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**AI-powered
solutions
to optimise
transport
and logistics
operations in
a volatile age**



Steering through COVID-19 and navigating a new tech landscape

COVID-19 has brought upheaval to the transport and logistics sectors, ripping through global supply chains and impeding the movement of goods and people throughout the year. Logistics companies have faced many headaches in this time of social distancing and lockdowns—among them falling freight volumes, contractual risks, and delays or disruptions at borders and in long-haul shipments.

While low fuel prices and increased ecommerce activity have provided some relief, the operating environment remains volatile. Many companies face liquidity concerns, new costs due to safety protocols and equipment, virus outbreaks and revenue compression. These challenges may pummel the sector for some time, with multiple waves of infection and lockdown likely through to 2022.

According to DHL ¹:

- More than 25% of truck kilometres are driven empty
- Loaded trucks have a utilisation of only 56% in the US and 54% in the EU
- Route optimisation potentials are not realised

¹ www.dhl.com/content/dam/dhl/global/dhl-supply-chain/documents/pdf/glo-dsc-eight-trends-disrupting-logistics-transportation.PDF

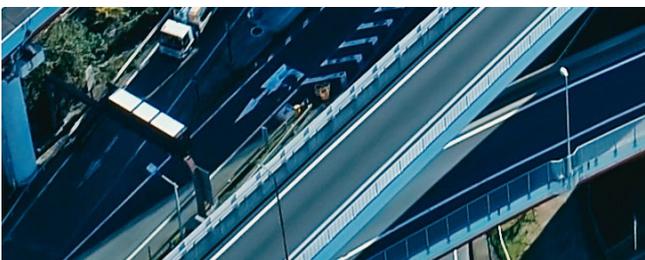
All the while, the disruptive trends that were already upending the industry before the start of 2020 are still in play – new regulations, particularly around carbon emissions, reconfiguration of global value chains to build resilience post-pandemic, the shift to electric vehicles, and the risk of new trade barriers due to Brexit and trade wars. The pressure to attract and retain customers with faster service at lower costs remains relentless.

These broader macro trends unfold at a time that new entrants and the more agile incumbents are exploiting emerging technologies to gain a competitive advantage. Decentralised Uber-like logistics marketplaces like Cargomatic and NEXT Trucking are using digital platforms to connect shippers to truckers. Many e-commerce players, meanwhile, have built their own logistics powered capabilities.

Progressive freight companies are leveraging artificial intelligence (AI) for applications as diverse as automated scheduling, route and volume planning, and predictive maintenance.

Others are exploring distributed ledgers, telematics and Internet of Things devices, and advanced robotics. And some of the leaders are already positioning themselves for the advent of autonomous ships and vehicles.

In this environment, the efficient use of data and technology is more important than ever for logistics companies of all sizes. They need to achieve an end-to-end view of their value chain and ecosystem to optimise operating efficiencies and manage risks. Modernisation of their IT infrastructure via cloud platforms that can handle large volumes of real-time data from first and third-party systems and enable collaboration across the supply chain is just the start of the journey.



Tapping into the value of big data

The speed of change in transport and logistics—hastened by the impact of the pandemic—demands agile responses from companies, informed by up-to-the-second data. This comes at a time when they have access to more and richer data via vehicle telematics, Internet of Things devices in warehouses and vehicles, digital freight platforms, open government databases, mapping and real-time traffic information systems, and more.

Yet many logistics companies face significant barriers to using their data to drive big data analytics, AI systems and new supply chain models. They are wrestling with fragmented IT environments with significant legacy footprints—resulting in multiple sources of the truth, inadequate data security and governance, and trapped value.

They also face significant challenges in managing the high velocity and large volumes of data coming into their business. What's more, sharing of data with other members of the value chain is complicated by a lack of standards in the market. Data is often inconsistent and of poor quality, making it difficult to rely on it for insights.

Most shippers are using dashboards and related tools in their operations for real-time access, but only 48% have systems in place to organise and access that data for reporting purposes. Just 45% collect real-time data across more than half of their supply chain.— The 25th Annual Third-Party Logistics Outsourcing Survey Released Capturing Key Supply Chain and Logistics Trends ²

² <https://www.prnewswire.com/news-releases/the-25th-annual-third-party-logistics-outsourcing-survey-released-capturing-key-supply-chain-and-logistics-trends-301136550.html>

To use information to make timelier decisions, streamline operations, optimise shipping routes, improve risk management and respond with more agility to volatile demand, logistics organisations need to put in place platforms and processes that enable them to:

- Organise and manage data so that it's accessible to people who need it, but secure from everyone else.

- Integrate data from multiple sources to provide a single, comprehensive, contextual set of operational knowledge—for instance, tracking vehicles on immersive maps, monitoring fuel consumption across the fleet, and monitoring maintenance issues.

- Leverage analytics to gain insights into assets, financials and operational workflows.



DotModus provides AI-powered and cloud solutions that help transport and logistics companies to reduce costs and optimise performance across their business. Google Cloud gives companies a flexible framework that enables them to build at a pace that matches the speed of industry change and scale up efficiently.

Google Cloud

Google Cloud technology can help any transport, warehousing or shipping firm to better organise its information and make it accessible and useful to those within the organisation and outside it who need it. Google Cloud platform uses open standards to help enable data sharing and interactive collaboration, while also providing a secure platform.



Data analytics and engineering

As a trusted Google Premier Partner for Data Analytics, DotModus helps transport and logistics companies to use end-to-end big data processing and low-cost data warehousing solutions to uncover actionable insight from just about any data source. We can help organisations to configure a data pipeline that automatically organises data from in-house systems and third-party platforms.

DotModus has partnered with Looker—today part of Google Cloud platform—to offer logistics firms a tool that can be tailored to their workflow and quickly adapt to changes. With Looker, companies can drive a multitude of data experiences, from modern business intelligence and embedded analytics to workflow integrations and custom data apps.

The platform offers a unified interface to access the truest, most up-to-date version of a company's data, even when this data is scattered across multiple business systems that do not talk to each other. With Looker, decision-makers across the organisation get a centralised view of all data and real-time information.

Case study: SA Taxi, South Africa

SA Taxi approached DotModus to build a real-time vehicle tracking solution with centralised driver account management, mileage tracking and vehicle location alerts. The aim was to replace batch processing with real-time data streaming.

DotModus leveraged Google App Engine and Google Compute Engine to create a solution that offers a live view of activity for more than 22,000 vehicles across the customer's network. SA Taxi benefits from real-time insight from its wealth of data and data sources.

"It's been a really powerful partnership. Historically, our tech limited us from doing certain things. Where we stand now, we're limited only by our imaginations."

Stuart Wilson - Business Intelligence Manager at SA Taxi.

AI and machine learning

Machine learning algorithms enable transport, warehousing and shipping organisations to identify patterns in vast streams of data that would otherwise be difficult to identify. Companies can elevate automation by feeding machine learning insights into an AI solution that has been empowered to make smart decisions against given criteria. We help organisations to use machine learning to build cognitive systems that help them to optimise back office, operational and customer-facing activities. Our machine learning solutions reliably learn from the data that they process and improve on their mistakes to ensure outputs and actions that are consistently accurate and relevant.

Some of the use cases include:

■ Demand and capacity planning —using algorithms to predict customer demand for predictive shipping.

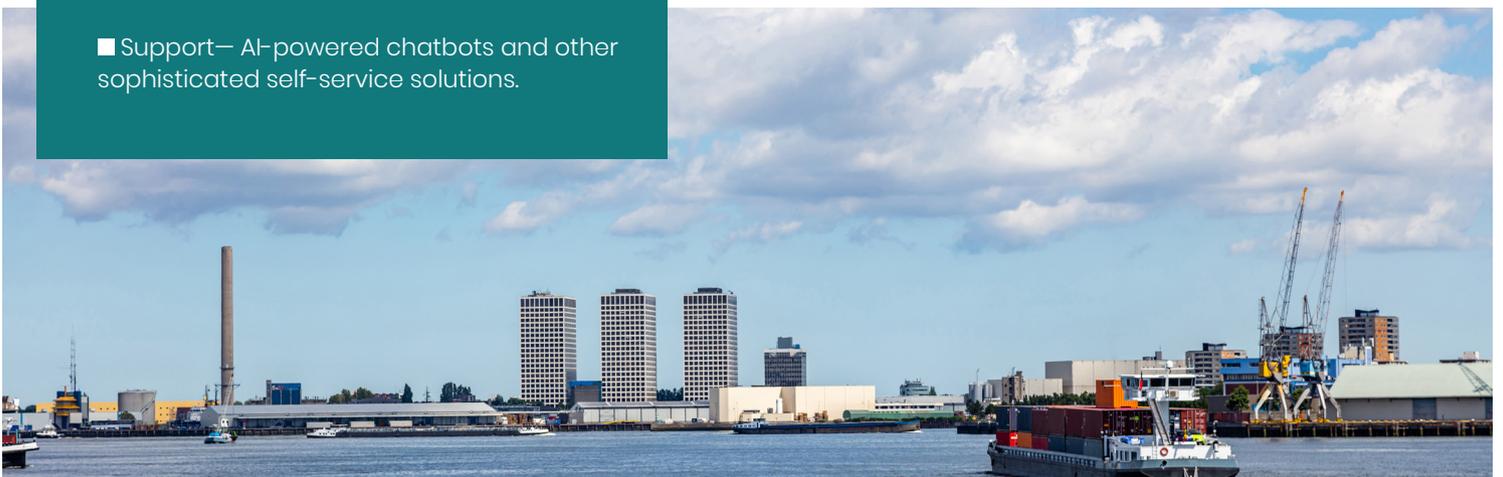
■ Fraud and financial anomaly management —picking up errors and anomalies in accounts from multiple third-party service providers and vendors.

■ Route optimisation— optimising long-haul and last-mile routes to make delivery more efficient and save money.

■ Network management —predicting transit times—including delays—across freight lanes.

■ Back-office automation— using cognitive intelligence and machine learning to accurately extract information from invoices, photographs, forms, and waybills.

■ Support— AI-powered chatbots and other sophisticated self-service solutions.



Collaborating with DotModus to drive better logistics performance

Logistics firms partner with DotModus to implement digital solutions that enable them to enhance efficiencies and drive growth. Many clients work with us to achieve a better and broader understanding of their operations and supply chains via our tried-and-tested methods for collecting and transforming data into relevant and reliable information.

Contact us on sales@dotmodus.com to learn more about how our solutions enable you to build a more holistic view across the activities in your business.



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