



HAZARDS ON THE ROAD AHEAD

WHY WORKING WITH THE RIGHT TRANSPORT PARTNER IS THE SMART CHOICE TO BUILDING AN INTELLIGENT SUPPLY CHAIN

DHL Supply Chain



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INTRODUCTION TO THE REPORT

Transportation, a crucial element of an efficient supply chain, has continuously evolved over recent decades, adapting to market and consumer trends, in order to deliver the ultimate goal – end customer satisfaction. This transformation has been driven by multiple factors, including the rise of globalization and technological advances. But complicating this transformation even further was the arrival of the Covid-19 pandemic in 2019. The impact of the pandemic on ground transportation and the supply chain as a whole has undeniably reshaped the movement of goods even further.

In this paper, we examine some of the key transportation trends and what they mean for businesses that need to choose a best-fit transport provider. From the increasing acceleration of e-commerce requiring **resilient, agile and sustainable** transportation solutions, to the growing need for the end-to-end visibility that **data analytics and technology investment** can bring, we look at the **capabilities, expertise and excellence** that successful businesses demand from today's logistics transportation partners.



HOW COVID ACCELERATED THE RESTRUCTURING OF GLOBAL TRADE

At first, the pandemic exacerbated regional disruptions as many global companies felt the impact of the over-reliance on a few countries, like China, for manufacturing and supplier networks, reigniting the debate about near-shoring and re-shoring activities.¹ The crisis also affected most forms of transport due to the various restrictions to curb the spread of the virus. Most of the implemented restrictions were not intended to impact the movement of goods per se. Still, the resulting long waiting times at borders, combined with health and safety checks and labor shortages have all contributed to the stress on supply chains worldwide.

These events have accelerated a restructuring of global trade, an economic trend shifting the world's economy from globalization to regionalization. With this trend, organizations are beginning to see the free movement of goods replaced with clusters of trade agreements that will add a new layer of complexity to the supply chain's performance. The most recent example of this trend is Brexit, and how it required global businesses to redesign their supply chains whilst maintaining their service levels towards end customers. At the end of 2020, the concerns about the movement of goods in or out of countries due to Brexit caused heavy congestion at several ferry ports in France and the United Kingdom.³

¹ Everstream Analytics Annual Risk Report 2021

² Transport Intelligence Total Logistics 2021

³ Everstream Analytics Annual Risk Report 2021

For instance, during a single week in mid-April 2020, truck traffic fell more than

50%
in Spain

46%
in France

37%
in Italy

compared to pre-crisis times, as lockdowns began across Europe,² causing delays in fulfillment and deliveries.

FROM DATA TO ACTIONABLE INTELLIGENCE RESTRUCTURING OF GLOBAL TRADE

Transport challenges also arose from the pandemic-triggered, unprecedented growth of e-commerce. Online sales had already been on the rise, but the crisis amplified the need for robust and resilient transport networks to deliver on growing consumer demand. The growth of online sales for consumer pharmaceuticals and ultimately the delivery of Covid-19 vaccines also means an efficient transport solution has the potential to improve lives, too.

E-commerce growth also puts the focus on emerging last-mile delivery challenges around the topic of sustainability. With e-commerce sales continuing to soar in the coming years, ensuring sustainable transport solutions is no longer just an option but a necessity. The future of sustainable logistics will benefit the environment and communities as well as helping businesses achieve cost savings and increased productivity, particularly when these solutions combine a breadth of capabilities involving multiple stakeholders.

Achieving agile and resilient transport solutions will require a wide range of strategies. A key enabler for transport solutions to successfully navigate the complexities of the new normal is technology. Digitalization is a critical success factor to providing supply chain visibility and transforming data into actionable intelligence. Businesses can leverage the expertise of service providers who will put these technologies in the right context and apply them to maximum benefit.

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. But they also want to have advance notification that there is a problem. 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.”

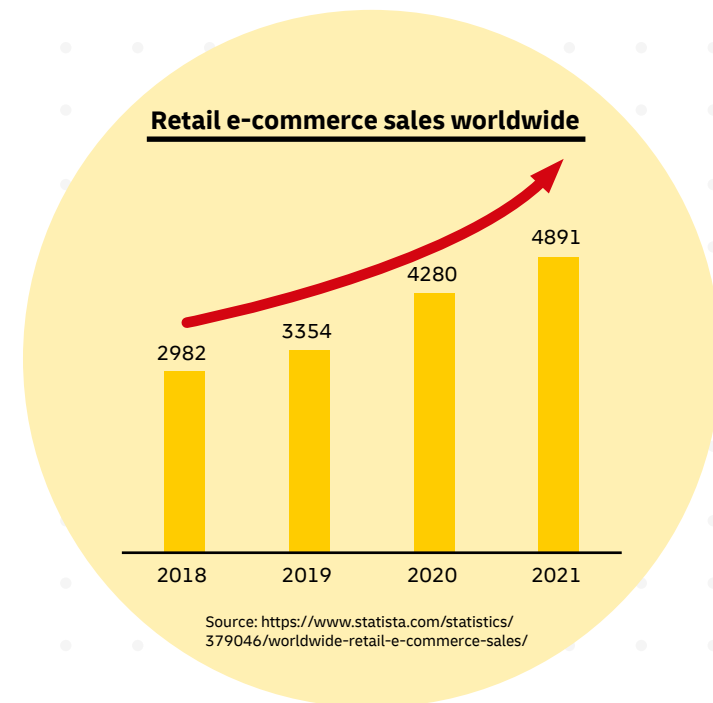
Business leaders will continue searching for new ways to improve the supply chain and analyze the role of transport in achieving these improvements. Understanding and staying ahead of the trends that will shape the supply chain in the future will ensure successful transportation solutions that keep goods on the move.



FLEXIBLE AND RELIABLE TRANSPORT SOLUTIONS ACROSS THE ENTIRE SUPPLY CHAIN

The restrictions of the Covid-19 pandemic shifted consumer demand towards e-commerce, accelerating its growth by roughly 5 years.⁴ A 2020 OECD brief⁵ observes the shift to e-commerce in several countries, particularly along the food supply chain. **Consumer packaged goods (CPG)** and **pharmaceuticals** were also some of the most significant e-commerce growth categories. Inevitably, this rapid growth put considerable strains on transport networks worldwide.

The cancellation of more than a million passenger flights in 2020, typically used to transport postal shipments and other small consignments, significantly reduced transport capacity and increased shipping prices for cross-border B2C and B2B transactions.⁶ Together with health regulations and quarantine requirements, these air cargo constraints put additional pressure on maritime and ground transportation.

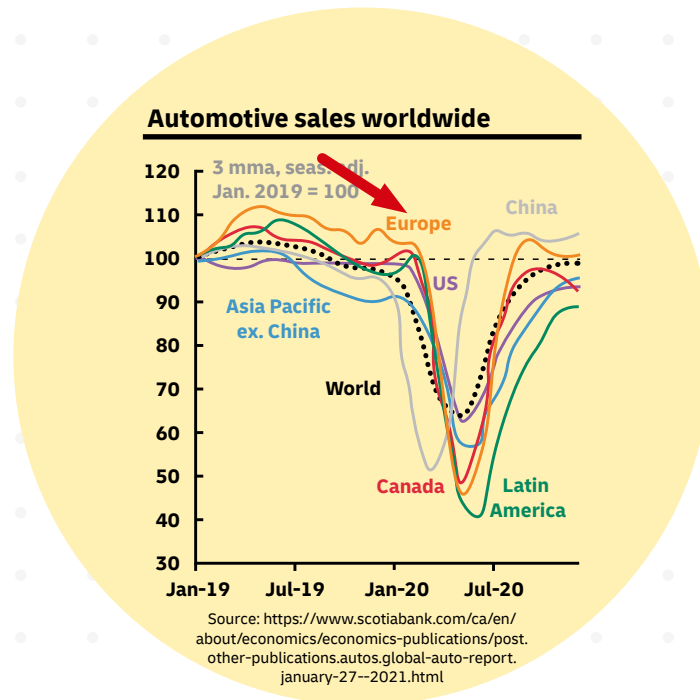


⁴ <https://techcrunch.com/2020/08/24/covid-19-pandemic-accelerated-shift-to-e-commerce-by-5-years-new-report-says/>

⁵ <http://www.oecd.org/coronavirus/policy-responses/e-commerce-in-the-time-of-covid-19-3a2b78e8/>

⁶ E-Commerce, Trade and the Covid-19 pandemic – World Trade Organization, 2020

Whilst some industries have seen unprecedented growth, others have seen the opposite. **Electronics** manufacturers and the **automotive** industry saw auto sales plummet by between 70 and 80% y/y in the early months of the pandemic.⁷ With the majority of semiconductor production concentrated among a handful of players, the pandemic proved to be the perfect catalyst for shortages that will likely need time to catch up with demand, in particular for consumer electronics.⁸ These challenges have also caused imbalances in logistics transport and infrastructure, ranging from backlogs caused by the need for port clearance to underutilization of transport assets.⁹



Businesses responded by closely looking at building more flexible, reliable supply chain strategies to continue meeting customer expectations, while minimizing inventory and transportation costs. For many industries this has meant relying on logistics clustering strategies and distribution center by-pass programs to reach the end market faster.¹⁰

Increased demand for food products and pharmaceuticals has created a growing interest in the temperature-controlled market; a market expected to reach a value of US\$21.1 billion by 2026, representing a 5.7% CAGR in the 2021-2026 forecast period.¹¹ The global distribution of the Covid-19 vaccine, for example, will require additional logistics planning to meet temperature requirements and will rely on technology applications, including the Internet of Things (IoT), machine learning, and predictive analytics.¹²

Shifts in consumer demand and market dynamics have an unavoidable impact on first- and last-mile deliveries. The economic recovery of the automotive industry still has a long way to go, but evidence of a rebound in vehicle sales is already visible in various markets with the ease of pandemic restrictions and vaccine rollouts. This rebound, paired with the consolidation trend of engine, assembly plants and component suppliers in the industry will mean an increased demand for intercontinental transport and container shipping.¹³

A World Economic Forum report also estimates that by 2030 the number of delivery vehicles in the top 100 cities globally will increase by 36% to satisfy consumer demand for online purchases. Freight trucks, which are only expected to increase by 1-3% annually, make up most last-mile related vehicles, adding disproportionately to congestion due to slower acceleration, slower average speed and higher vehicle backlog resulting from second-lane parking.¹⁴

⁷ <https://www.scotiabank.com/ca/en/about/economics/economics-publications/post.other-publications.autos.global-auto-report.january-27--2021.html>

⁸ <https://www.ti-insight.com/briefs/semiconductor-bottlenecks-threatens-recovery-momentum/>

⁹ <https://www.ti-insight.com/briefs/the-high-tech-supply-chain-is-being-redefined/>

¹⁰ Transport Intelligence – Total Logistics 2021

¹¹ <https://www.expertmarketresearch.com/reports/refrigerated-transport-market>

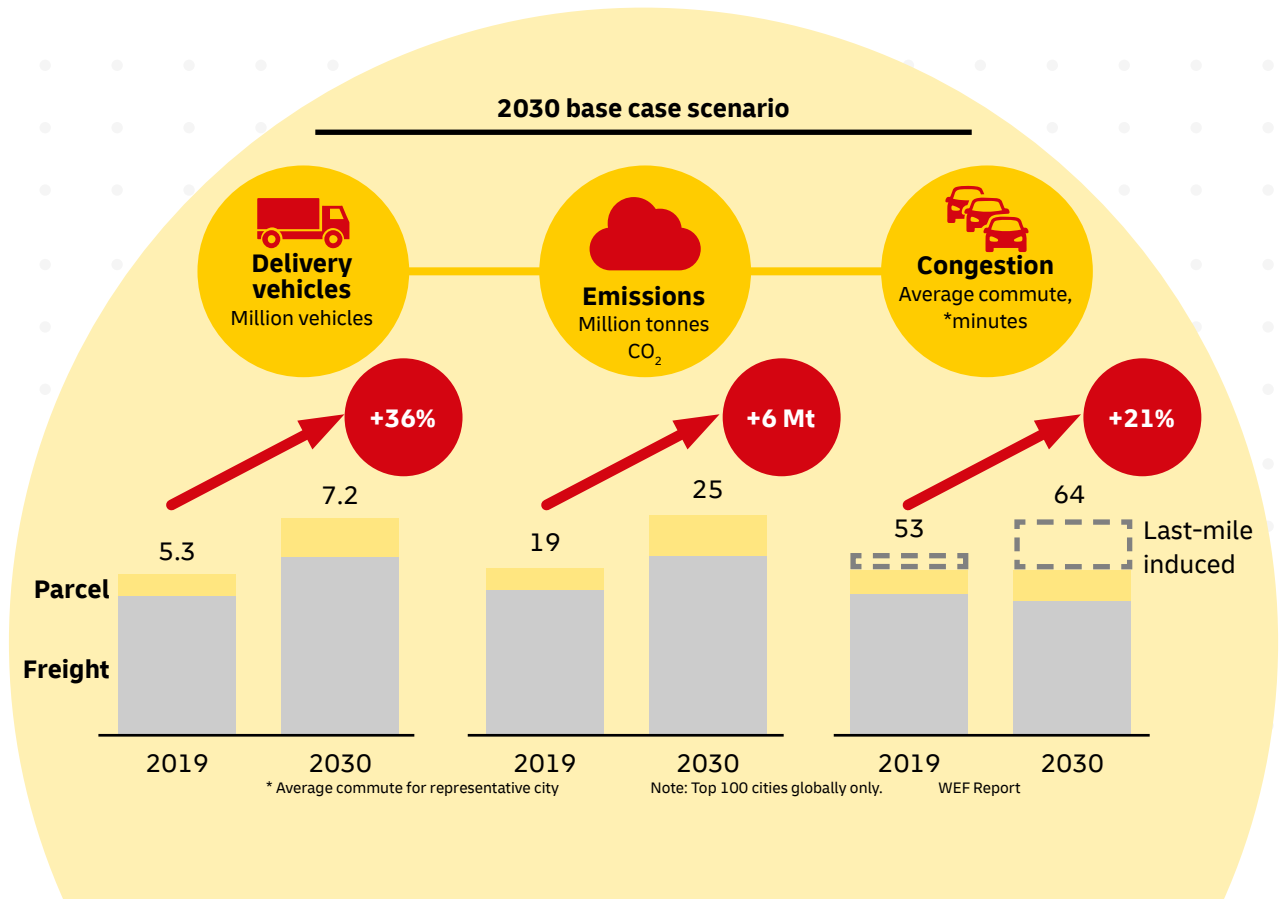
¹² <https://blog.greencarrier.com/5-global-supply-chain-and-logistics-trends-2021/>

¹³ <https://www.ti-insight.com/whitepapers/an-industry-in-transformation-near-term-supply-chain-trends-in-2021/>

¹⁴ The Future of the Last-Mile Ecosystem – World Economic Forum, January 2020

REDUCING ENVIRONMENTAL IMPACT THROUGH SUSTAINABLE TRANSPORT SOLUTIONS

The environmental concerns of the last mile (and transport solutions in general) are hard to ignore, and stakeholders will make decisions based on the sustainability credentials of an organization. An IBM survey found that nearly six in ten consumers surveyed are willing to change their shopping habits to reduce environmental impact.¹⁵ The NYU Stern Center for Sustainable Business also found that 50% of CPG growth from 2013 to 2018 came from sustainability-marketed products. These products grew 5.6x faster than conventionally marketed products and 3.3x faster than the CPG market.¹⁶



¹⁵ <https://www.ibm.com/downloads/cas/EXK4XKX8>

¹⁶ <https://www.stern.nyu.edu/sites/default/files/assets/documents/NYU%20Stern%20CSB%20Sustainable%20Share%20Index%E2%84%A2%202019.pdf>

It's not just consumers driving the change to more sustainable solutions and products. The same WEF report estimates the increase of delivery vehicles comes with a 32% increase in emissions and a 21% congestion rise. Following the lead of cities like Amsterdam, London and Singapore, governments are taking a closer look at these trends and are actively looking at regulations that could control the rampant congestion and pollution brought on by last-mile growth. The private and public sectors must work together to ensure transport solutions continue to meet consumer demand while fulfilling their environmental responsibility.

For the private sector, sustainable logistics can offer excellent opportunities to reduce operational costs. Designing a value chain focused on advanced energy management systems and electric and solar-powered vehicles offers great potential to lower the overall carbon footprint¹⁷ and deliver savings in fuel, power, infrastructure maintenance and other associated costs. Electric vehicles for instance, release only a fraction of the local pollutants and tailpipe emissions of their diesel counterparts, their motors are more efficient than diesel engines and they reduce maintenance and repair costs by as much as 80%.¹⁸

¹⁷ <https://blog.greencarrier.com/5-global-supply-chain-and-logistics-trends-2021/>

¹⁸ Taking leadership in the electrification of ground transport – DHL Supply Chain



Zero-emission fleets can be an expensive capital investment, but one with extremely impressive returns. With the alignment of several key factors: regulation, electric truck supply, improvements in electric battery technology and overall economics, McKinsey estimates electric truck adoption will exceed 30 percent by 2030 across different vehicle classes (light commercial vehicles, medium-duty trucks, and heavy-duty trucks).¹⁹

Technology can also enable sustainable and optimized transport. Artificial Intelligence is making great strides in enabling dynamic route optimization, managing delivery time windows, fuel consumption, travel distance, traffic patterns, load capacity, and ad-hoc pickups, all efficiently and while generating time-window predictions for customers.²⁰

Stephan Schablinski, VP Global GoGreen at DHL, points out that sustainable transport isn't simply about greener technology

“ Behavior also plays a big part, which is why DHL Supply Chain invests in a training program called ‘Certified GoGreen Specialist’. Through the program we educate drivers, transport planners, and other colleagues involved in designing transport solutions, on ways to reduce fuel consumption by making greener choices. Factors such as fuel efficient driving, intelligent planning to reduce mileage, using the right number of trucks to do a job, and avoiding empty backhauls can have a massive impact. ”

He says:

“ Making transport more sustainable isn't about a few people within a business making decisions – it's about turning everyone involved into a sustainability advocate. ”

¹⁹ <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/why-most-etrucks-will-choose-overnight-charging>

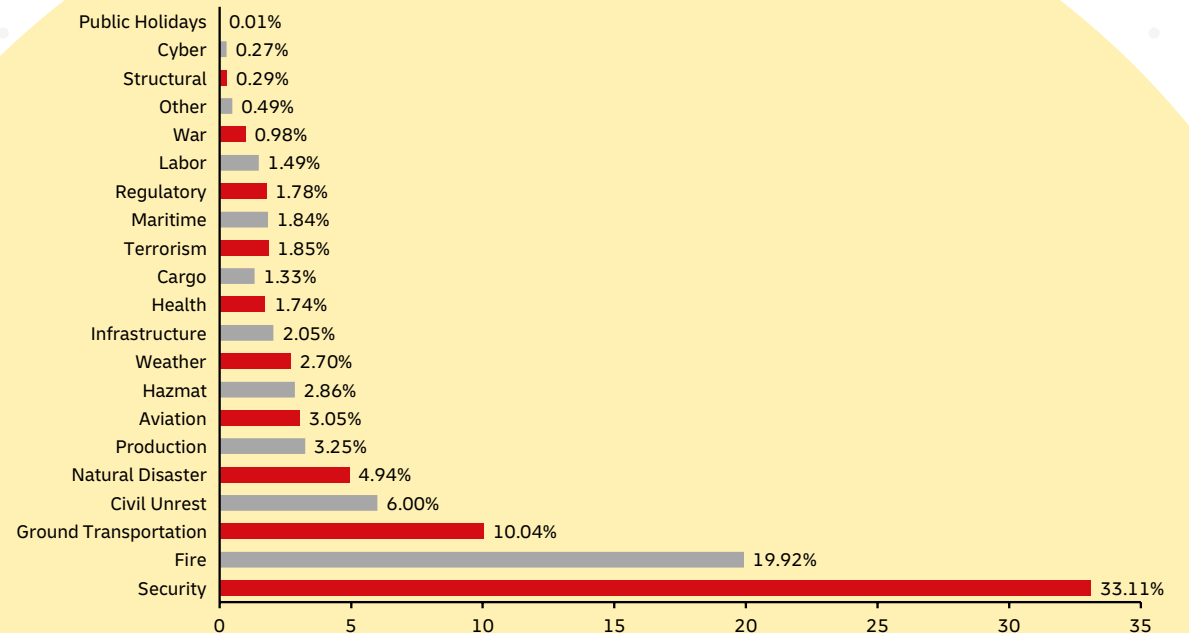
²⁰ <https://www.dhl.com/global-en/home/insights-and-innovation/insights/artificial-intelligence.html>

AGILE AND RESILIENT TRANSPORT SOLUTIONS WITH END-TO-END VISIBILITY

Technology has also supported the transformation of supply chains into resilient and agile operations to mitigate external risks. Planning and executing operations in a coordinated and collaborative manner with multiple stakeholders will be a defining factor in making or breaking the supply chain.

10.04%
 Incidents worldwide correspond to ground transportation (incorporating border closures/delays)

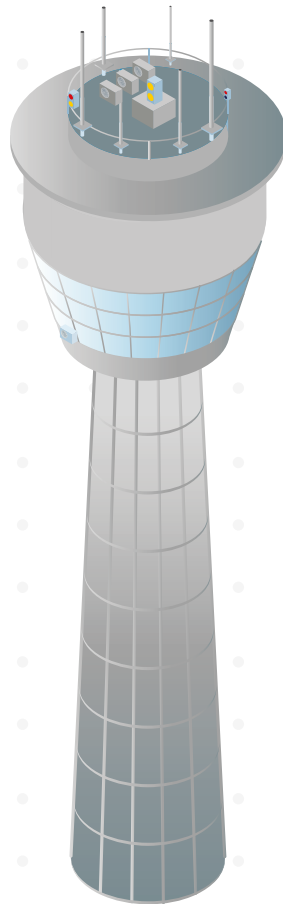
Supply Chain Disruptions in 2020



Next-generation control towers are becoming increasingly important in...

creating end-to-end visibility

autonomous decision-making



These control towers can also help businesses...

reduce costs

increase productivity

improve communication²¹

Today's business leaders expect these types of visibility and flexibility enablers as standard service offerings rather than business differentiators.

Real-time data to implement swift corrective actions allows for an agile supply chain. The last mile is typically the step with the most visible challenges because costs are high, capacity is limited, and there is customer satisfaction or dissatisfaction. Many of these last-mile problems aren't last-mile problems at all. Even the smallest of variations in the first and middle miles can ultimately impact the last.²² Alerts along the complete supply chain can help mitigate these challenges.

Sensors can provide data about truck performance, alert when a vehicle needs servicing or predict when a breakdown is imminent, and interact with other vehicles nearby. Applying these sensors with next-generation wireless networks to shipping containers and unit load devices (ULDs) can also act as a measurement of when, and possibly why, disruptions will occur. 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, location and other metrics in new ways that will deliver significant value for our customers."

Beyond technology, companies are looking increasingly at multimodal transport solutions to reduce landed costs²³ and deal with the uncertainty and capacity constraints the pandemic has brought, in particular, on air cargo capacity. Multimodal transport solutions can also leverage another emerging trend, the rise of the logistics marketplaces. These marketplaces aggregate shipper demand and carrier supply across increasingly complex supply chain networks and are of particular interest in transportation for effectively managing short-term cargo constraints and volatile supply chains.²⁴

²¹ <https://www.redwoodlogistics.com/control-towers-can-set-your-business-up-for-success/>

²² https://www.supplychain247.com/paper/are_your_last_mile_problems_really_last_mile_problems/transportation

²³ <https://mercurysgate.com/blog-posts/the-top-5-logistics-trends-to-know-for-2021/>

²⁴ <https://www.dhl.com/global-en/home/insights-and-innovation/thought-leadership/trend-reports/logistics-marketplaces.html>

LEVERAGING OPERATIONAL SUPPLY CHAIN EXPERTISE AND EXCELLENCE

As businesses continue to shift their focus on core competencies, so too does their outward-looking ability to find the best partners to help them achieve their objectives outside of those core competencies. The outsourcing of logistics operations has been a defining trend over the last decade and will continue to grow with logistics service providers' increased capabilities and buying power to procure services, such as transportation.

Logistics service providers (LSPs) can help address one of the most persistent challenges in transport: driver shortages. The demand for transport has increased, but the pool of drivers is contracting, particularly with the aging demographics of the US and Europe, where the average ages of truck drivers are 44 and 46 years old respectively. Poor job perception and working conditions, work-life balance and wages add to driver shortage challenges. Logistics service providers have strong expertise to better hire, train and manage driving staff and to manage peaks in demand.²⁵

One trend LSPs capitalize on to address these driver shortages is that of the sharing economy. A shared workforce is becoming an increasingly attractive model for logistics operations to match volatile shipment demand with adequate staffing. Supply chain organizations are increasingly looking at on-demand staffing models to ensure smooth operations and meet service quality targets.²⁶

Research conducted by DHL showed supply chain talent outstripped supply by a ratio of

9:1

From Gap to Crisis,
DHL Supply Chain

²⁵ Transport Intelligence Total Logistics 2021

²⁶ <https://www.dhl.com/global-en/home/insights-and-innovation/thought-leadership/trend-reports/sharing-economy.html>



These logistics providers are also continuously developing service capabilities through digitalization and investment in key technologies to improve productivity and achieve cost savings. Cloud-based services and big data analytics play a big role (together with other digital technologies mentioned in this report) in providing these enhanced operational capabilities.

Other technologies, including self-driving and unmanned aerial vehicles (UAVs), are continuously evaluated by logistics service providers in their strategic investments. These technologies show great promise in revolutionizing transport solutions but are still restricted in widespread adoption due to local and regional regulations.²⁷ Aside from regulation, the market for autonomous vehicles faces the challenges of cybersecurity in automotive engineering. After all, while greater connectivity equates to more data, so do the chances of it getting into the wrong hands.²⁸

DATA-ENABLED VISIBILITY AND CONTROL

For years, ground transportation has required a vast array of data-enabled technologies to achieve process efficiency and overall supply chain optimization. Modelling tools, route and consolidation optimizers provided individual data sets to enable these improvements, a time intensive process that often missed additional opportunities simply because of the inability of that data to capture the bigger picture.

The emergence of big data analytics changed the game for supply chains, improving visibility during transit, down to shipment level, with enhanced intervention capabilities for supply chain participants. By 2018, the typical supply chain accessed 50 times more data each year than in the preceding five years.²⁹ Today, big data analytics connect data silos across the supply chain to provide the end-to-end visibility needed to mitigate operational risks and meet customer expectations.

Future data-enabled transport operations will harness the power of intelligent workflows driven by artificial intelligence and automation. These workflows will generate granular, real-time, security-rich data that can help build a smarter, more resilient global supply chains and narrow the gap between unimaginable and anticipated.³⁰

²⁷ <https://www.dhl.com/global-en/home/insights-and-innovation/thought-leadership/trend-reports/unmanned-aerial-vehicles.html>

²⁸ [https://www.iso.org/files/live/sites/isoorg/files/news/magazine/ISOfocus%20\(2013-NOW\)/en/2020/ISOfocus_143/ISOfocus_143_en.pdf](https://www.iso.org/files/live/sites/isoorg/files/news/magazine/ISOfocus%20(2013-NOW)/en/2020/ISOfocus_143/ISOfocus_143_en.pdf)

²⁹ <https://www.dhl.com/global-en/home/insights-and-innovation/thought-leadership/trend-reports/big-data-in-logistics.html>

³⁰ <https://www.ibm.com/thought-leadership/institute-business-value/report/supply-chain-resilience#>

THE ROAD AHEAD

Efficient transport solutions are only possible when they are part of optimized, integrated solutions that look at the supply chain as a whole. Organizations will continue to look at how LSPs can deliver on this value proposition.

It may seem like the Covid-19 pandemic created a blueprint for organizations to navigate the uncertainties of economic and political disruption, but there's no way of knowing how the next major crisis is going to impact supply chains. The road ahead for transport will continue to require long-term structural changes to address the response to disruptions successfully. Solutions will need to leverage technological and operational expertise from key partners, respond to consumer demand, meet service level expectations, and do so in a sustainable way.

Two decades ago, the California Management Review published a paper on creating and sustaining process improvement that stated, "nobody ever gets credit for fixing problems that never happened." For businesses today, that may just be the one defining factor that will allow them to prevail.

Alastair Shooter,
Vice President, Global
Head of Transport at
DHL Supply Chain,
says:

“As far as our customers are concerned, the pandemic has taught them the value of a transport solution that's flexible, scalable, environmentally focused and where their partner can be proactive in avoiding delays thanks to the power of data.”

“Covid-19 has been the ultimate stress-test for transport networks. Where for some businesses this has meant a decline in volumes, for many companies it's been their equivalent of multiple Christmases and Black Fridays in rapid succession. We've very quickly taken the learnings and applied them to our future plans.”

“We can deliver that proactivity through our Connected Control Towers which oversee every step of the end-to-end process and provide more efficient, automated and transparent operations.”



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