LOGISTICS UK

Innovation

Insight Report 2024

Executive Membership

LOGISTICS UK

We support, shape and stand-up for safe and efficient logistics

Logistics UK is one of the biggest business groups in the UK, supporting, shaping and standing up for efficient logistics. We are the only organisation in the UK that represents all of logistics, with members from the road, rail, water and air industries, as well as the buyers of freight services such as retailers and manufacturers whose businesses depend on the efficient movement of goods.

An effective supply chain is vital to Keep Britain Trading, directly impacting over seven million people employed in making, selling and moving the goods that affect everyone everywhere.

With EU Exit, technology and other disruptive forces driving changes in the way goods move across borders and through the supply chain, logistics has never been more important to UK plc.

As champions and challengers, Logistics UK speaks to government with one voice on behalf of the whole sector, greatly increasing the impact of our messages and achieving amazing results for members.

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Foreword

Logistics has always had to adapt and innovate to adjust to a fast-changing environment. In recent years, however, the pace of change has accelerated, and industry leaders rightly want to know how technologies such as autonomous vehicles, AI, robotics and data analytics are likely to impact their businesses and the wider supply chain in the coming years.

This Insight Report takes a deep dive into many of the areas of innovation that are on both the near and far horizon of the industry, from digitalising transport operations and international trade to the advent of autonomous vehicles and the increasing utilisation of digital twins as a tool to decarbonise transport operations.

Through a series of 14 in-depth interviews with experts from across the wider logistics industry, public sector and academia, this report offers an astonishing breadth of comment and insight, which sheds new light on how the need to innovate has the potential to transform our industry in the years and decades to come.

I urge you to take this opportunity to read the report in detail and consider how profoundly your business may be impacted by the latest trends and developments in technology and innovation.

Phil Roe
President
Logistics UK

Executive summary

This report captures many aspects of innovation in logistics, through a series of in-depth interviews with experts from across the industry, public sector and academia.

1 Autonomous and connected vehicles

Interviewees: Richard Morris, Innovate UK; Mark Cracknell, Zenzic

1.1 In 2022, government announced funding of £100 million for new R&D to support the commercial deployment of connected and self-driving technologies.

1.2 £42 million of this funding is being provided for commercialising connected and automated mobility (CAM) through the Centre for Connected and Autonomous Vehicles (CCAV).

1.3 Projects are selected by Innovate UK and supported by Zenzic.

1.4 In the final year of the programme, attention has turned to commercialising seven government-funded CAM projects.

1.5 Depot automation is where the industry will start to see the most progress, as it is relatively easy to automate a secure site with no members of the public present.

1.6 The Autonomous Vehicles Bill is going through the House of Commons, which will set out the legal requirements for autonomous vehicles.

1.7 Public acceptance is a pre-requisite for the industry to successfully adopt automation.

1.8 A barrier to implementing automation at scale is the maturity of the sensor technology, which needs to be more reliable, robust and cheaper.

1.9 Innovate UK's Transport Vision 2050 report expects all trucks to be at least partly autonomous by 2050.

1.10 Zenzic's vision is that by 2035 the industry will be seeing autonomous vehicles being used in certain areas across the UK, including the mining, construction, agriculture and parcels sectors.

2 Digitalising transport operations

Interviewees: Ash Connell, r2c; Joe Dunleavy, Endava

2.1 The industry has made significant efforts to transition away from paper-based approaches towards digitalisation.

2.2 The rationale is that home and hybrid working is incompatible with running a paper-based operation.

2.3 Cost has been a barrier to SMEs using digital tools, but lower cost tools are available.

2.4 COVID-19 and other changes in the macro-environment are driving technology in logistics, as they have changed consumer habits and altered supply chains.

2.5 Digital tools can reduce off-the-road time by scheduling maintenance inspections and searching pre-booked jobs.

2.6 Receiving insights from management systems can enable businesses to make better decisions and lead to fleet efficiencies.

2.7 Technology solutions businesses are exploring generative AI and how that can help logistics with customer experience, fleet management and customer interaction.

2.8 Data from different sources, from telematics suppliers and maintenance system providers, can be amalgamated by being plugged into open platforms.

2.9 AI can be used to identify patterns and proactively identify fraud through machine learning and augmented intelligence.

2.10 Data consolidation can make it more useful and meaningful, helping reduce off-the-road times, fixing and preventing issues.

3 International trade

Interviewee: Emma Leame-Saville, DFDS

3.1 The global trading environment has seen many challenges in recent years, from the COVID-19 pandemic to the cost-of-living crisis.

3.2 Companies are operating higher stock levels to reduce the risk of being unable to fulfil deliveries if there are delays in supply.

3.3 Some SMEs are not trading with the UK owing to the complications brought about by its EU Exit.

3.4 Complexities around the UK border require feeding information into different systems operated by multiple border agencies.

3.5 DFDS would prefer one umbrella for all agencies that fall under HM Government.

3.6 Digitalisation has been the industry's focus of innovation for many years, but the whole supply chain needs to move together for digitalisation to work properly.

3.7 The GVMS system helps the process of moving goods to flow a little quicker. Other processes, such as ATA Carnet, should also be digitalised.

3.8 DFDS is open to the possibilities of other technologies, such as automation. However, in RoRo ports operators are constrained by the limitations of the terminal buildings.

3.9 The logistics sector is working towards the government target to being net zero by 2050, and DFDS is keen to decarbonise its shipping operations.

3.10 DFDS is keen for more sustainable fuels for vessels, including making the Dover to Calais route a green corridor.

4 Decarbonisation and digital twins

Interviewees: Professor Philip Greening, Centre for Sustainable Road Freight; Dr Alisdair Ritchie, Connected Places Catapult

4.1 Decarbonisation is a key focus for the logistics industry, which has committed to achieving net zero by 2050.

4.2 The industry is taking steps but to decarbonise fully, more needs to be done across all logistics transport modes and all parts of the supply chain.

4.3 Owing to the carbon budget there only five to 10 years to make big changes, Professor Greening asserts.

4.4 Digital twins offer the fastest route to de-risking investment and accelerating decarbonisation.

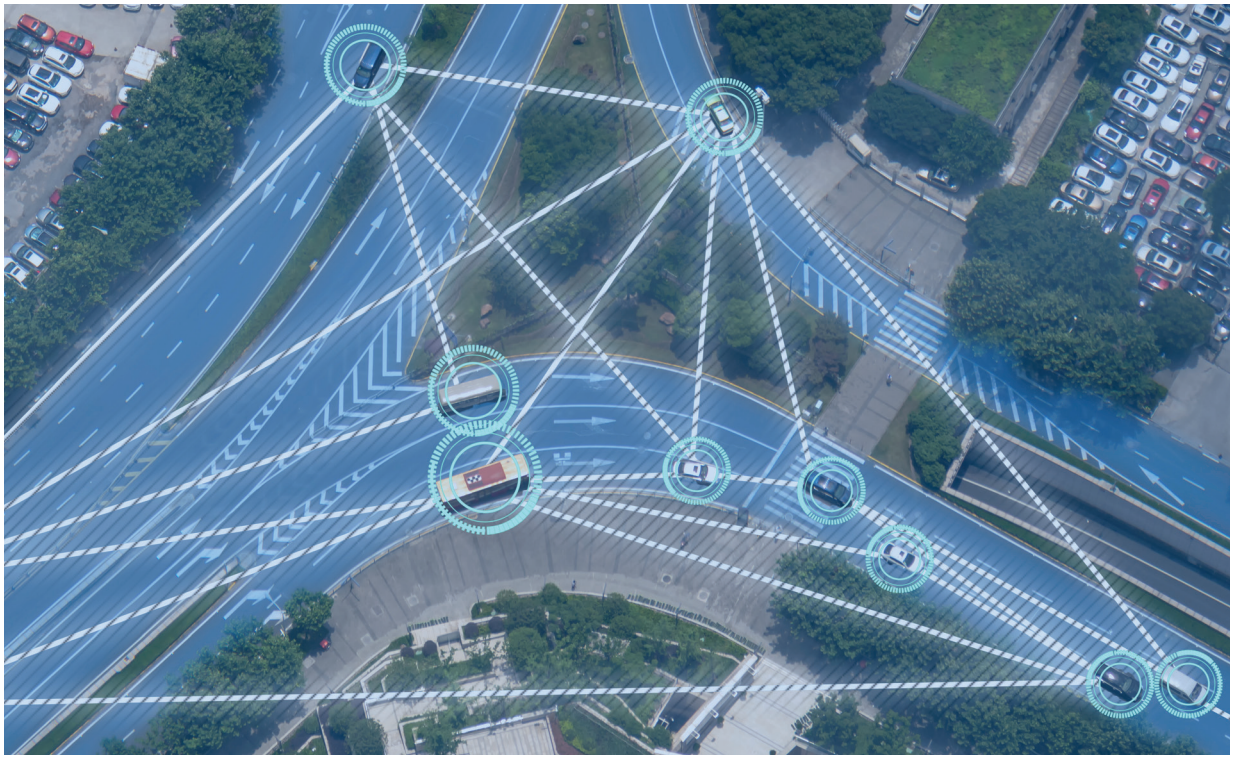
4.5 Greening is working with the energy supply sector on digital twinning, so that the logistics model can work with the virtual energy system.

4.6 Interoperability models can bring data together from different companies and sources to deliver a digital twin that aids a cohesive, efficient transport network.

4.7 The Twinning for Decarbonising Project (TransiT) aims to create a digital twin of the UK's transport infrastructure.

4.8 The Freight Innovation Fund (FIF) is a £7 million project funded by DfT focussed on accelerating the adoption of commercially ready solutions and provides funding towards zero emission road freight trials.

4.9 Greening is hopeful that the commitment to reduce carbon emissions by 68% in the UK by 2030 will be reached.



4.10 The UK and Europe will largely decarbonise freight in the next 10 years, through the replacement of vehicles, Greening predicts.

5 Innovation in satellite-driven data and services for logistics

Contributors: Laura Bealin-Kelly, UK Space Agency; Dan Osrin, PwC; Gordon Sweny, Satellite Applications Catapult

5.1 Advancements in space technology have opened up opportunities for commercial application.

5.2 There are three types of satellite opportunities at the forefront of the logistics operations agenda:

- 5.2.1 Satellite positioning and navigation.
- 5.2.2 Satellite connectivity and communications.
- 5.2.3 Satellite imagery.

5.3 To help businesses understand and embrace satellite-derived data, the UK Space Agency (UKSA) has launched the Unlocking Space for Business programme.

5.4 Launched in October 2023, the programme has delivered a number of initiatives to support its aims.

5.5 The programme has shared four example use cases for logistics:

- 5.5.1 Monitoring assets and vehicles.

5.5.2 Connecting drivers and operations.

5.5.3 Logistics route planning.

5.5.4 Managing climate and extreme weather risk.

5.6 The initial phase of Unlocking Space for Business has focused on awareness, education and connecting industry with potential technology partners.

5.7 UKSA is funding pilots to enable businesses to test what works in the real world.

5.8 The aim of the funding is to offer logistics companies the chance to apply for a share of up to £3.5 million to trial new solutions.

5.9 Projects must provide benefit to an end-user business in the UK within either the transport or logistics sectors.

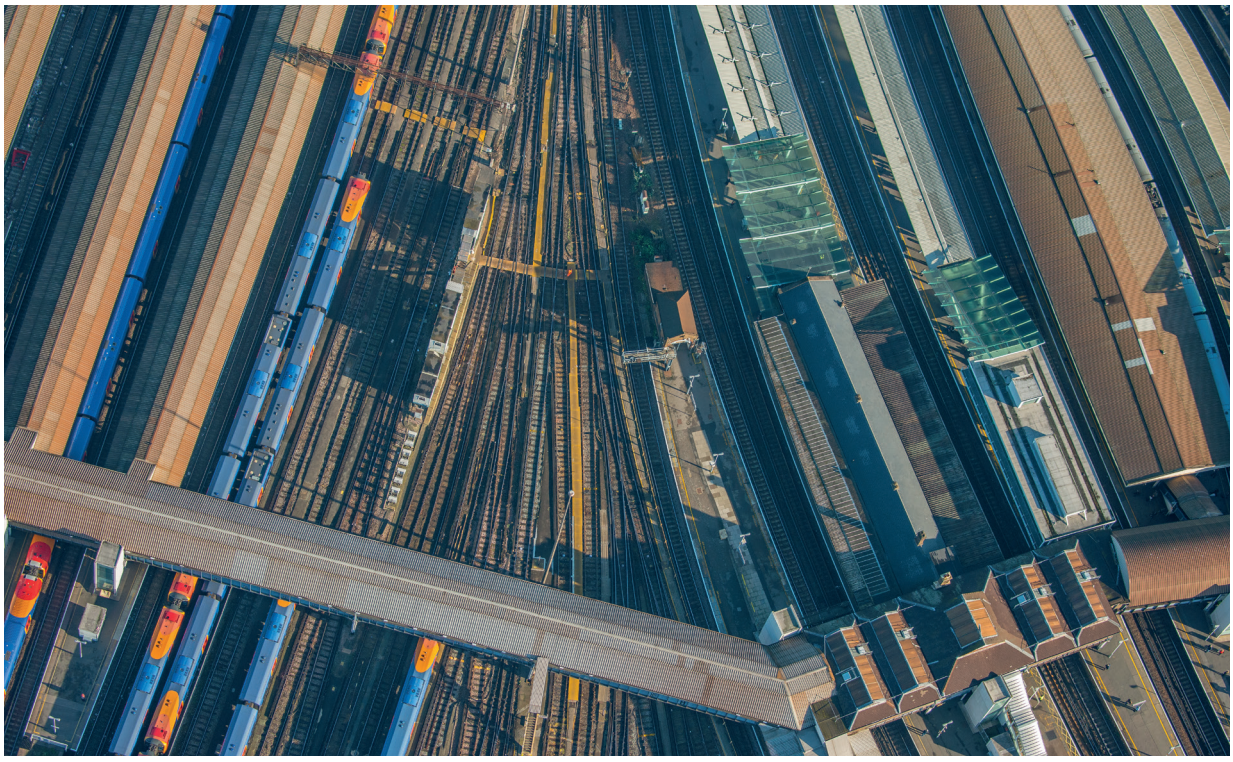
5.10 Applications are due on 22 May 2024 and awarded projects are expected to start from July 2024 and complete by March 2025.

6 Modal shift

Interviewees: Paul Bathgate, Eco-Loco; Adam Parkinson, Go Link; Dr Alisdair Ritchie, Connected Places Catapult

6.1 Modal shift provides potential opportunities to reduce the burden on our strategic road network (SRN).

6.2 One challenge facing rail freight is that it is typically used for bulk freight and there is little potential for smaller freight deliveries.



6.3 RailX launched a digital solution in 2023, which is designed to help smaller operators obtain easier access to rail for freight transportation, by selling spare capacity.

6.4 Parkinson received a grant via Connected Places Catapult to develop a business case for a new high-speed intermodal rail freight model for the Courier, Express and Parcel Services sector.

6.5 The plan is to increase the speed of rail freight by using a combination of high-speed wagons and intermodal containers to load and unload trains faster.

6.6 Warehouses are mostly built around the SRN, but rail still requires a first-mile/last-mile by road.

6.7 While rail should respond to the need to decarbonise, it does not have capacity to take all road freight.

6.8 If the intermodal freight operators are able to fill services, it will become a much more attractive proposition to increase capacity.

6.9 Parkinson believes there could be a change in prioritisation of how capacity is allocated between freight and passenger rail.

6.10 While the landscape may not be significantly different in 10 years, it is hoped that rail will play a bigger role.

7 AI and robotics in warehousing

Interviewees: Claire Charlton, Wincanton; Scott Merrick, Wincanton; Nigel Smart, Logistics UK

7.1 Emerging technologies, such as AI and robotics, provide opportunities for logistics and could be a draw for future generations of workers.

7.2 Wincanton has been testing how to use AI and robotics, particularly in warehousing, and considers these technologies to have great benefit to the business.

7.3 The company has been using AI for quite some time to help automate decisions in its warehousing environment.

7.4 Applications include optimisation software for inventory management, labour, machine vision and object detection in automated guided vehicles and robot control systems.

7.5 As the barriers to entry are reducing, it will become more and more prevalent, whether that's person to goods via 'cobots' or goods to person using Autonomous Mobile Robots.

7.6 Wincanton has seen increases in excess of 200% versus a manual solution. This means it does not have to recruit extra staff to manage peak demand.

7.7 Being able to showcase innovation within the business makes it easier to attract talent with "exciting" roles.

7.8 Wincanton operates a strict 'test and learn' process when it pilots something, running it through a 10-week 'fail fast' process.

7.9 Wincanton has set up several initiatives to push forward innovation within the organisation and also believes that technology and collaboration will be the key drivers for the logistics sector to increase efficiency.

7.10 The business is taking part in the Innovation Fund programme and runs its own in-house accelerator, where start-ups apply to work with it on emerging technologies.

8 Skills and workforce

Interviewees: Richard Morris, Innovate UK; Adam Parkinson, GoLink; Paul Bathgate, RailX; Dr Alisdair Ritchie, Connected Places Catapult; Joe Dunleavy, Endava; John Court, John Court Associates; Claire Charlton, Wincanton; Scott Merrick, Wincanton; Professor Philip Greening, Heriot-Watt University

8.1 As organisations embrace innovation, there are implications for the sector on the skills needed, the types of jobs available and attracting and retaining new talent.

8.2 By moving the driver from a vehicle to a control room, they could monitor up to three vehicles from a better working environment, according to Richard Morris.

8.3 While some driver jobs will change, it will not necessarily require a different skill set.

8.4 On the ageing workforce, Adam Parkinson from GoLink Advisory Group, idenfitied the need for people in rail to be innovative using old technology.

8.5 Knowledge in logistics is weighted towards road. Paul Bathgate from RailX argues that there needs to be more knowledge of other areas such as air, rail and warehousing in order to innovate.

8.6 There is a need to balance recruiting those with skills needed for innovation with retaining existing skills, stresses Alisdair Ritchie.

8.7 AI and related technology are removing more of the labour intensive and more mundane manual tasks, such as picking in warehouses and route planning.

8.8 The outlook for skills remains positive as academia is reacting and offering more of the courses needed for students, according to John Court of John Court Associates.

8.9 Wincanton has been preparing for its future skills needs since 2017 and has been appointing product experts in areas such as robotics and digital transport.

8.10 Investing in the workforce is vital, according to Philip Greening. As the industry moves to people with higher skillsets they will make a bigger contribution to GDP.

9 How to get started

Interviewees: Alisdair Ritchie, CPC; John Court, John Court Associates; Joe Dunleavy, Endava; Nigel Smart, Logistics UK; Richard Morris, Innovate UK.

9.1 The logistics sector must continue to evolve, improve efficiency and remain competitive.

9.2 There is significant support and funding available to organisations that want to innovate.

9.3 Knowing where to start and how to access this support and funding could be a barrier for some companies.

9.4 Alisdair Ritchie from CPC identifies four key processes for businesses to follow:

- 9.4.1 Understand the sector.
- 9.4.2 Know who your competitors are and understand what they are doing.
- 9.4.3 Networking is key – meet future suppliers and customers.
- 9.4.4 Access funding and contact organisations to see what support is available.

9.5 Implementing new technology is a big investment and understanding the problem statement is a good place to start, according to Joe Dunleavy from Endava.

9.6 There are some basic rules that businesses can follow to embrace technology, according to John Court from John Court Associates:

- 9.6.1 Finding the right partners to deliver a solution.
- 9.6.2 Ensure there is buy-in from stakeholders in your company.
- 9.6.3 Be prepared to fail as innovation will not always be successful.
- 9.6.4 Test on a small scale – pilot or beta test solutions before wholescale innovation.
- 9.6.5 Avoid making a first innovation project really complex – start safe where the consequence of going wrong is low.

9.7 Government-led initiatives provide funding along with access to industry partners, which can offer benefits for both start-ups and large organisations.

9.8 Innovate UK actively encourages businesses with R&D budgets to take part in projects that are seeking to test and trial technology.

9.9 Catapults connect businesses and public sector leaders to cutting-edge research to spark innovation.

9.10 Logistics UK is exploring opportunities for using AI, such as Microsoft Copilot, within member systems as well as internally.

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