

NEWSLETTER

JANUARY 2022



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Shanghai Pudong to grow cargo capacity

By Damian Brett



The fourth phase of Shanghai Pudong Airport's expansion project has been launched with a new cargo area planned.

This fourth phase comprises six parts: a terminal area, flight zone, transport facilities, municipal engineering support facilities, a new eastern cargo area and auxiliary facilities.

The project was introduced in response to the Shanghai international shipping centre construction plan during the 14th Five-Year Plan period (2021-25) and the Yangtze River Delta (YRD) integration development strategy.

It aims to accelerate the interconnection of the YRD region, serve consumer demand for high-quality travel and meet the development needs of Shanghai-based

airlines.

The airport has not confirmed the operator for the new cargo area, however, Shanghai Pudong International Airport Cargo Terminal (PACTL) is one of the largest single air cargo terminal operators in the world and currently operates three terminals at Shanghai Pudong. PACTL is a Sino-German Joint venture between Shanghai Airport Group, Lufthansa Cargo and JHJ Logistics Management.

The airport suffered from backlogs of cargo in 2020 due to PPE demand, plus reduced staffing and cancelled flights last year due to surging COVID-19 cases.



How AI and Blockchain Could Solve Broken Supply Chains

ANDREEA MINCA

When the coronavirus crisis erupted in 2020, it became apparent that the medical emergency was accompanied by severe shortages, especially in some medical devices.

The pattern was first observed for ventilators: demand spiked everywhere and the supply chain was disrupted. This was because production of the devices spanned multiple countries, with each part dependent on other parts manufactured in different countries. The longer the chain and the more complex the dependence, the greater the exposure of any point to the disruption of another one, and to mandated shutdowns.

Now, two years since Covid first hit, this pattern has affected almost every sector of the global economy. “Supply chain issues” have become so widespread that they are now a running joke, affecting everything from furniture to daily goods. But why has Covid had such a severe effect on how we receive products and goods?

In recent decades, supply chains became lean, and they lengthened as they became more cost-efficient: more and more steps were added in the production and transportation of any given product in the name of speed and cost. This means there are more and more places where something can go wrong between the process of ordering and delivery.

Today, downstream suppliers – such as those who provide vehicle control systems to your car manufacturer – depend on upstream suppliers – such as chip manufacturers – to deliver on time so they can in turn deliver on time to you. With long chains, risks are now spread between multiple entities all around the world.

USING AI AND BLOCKCHAIN TO PROTECT TRADE

Supply chain problems have a knock-on financial effect known as trade credit contagion. This is where firms delay payments to suppliers because their customers delay payments to them.

The pay-on-delivery model can lead to cancelled or delayed shipments which can in turn lead to bankruptcies. While a high proportion of trade credit risk remains uninsured today, a post-pandemic world may see insurance and reinsurance firms fill in this protection gap. Researchers are currently working to develop methodologies to identify vulnerabilities in global supply chains and to understand their trade credit contagion risks. It is aimed to make these systems more robust and stable overall.

How can we create ways to design insurance and reinsurance contracts in order to effectively share the risk and mitigate vulnerabilities? How can reliable trade credit lead to fewer delays in supply chains and replace the familiar predicament we face now, of paying for something in advance with an unknown delivery date?

Artificial intelligence and complex network theory are helpful in identifying the structures that could pose systemic risk. They help us think: which parts of connections are likely to lead to delay and trade credit contagion and which are more reliable? Using these tools, we can create large-scale simulators of global supply chains responding to a wide variety of shocks and then use machine learning techniques to detect the problematic system of the chain. This knowledge can then be used in market designs that strengthen the system to prevent another pandemic or disaster occurs. Other novel technologies such as blockchain bring the promise of using high quality data to analyse supply chain dependencies. Blockchain technology uses real-time data and transparent verification carried out by multiple parties. In combination with other features, such as smart contracts, this could lead to timely resolution in cases of disputes along the supply chain.

My research involves using blockchain to streamline record-keeping and payments. This problem is difficult and complex because the adoption of blockchain depends both on the specifics of the technology and the cost.



The problem of adopting technology in the presence of positive externalities (whereby firms adopting the technology in turn improve the operations of external parties) is an old one in economics, but now these externalities are systemic in nature: the effects propagate along the chains. The cost of the technology depends on how many firms adopt it, and each one faces business specific costs based on its position in the supply chain, its risk tolerance and its costs to insure these risks.

Real-time recording keeping, the traceability of transactions, and the immutability of blockchain can all help supply chains become more efficient. This is all the more true if we consider the full length of the chain, where transactions need to be verified by several parties: participants in the supply chain, insurance and reinsurance firms.

THE FUTURE OF SUPPLY CHAINS

Trade credit insurance is likely to grow after the pandemic. It may rely on private-public partnerships – the pandemic has shown that governments act as an important players when they impose shutdowns in certain areas.

These funds can be used to make up for payment delays, reduce losses and jump-start critical production where necessary. But not all links in a chain can be insured, and an important challenge is to find out the most important stages under different shock scenarios.

Supply chains can also be rewired – large-scale algorithms can identify which suppliers need to be replaced and which new ones need to emerge.

In a few years, supply chains may look different, as the overall goal shifts from minimizing costs, as was the case before the pandemic, to minimizing delays and trade credit risks. The end consumer will drive the need to rewire the network, as demand shifts.

Ultimately, the flexibility of the customer determines the resilience of the supply chain.

How temperature-regulated solutions keeps pharma logistics running in times of crisis

By Yasmin Turner



For nearly two years, the COVID-19 pandemic has been severely impacting global industry, trade and supply chains. Uncertainties or disruptions in ground-based supply chains continue to drive up demand for air freight to this day, making capacity less reliable and available. Moreover, intercontinental flights are still not at pre-pandemic levels. The resulting severe capacity shortage required all parties along the supply chains to quickly adapt to an unprecedented situation.

Pandemic affects temperature-controlled supply chains

Even in normal operations, the temperature-controlled logistics of pharmaceuticals is a complex and demanding task. Many Life-saving medicines and active ingredients must be transported at precise temperatures to remain it freshness and maintain full efficacy for patients. There is no room for inaccuracies in this process.

But due to the pandemic in many cases the carefully planned transport routes were no longer available and could not simply be rescheduled. This is because not only packaging solutions have to be qualified for cold chain transports, but also the exact route, means of transport and transport duration are clearly defined. Normally, pharmaceutical shippers can use alternate routes that are also fully qualified. However, due to the unprecedented situation, even these were no longer available in many cases.

Active packaging solutions offer maximum reliability

As a result, transports often took longer than usual because they got stuck or the available routes were longer. Since passive packaging solutions can only maintain the desired temperature range for a given limited time, demand increased for reliable active packaging solutions like the DoKaSch-Opticooler.

“Electrically powered and fully air-conditioned the Opticooler maintains the desired temperature level, e.g. between 2 and 8 degrees Celsius, at all times. In this way, it ensures with maximum reliability that the cargo remains safe and undamaged in all climate zones,” explains Andreas Seitz, managing director of DoKaSch Temperature Solutions, adding, “Furthermore, the Opticooler can easily be used as an interim storage facility if the necessary cool infrastructure is not available. Active packaging solutions thus provide a safety buffer for delays, flight cancellations and changed transport routes and are thus an important contribution to a reliable cold chain.”

In addition to the change in routes, the increased use of charter flights also pushed up demand for the Opticooler. After all, while a regular scheduled passenger flight usually holds up to six of DoKaSch’s Opticoolers, a charter flight can load 30 or even more. Nevertheless, cargo flight capacity is still limited and therefore costly. Compared to passive packaging solutions, however, the RAP Opticooler offers space for 5 Euro pallets. Therefore, it also makes more efficient and thus more economical use of the currently limited and expensive freight space.

“Due to the changeover of aircraft, we had to provide a much higher number of containers at once. Our strategy is focused on 100% container availability, and that is what pharmaceutical shippers rely on. Accordingly, we always keep a reserve, so we managed to cover the unforeseen demand. Our forward-looking strategy has paid off,” says Andreas Seitz.

More flexibility thanks to worldwide presence

“In order to serve demand even better and more flexibly in the future, DoKaSch is expanding its global presence and will soon open several depots for its Opticoolers at important export locations for vaccines and pharmaceuticals. Furthermore, the company is continuously expanding its network through agreements with major airlines. The improved, worldwide availability of the Opticooler enables DoKaSch to respond more quickly to requests and avoids empty container positioning flights. This not only has a positive impact on customers’ costs, but also saves CO2 emissions. “Flexibility and short response times are key, even in uncertain times, and we place great emphasis on this in our team and processes,” adds Seitz.



Maersk confirms methanol-powered vessels order at Hyundai Heavy Industries



A Maersk representative has confirmed to Container News that the Danish shipping company has declared its options with Hyundai Heavy Industries (HHI) for four additional large container vessels able to operate on carbon neutral methanol.

The vessels will be delivered in 2025, following the delivery of eight similar vessels ordered on 24 August 2021.

The deal for the four 16,000 TEU dual-fuelled container ships is approximately US\$700 million, according to Korea Shipbuilding & Offshore Engineering (KSOE), the shipbuilding holding company of HHI.

"The four vessels will replace a similar amount of existing Maersk fleet capacity which is reaching end-of-life,"

Maersk's spokeswoman told Container News and went on to add,

"Once fully phased in the 12 vessels will generate total annual CO2 emissions savings of 1.5 million tonnes or 4.5% of total Maersk fleet emissions and offer Maersk customers truly carbon neutral transportation at scale on the high seas."

Capital Expenditure (CAPEX) for the four methanol-fuelled vessels is included in the current Maersk guidance for 2021-22, which shows that for 2021-2022, the estimation for the accumulated CAPEX is around US\$7 billion.

"The current guidance is still subject to uncertainty due to a higher than normal volatility given the temporary nature of both the demand patterns and disruptions in the supply chains," says Maersk. Early in December, the Copenhagen-based box carrier unveiled the design of its new methanol-powered vessels, which will be able to complete an entire round-trip, Asia-Europe for instance, on green methanol, according to Maersk's statement.



Innovation and diversification are necessary in aviation

By Yasmin Turner

The Covid-19 pandemic has caused disruptions to global society and economy and in the aviation industry it has highlighted a need for innovation and diversification, Hawkins Musili, general manager at Fahari Aviation, Kenya Airways tells ACW.

New technology and new ways of thinking need to be adopted to get improvement.

“2020 was an unprecedented year, as an airline we realised that we needed to meet the challenges of the “new normal” and reset in our thinking and approach. New challenges need new solutions now and in future to bring both resilience, and sustained success,” he says.

From this, Fahari Aviation was born. “Fahari Aviation was created from an internal process for two major reasons – One was out of the necessity for the airline to develop business model that could create new revenue streams in the wake of low passenger numbers as a result of the pandemic.

“The second reason was to tap into Unmanned Aircraft System (UAS) Technology – a fast-growing and but largely untapped market in Africa.

Fahari Aviation offers a one-stop shop for both individuals and corporates looking to tap into this industry from training of pilots, enterprise solutions and traffic management,” Musili notes.

Fahari’s creation sits within the de-risking strategic pillar for Kenya Airways group. What exactly does it mean to de-risk the business? Musili explains: “The latest 2020 Africa air transport report from the African Airlines Association (AFRAA) shows how air routes in Africa were dropped during the 2020 Covid-19 pandemic. Financially, 2020 was an exceptionally difficult year in history, it said, with estimated passenger revenue lost by African airlines in 2020 at \$10.21 billion. The number of scheduled passengers carried by African airlines dropped from 95 million in 2019 to 34.7 million in 2020, representing a year-on-year decrease of 63.7%.

“In the case of Kenya Airways, we uplifted 1.8 million passengers in 2020, a drop of 65.7% from 2019. Of this number, approximately 70% flew with us between January to March 2020, indicating severely depressed demand as a result of the pandemic.

“Fahari Aviation, as mentioned was derived from an initiative to “de-risk the business” and develop a subsidiary of a strong aviation stakeholder. In 2020, the engineering arm of the KQ business took the challenge to come up with ideas that would impact the airline’s back to business strategy and aid in de-risking & diversifying revenues streams in the wake of low passenger numbers.

“Aligning with our purpose of the sustainable development of Africa, Fahari Aviation through Unmanned Aircraft Systems (UAS) was one of the ideas that came to fruition focusing on using disruptive technology to realise KQ’s mission of “Sustainable development of Africa”.”

THE FUTURE

Musili believes that the importance of UAVs in the logistics industry will only grow. “In the next few years, considering current environment and the technological developments in the world; drones are becoming an important part of the rapidly expanding modern logistics industry. Cargo transportation is rapidly shifting from traditional standards to new generation transportation vehicles.”

It is acknowledged that whilst drone innovation comes with abundant opportunities, there are also many difficulties hindering their wide use in logistics.

One such that Musili notes is their limited load and flight capability. “Adding extra sources of power or mechanisms to improve their load capacity adds to the cost of the manufacturing. Not just the cost, but increasing the load also reduces the flight time of these technologies,” he says.

“Another challenge that drones face today is that of air traffic management, especially in areas with higher air traffic concentration. Experts are trying to keep manned vehicles distinct from the unmanned ones. But this creates complex traffic management systems as they cannot build a highly intensive system solely for a few drones nor can they let the drones interfere with the existing air traffic routes.



“The growing popularity of drones is also posing multiple security threats. Many drones are now being fitted with cameras to enable video footage or live streaming of the flight. This application may turn out to be beneficial in some cases, but there has been an increase in using such drones to wrongly shoot in authorised locations, violating privacy policies.

“While it is apparent that as useful and productive as these drones can be, they also come with some risk. Like there are ways to enhance the beneficial features in them, regulatory laws, and policies, are strictly being applied to help in reducing the risks and building a better future for drone technology.

“Last year, the Ministry Of Transport published UAS regulations giving the Kenya Civil Aviation Authority (KCAA), the mandate for registration and operation of drones in Kenya. Under the new regulation, those interested in operating drones need to be trained pilots and obtain a security clearance from the Ministry of Defence. Requiring drone pilots to identify and secure proper documentation before operating is a measure squarely enacted to ensure safety during the use of drones, for national security purposes and protection of privacy for individuals as well as putting value for a credible and well-regulated industry.”

A SUSTAINABLE OPTION

Are drones the answer to sustainability issues that loom over the industry? As we enter a new era of advanced mobility that includes innovations once thought impossible, it is becoming visible that it is no longer enough to do things the same way.

“Drones offer many solutions as we transition to a more sustainable world for tourism and business travellers. In health, in agriculture, manufacturing and the utility sector among others, drones are providing practical, safe and low-cost solution that minimise downtime and supports business efforts,” says Musili.

“The accelerating pace of development and adoption of drones is likely to continue driven by the continuous nature of technological change and the convergence of technologies into new combinations.

“Harnessing drone technologies – combined with action to address persistent gaps in access and use of existing technologies to develop innovations – could be transformative in achieving Sustainable Development and producing a more prosperous, sustainable, healthy, and inclusive Africa.

“As technology continues to grow and play a larger role in consumers’ lives, industries have transformed and adapted as well. The socio-economic impact of this disruptive technology is evident in the development of Kenya and Africa at large, especially in areas where infrastructure development is lagging.

“Kenya Airways is proactively invested in driving the country’s Big 4 agenda by supporting direct impact government entities. This has been scaled through the adoption of Unmanned Aircraft Systems (UAS) that provides an interlink between technology and businesses thus enabling organisations to improve and transform the way they do business.

“So far, we have developed proof of concept with KenGen, confirming the use of unmanned aerial automobiles to enhance safety margins, decrease prices, and expedite its modernisation programmes by way of drone expertise.

“The collaboration showcased drones’ skill to be utilised throughout the utility sector whereas complying with security, safety and regulatory requirements for aviation. With the Kenya Wildlife Services, Fahari Aviation demonstrated how drones could have positive effect to society by participating in the Tsavo Ecosystem Wildlife Census.

“For Kenya and the East African region drones present an opportunity to leverage on emerging technologies for sustainable development.”



Port Congestion Cost Shippers Millions in Added Interest Expenses

By The Maritime Executive



While there has been extensive attention on how increased shipping times, congestion at the ports, and backlogs along the supply chain were leading to short supplies that consumers were experiencing, the delays were also further increased retailers' cost burden. A new analysis from project44, the platform for shippers and logistics service providers, estimates that in addition to the increased cost of shipping, retailers also incurred approximately \$321 million in added interest expense on inventory in 2021 due to port congestion. While the environment became a vicious circle, retailers were able to also use the environment to build inventory levels in part by warehousing at sea and are better prepared going forward.

According to project44's analysis, they estimate that between January and November 2021 that \$238 billion worth of cargo experienced significant delays outside the ports of Los Angeles and Long Beach.

They further estimate that during 2021, an average of 540,255 TEUs per month were waiting outside the port, with an average of 377 container ships per month at anchorage waiting for a berth. With data from HSBC, they set the average cargo value of \$40,000 per TEU, and with a 3.2 percent cost of financing, project44 estimates that shippers found themselves paying around \$106 per TEU per month.

Further, adding to the costs for the shippers were the increased transit times for cargo to reach the port and then for clearance and shipment to its destination. Pre-pandemic transit time from Chinese ports to Los Angeles was approximately 16 days plus an additional six days until clearance. Shifl, a digital freight forwarding platform, reports that transit time went up to around 60 days based on Los Angeles' current average of 17.6 days awaiting berth.

Given an average transit time between major Chinese ports and Los Angeles of 60 days, shippers incurred an average of two months of interest payments on goods traveling by sea. Project44 estimates that this translated into a total of almost \$321 million in additional interest between January and November 2021, which, while a small fraction of the total cost of goods, was nonetheless significant notes the analysis.

"With interest rates at historic lows, the cost of holding more inventory is lower than you'd expect," said Josh Brazil, VP of Supply Chain Insights at project44. With inventory levels low going into 2021, he notes that bringing in more inventory and bringing it in earlier seemed like a good idea to retailers which was supported by the low trade financing environment that was helpful for shippers. Brazil notes thought, "This only exacerbates the congestion issues."

With interest rates at historic lows, companies could also finance a surplus amount of inventory and essentially store it at sea for two months, says project44. While it might not have been entirely deliberate, the congestion helped companies circumvent storage costs on the excess inventories. Though shippers paid interest-related penalties on freight stranded at sea, the costs were diminutive compared to storing that inventory on land where warehousing prices were high and availability was scarce.

"This phenomenon has underscored how multidimensional the supply chain crisis is," Brazil said. "While more inventory might seem like a good short-term solution, the industry also desperately needs more visibility, better cargo management, and infrastructure and process improvements."

According to project44 intelligence, shippers faced a domino effect of disruptions that exceeded their forecasted shipping delays.

However, they compensated by understanding the benefits of low-interest rates and sent in orders by as early as June and July to bolster inventories in time for the holiday shopping season and overall meeting consumer demand.

The analysis concludes that businesses took advantage of the environment over-ordering merchandise, with some still at sea and that it will be used to replenish depleted inventories or be marketed at a discount in the months ahead.

The National Retail Federation in its estimates concurs that U.S. retailers ordered early and were successful in rebuilding inventories leading to expectations that import growth will return to more normal levels in 2022 helping to reduce pressures and added expense such as the carrying cost of goods that were driven up by port congestion and backlogs.



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