading international airline – ongoing customer experience and sentiment tracking

### Client challenge

The client is an iconic brand operating in a market known to be highly competitive market, and associated with high cost operating bases and slim margins. A deep understanding of continually evolving customer needs is required to prioritize product and service developments and help inform short and long term strategic decision making.

The value of its position as a national and international icon is well understood and the need to maintain and further enhance this reputation is recognised. However this can lead to high customer expectations of current and future service and product offers. These expectations must be balanced with a firm understanding of commercial imperatives, and the relative competitive positioning of the airline across multiple domestic and international markets in which it operates.

### Benefit to client

Provision of robust customer metrics and consumer insights that are embedded in the client's tactical and strategic decision making.

Measurement of KPIs throughout the business – from front line staff up to executive/CEO remuneration.

Identification of areas of strength and areas for improvement in the customer experience – used to strategically optimise service offerings.

Tracking of key competitor performance to identify areas of relative strength and weakness. Gauge the impact of, and respond to, developments in competitor offerings.



### KPMG response

In the context of the above challenges and the client's need to constantly optimise and develop its offering to remain competitive, KPMG professionals designed an ongoing, multi-disciplinary research program including:

Ongoing online surveys with over 8,000 customers per month.

Customer experience monitoring using customer journey mapping, focus groups and surveys which identify strengths, areas for improvement and tracking ongoing performance.

Regular benchmarking of brand performance metrics against competitors and key global alliance partners.

Regular driver modelling to deliver deep dive metrics into customer and service areas that can significantly drive NPS, choice and reputation – going beyond 'Voice of the Customer' feedback.

Bespoke ad hoc research based on specific issues or challenges being faced, such as identification and articulation of target customers on specific routes or design of in-flight entertainment experience.



# Indian railways-digitization and enhancing nonfare revenues

## Client challenge

Operated by Government of India, Indian Railways is India's national railway system operating long distance and suburban rail systems. The world's eighth-largest employer, it had 1.33 million employees at the end of 2015-16.

Indian Railways had a high operating ratio of 96% and was looking to enhance its non-core revenues by monetizing and unlocking value from its other assets, while enhancing passenger experience and becoming a more agile and future oriented organization in the process.


## KPMG response

- 01 Formulating business strategy for monetization of the Telecom assets/ business of Indian Railways
- 02 Business plan and bid advisory assistance for providing Train Wi-Fi assistance to passengers
- 03 Enhancing non-fare revenue and monetization of Railways assets by enabling digital advertising across stations through the Railway Display Network across 2000 stations in India
- 04 Bid Advisory and Partner selection assistance for IP based CCTV surveillance at 983 stations
- 05 Strategy and Business Case for Strategic LTE enabled High Speed mobile communications corridor across Pan India Railway network to meet future signaling requirement of Indian railways

## Benefits to client

Enhanced non-fare revenue base for Indian Railways through monetization of telecom assets and help it become a digital organization.





“How will workforce practices evolve as the workforce mix changes?”

**Client challenge**

The client was faced with demographic changes Millennials to make up nearly 50% of the company in 5 years, coupled with multiple upcoming retirements from key leadership roles

The new CEO wished to assess employee engagement and the current organizational culture in order to improve employee engagement, retention, and knowledge transfer



# Transportation Client- Culture Evolution

## KPMG Response

- KPMG professionals launched an employee engagement survey, followed by focus groups to assess employee engagement and the current culture.
- Results confirmed that there were areas they wanted to improve upon – leadership development, communication, and collaboration, primarily.
- Designed a multi-pronged approach to develop and implement various initiatives to address these key areas of focus.
- Over the next 2-3 years, KPMG professionals developed the following (designed content, tools, communications, and managed stakeholders and launch): Competency model (Executive, Team Manager, Expert Manager, Employee versions)
  - New performance management system including competency model (compensation linked to behaviors)
  - Dual Career Path – Opportunities to move into management in a Team Manager or Expert Manager role, with differing behavioral expectations. Career progression guidelines for all levels of employees, including career path maps
  - Organizational communication plan including launching 3 Town Halls per year, 'Chats with Leaders' (access to leadership), and 'So Happy You Asked!' (sharing BU info), and covering everything from 1-on-1 conversations to team meetings and company-wide forums
  - Training courses and clinics: New competency model and behavioral expectations, Conversation model (coaching conversation tool for managers), Performance management system
- Tools and initiatives first launched in headquarters, then rolled-out to international offices
- KPMG professionals worked closely with executive team, taking a top down approach to behavioral changes

## Benefits to client

- Increased communication and collaboration throughout the organization, improving employee understanding of business strategy
- Executive and manager growth on competencies, supported by training, coaching and alignment with performance management system
- Individual objectives aligned with those of the business, including a strategic focus on continuous improvement
- Increased employee engagement (+12 points on OMI survey), placing the company in the "excellence zone"

KPMG professionals  
would be pleased to  
discuss the results of  
our analysis with you.

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