SUPPLY CHAIN INSIGHTS

DATA: THE DIFFERENTIATOR IN LOGISTICS TRANSPORT

Supply chain transport is a powerful source of data – and with customers expecting to know everything about the progress of their orders, it can deliver that visibility. But with the right partner it can also deliver much more – from improvements in safety and efficiency to predictive capabilities.

DHL Supply Chain – Excellence. Simply delivered.

Today, whether as consumers or in business, the days of waiting around for a delivery that could come at any time, are largely at an end. We've become used to being able to check the status of a delivery on our smartphones, almost down to the minute that we can expect a knock at the door.

In the post-Covid era, where online sales have accelerated even further, that kind of real-time visibility is now a general expectation – and is a key factor in customer satisfaction in a business-to-business environment too. The ability to Track & Trace and access real-time data on shipments has become essential, as mistakes can be costly.

The pandemic has amplified even further the need for robust and resilient transport networks that provide a high level of reliability and visibility.

Visibility from start to finish

Providing that visibility is possible due to the increasing sophistication of the data capture and analytical capabilities that can be employed in supply chain transportation, from the moment that goods are produced.

Big data is particularly suited to decisions around transportation where the intelligent correlation of data streams such as shipment information, or weather and traffic conditions, can enable real-time scheduling of assignments, optimization of load sequences, and 'down-to-the-minute' predictions of the estimated time of arrival.

That level of visibility benefits not just the customers of 3PLs, but their customers as well, since they are now able to log onto the 3PLs' systems to obtain precise information about the progress of a delivery.

Helping to achieve this new level of visibility is the fact that 3PLs can now link machine learning to the processing of real time events much more effectively. For example, the likelihood of traffic incidents or delays can be identified through streaming analytics, and built into business processes.

But the even better news is that there are many other ways – beyond visibility – in which data can be used, now or in the near-future, to optimize logistics transport.

Data as a differentiator

Data – or what's done with it – is fast becoming the biggest differentiator in terms of what a transport partner can offer.

In 2018, DHL conducted a global transport survey to understand what the biggest ground transportation issues faced by its customers are. The vast majority of them said e-commerce and its impact on service transportation requirements.

When asked which technologies are key to transportation activities, 63 percent of respondents said that big data analytics and artificial intelligence (AI) are currently important to their ground transportation activities. A similar percentage answered that they believed it would remain important during the next three to five years.

With the complex order profiles and shipping patterns of e-commerce, analytics offerings such as network optimization are essential in helping to rein in costs, while also improving service. Network optimization can nowadays be carried out at any time, as the result of advances in the capture of real-time data.

With its investments and strategic focus on digitalization, DHL has the technology and infrastructure to leverage big data not just to correct any problems, but anticipate them before they even happen. By doing so, it can keep costs down for its customers and give them the agility and flexibility they require.

Supply chain transport: a treasure trove of data

Due to the nature of the business, the logistics industry has access to huge amounts of its customers' data and is ideally positioned to provide competitive advantage through data analytics.

Why? Because third party logistics companies have years of expertise in optimizing service properties such as delivery time, resource utilization, and geographical coverage. Their transport and delivery networks are themselves a valuable data source and – with a local presence and decentralized operations – their fleets of vehicles can automatically collect local information along their routes.

Together, these characteristics can deliver a powerful collection of data volumes.

And due to the capabilities that 3PLs have to integrate and store data in a consistent way from several different systems, they can bring visibility across the supply chain. Not just visibility of what has already happened, but real-time visibility of what is going on at every stage.

The increasing sophistication of sensors and the Internet of Things (IoT) is a contributory factor.

Data to ensure security and quality

The use of data from truck operations, vehicle diagnostics and the infrastructure environment can now enhance security and quality.

A case in point has been the distribution of the Covid vaccine, with data analytics used to enable demand-driven forecasts that reduce wastage, bring traceability and security, and enable continuous risk assessment.

With each dose of vaccine requiring time-critical and temperature-controlled delivery, having visibility at batch level has been crucial.

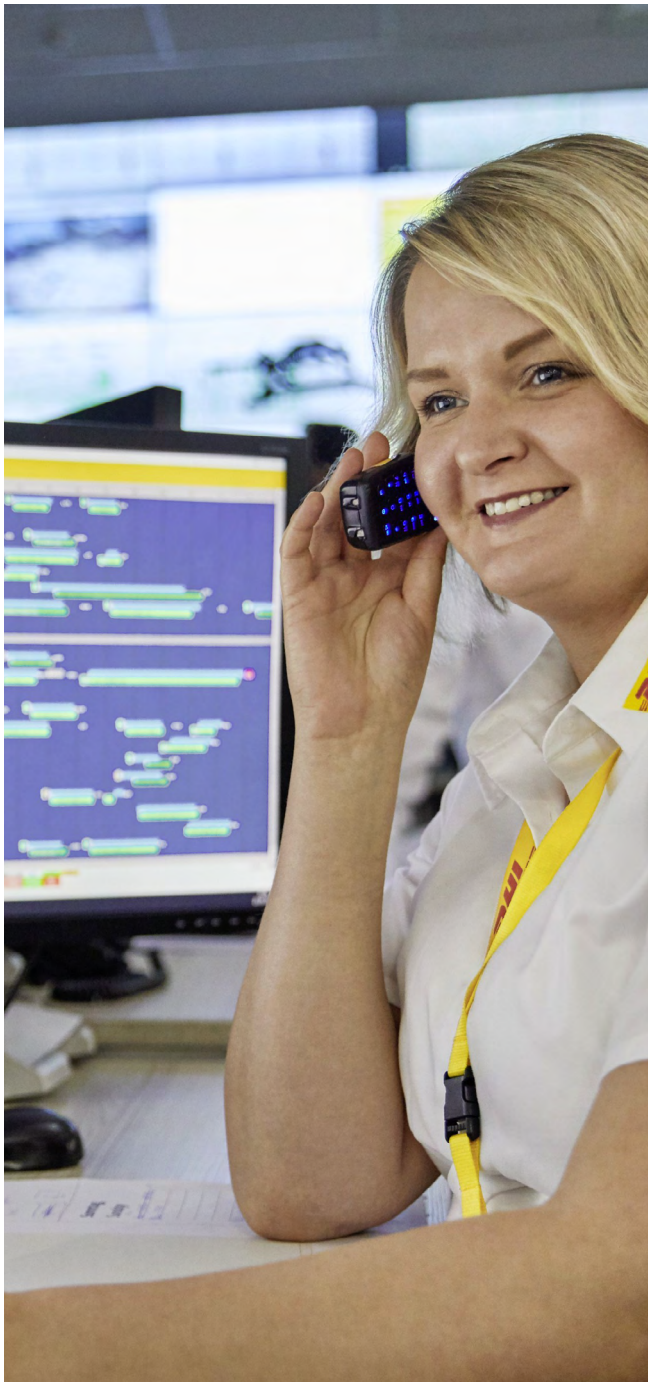
Due to the risk of counterfeiting or unauthorized distribution, security has become paramount in the distribution of vaccines and this has highlighted the importance of traceability with geo fencing on each vaccine shipment.

Data to drive decision-making

Of course, having the data is one thing – making sense of it is another. That's why DHL is increasingly recruiting data professionals who can analyze data and quickly make changes based on what they're seeing. Technology such as sensors provides a lot of data. The value DHL brings is in how they use this data to drive decision-making and develop customized solutions that make its customers' supply chains more efficient, balancing factors such as cost against service times.

Predictive analytics – collecting data and using it to form statistical models that are then converted into prognoses – is also being used to aid end-to-end supply chain risk management and increase the resiliency of global supply chains. Big data can be used to mitigate risk by detecting, evaluating, and alerting all potential delays and disruptions on key trade lanes. This might be growing port congestion, high flood risks or known areas of delay such as systematic issues with waiting times at customer premises.

Thierry Driesens, Digital Transformation Officer at DHL Supply Chain, says: "Our transport customers certainly want real-time visibility. They want to know where their goods are and they want to know how much they're going to spend for the service DHL delivers. But they also want to have advance notification that there is a problem from the moment that it arises, and if possible even *before* it occurs – think of a traffic jam, for example. With the advances that we have made in data analytics – being able to extract the data from a very diverse system landscape and being able to apply algorithms to it – we



can give them the same predictive capabilities in road freight that have existed in air and sea freight for some time."

Data to drive performance

Today's sensors can provide data about truck performance, give alerts when a vehicle needs servicing or predict when a breakdown is imminent.

Telematics systems use a combination of GPS and information from a vehicle's onboard sensors to report accurate vehicle activity and performance. Telematics can capture data on speed, direction, braking and the performance of the engine and drive train. As a result, as well as ensuring that the right kind of vehicle is being used for the right route and helping to improve fuel performance and maintenance, telematics can improve driver performance. By monitoring driving habits it can help to promote safer driving behaviors.

Ensuring the quality customers expect

Alastair Shooter, Vice President, Global Head of Transport at DHL Supply Chain, says: "Digitalization is a key pillar of our 2025 strategy. I think data has always been recognized as critical in transportation and logistics in general.

"Data can help us bolster the resilience of our supply chains. It can show us how we're operating in terms of service levels and how our businesses are performing. It gives us that visibility on the quality of the service that we're providing.

It allows us to ensure that not only are we delivering on time, but we're also delivering the quality that our customers expect."

At DHL Supply Chain our transport solutions collect and use this data in many ways, from asset tracking and monitoring technologies, to telematics systems and our Dynamic Decision Transport Optimizer.

This is an internally developed big data tool which can be applied to optimize shipments daily, compensating for areas where transport management systems are not quite so strong.

It can analyze many times more data than existing decision support tools. When used for solution design, it enables solutions to be developed for complex transportation challenges four times faster than in the past. Early application of this tool has demonstrated the ability to optimize existing transportation networks by 15-20%.

Data can transform logistics transport

As for the future, Thierry Driesens says that just as in the warehouse where the use of robotics is helping to make logistics more efficient, the increasing use of Internet of Things sensors will transform supply chain transport. "We already have the architecture in place. We are going to have more and more data, and increasingly advanced sensors that allow us to measure temperature even more accurately, location and other metrics that will deliver significant value for our customers."

SMARTRUCKING CUTS TRANSIT TIMES IN INDIA BY 50%

Data is transforming road transport in India, with the SmarTrucking program from DHL, an integrated trucking system which employs Internet of Things (IoT) capabilities and cutting edge sensors and telematics with On-Board Diagnostics.

The integrated service makes data-driven route optimization possible across India's extensive line haul express road network. Compared to traditional trucking routing methods, it is estimated to reduce transit times by up to 50 percent while providing 95 percent on time delivery and 24/7 visibility.

Using IoT-enabled sensors monitored through a centralized control tower allows SmarTrucking to offer customers real-time temperature and consignment tracking of shipments. All information is accessible through a customer portal plus external and mobile applications.

The efficiency resulting from DHL SmarTrucking is set to move an estimated 100,000 tons of cargo over four million kilometers in India daily. With 745 IoT-enabled and temperature-controlled trucks already deployed across India, there are plans to have a 10,000 strong fleet in place by 2028.

DHL SmarTrucking is good news for drivers too: with the help of an agile and innovative model, drivers are rotated at predetermined stops located across the country, with the original driver returning to the point of origin with another truckload.

"This transportation model not only helps optimize efficiency but also reduces fatigue among drivers who spend less time on the road, enabling them to go home to their families every two to three days," says Malcolm Monteiro, CEO Asia Pacific, DHL eCommerce. "Additionally, with the demand for temperature-controlled transportation in India estimated to grow at 15 percent per annum, DHL SmarTrucking allows our customers in India to scale up and streamline their business operations to meet consumers' needs."