

A photograph of a grocery store aisle, viewed from the perspective of someone pushing a shopping cart. The cart's green handle and black frame are in the foreground. The aisle is lined with tall shelves stocked with various food products, including boxes and bags. The lighting is bright, typical of a supermarket.

Linde Material Handling

Linde

APPETITE FOR CHANGE: BUILDING MORE RESILIENT FOOD AND DRINK SUPPLY CHAINS IN AN UNCERTAIN WORLD

EXPERT INSIGHTS REPORT



INTRODUCTION

Food and drink supply chains are under pressure from all directions. Geopolitical instability, climate disruption, rising energy costs, labour challenges and changing consumer expectations are creating a more complex operating environment for businesses across the sector.

And with billions of mouths to feed, the cost of disruption could not be higher.

The Food and Drink Federation's latest State of the Industry report found that business confidence in the sector dropped to the lowest level recorded since the invasion of Ukraine in 2022 and is now at around the same level as the beginning of the Covid pandemic.

This report brings together perspectives from senior leaders, academics and experts across food and drink, logistics and supply chain management to explore the challenges facing the sector and the strategies, investments and innovations needed to insulate against them and build greater resilience.



EXECUTIVE SUMMARY

Supply chains are being redesigned around resilience

For decades, food and drink supply chains have been optimised around efficiency, cost and speed. However, repeated disruption is prompting businesses to rethink how much flexibility is built into their operations. This includes moving beyond purely just-in-time (JIT) models towards more balanced just-in-case (JIC) approaches, alongside supplier diversification. There are also cases being made for a rethink on how and where food is produced.

Supply chain complexity is making visibility more important

The UK imports around 40% of its food, meaning global events can quickly affect sourcing, availability and pricing. As businesses navigate more complex supplier networks, having better visibility of risks, supported by stronger data, traceability and supplier relationships, will be critical to making faster and more informed decisions.

Technology is the double-edged sword shaping the next generation of resilience

Digitalisation is creating new opportunities to improve resilience. AI, automation, predictive analytics, sensors and traceability systems can help businesses improve forecasting, increase visibility and make faster decisions. However, greater reliance on digital systems also introduces new challenges, including cyber risk and the potential for bottlenecks between businesses with advanced capabilities and those yet to invest.

Skills will determine how effectively businesses adapt

Building resilient supply chains will depend on the capabilities of the people within them. Businesses will need to upskill teams, embed sustainability and risk awareness across roles and rethink workflows to support more agile decision-making. Alongside developing existing talent, stronger pipelines through education partnerships and apprenticeships will be needed to ensure organisations have the skills to adapt to future disruption.

Climate change and energy resilience will shape future operations

Climate change emerged as the defining long-term challenge for food and drink supply chains. Its impact is being felt across production, storage, transport and distribution, from changing crop conditions and water availability to pressure on food safety and infrastructure. At the same time, energy costs and the transition towards lower-carbon operations are creating both challenges and opportunities.

Cold chain needs to be recognised as critical infrastructure

With around 50% of the UK's food supply depending on the cold chain, any disruption to temperature-controlled storage, transport or distribution has significant implications for food availability, affordability and security. More frequent extreme weather and rising temperatures also places growing pressure on temperature-controlled storage and transport networks, but around half of UK cold stores are over 20 years old, meaning much of the infrastructure was not designed for today's higher temperatures.

Sustainability is becoming part of operational resilience

Sustainability is increasingly linked to operational performance and risk management. Improving resource efficiency, reducing emissions and strengthening supplier practices can help businesses manage uncertainty while meeting environmental expectations. This is particularly important given the scale of supply chain emissions: Scope 3 emissions in the food and beverage sector are, on average, 45 times higher than Scope 1 and 2 emissions, making supplier engagement and better-quality data increasingly important.

No business can build resilience alone

The challenges facing food and drink supply chains extend beyond individual organisations. Building greater resilience will require businesses across the sector to work together, sharing insight, strengthening relationships and improving coordination between each point in the supply chain. Producers, manufacturers, logistics providers, retailers and policymakers will all have a role to play in creating a food system that can better anticipate and respond to disruption.





MADDY COUPE

Policy Manager, Cold Chain Federation

“AROUND HALF OF UK COLD STORES ARE OVER 20 YEARS OLD, MEANING MUCH OF THE INFRASTRUCTURE WAS NOT DESIGNED FOR TODAY’S HIGHER TEMPERATURES.”

The state of the UK’s food security system has never been under more threat than it is today. From a cold chain perspective, the biggest pressure points facing our food supply chains stem from a combination of increasing climate disruption, energy volatility, geopolitical uncertainty and increasing cyber risk.

With around 50% of the UK’s food supply depending on the cold chain, any disruption to temperature-controlled storage, transport or distribution has significant implications for food availability, affordability and food security, with our most vulnerable communities hit the hardest.

Looking ahead

Climate change, energy security and cyber risk will become increasingly significant challenges. More frequent extreme weather and rising temperatures will not only affect domestic food production, but also places growing pressure on temperature-controlled storage and transport networks. Around half of UK cold stores are over 20 years old, meaning much of the infrastructure was not designed for today’s higher temperatures. At the same time, the ‘cold chain creep’ will see more ambient food products requiring cold storage in the future due to the rising ambient temperatures. Cold chain operators are also becoming a growing target for cyber-attacks due to their role in national food security, whilst ongoing energy volatility adds further pressure across the food chain.

Greater recognition

Building more resilient and adaptable supply chains requires greater recognition of the cold chain as critical infrastructure. Government must support investment in modern infrastructure, energy resilience and cyber security, while improving planning frameworks and establishing early-warning systems and emergency response mechanisms that enable food supply chains to continue operating during periods of disruption and national crisis.



MITA DE BENEDETTI

Head of Impact & ESG, Planet Farms

Food and drink supply chains face a convergence of pressures that legacy infrastructure was never designed to absorb. Climate volatility is disrupting agricultural yields with increasing frequency and severity, creating cascading instability across sourcing, logistics and pricing. At the same time, the industry’s deep dependence on long, opaque supply chains, spanning multiple geographies and intermediaries, means that when disruption hits, it is difficult to isolate, contain or respond to quickly.

Freshwater resources

The pressure on freshwater resources will become one of the defining constraints on food production over the next decade. Conventional agriculture consumes approximately 70% of global freshwater withdrawals, yet operates under growing scarcity in many growing regions. Alongside this, increasing regulatory scrutiny, from supply chain due diligence requirements to scope 3 emissions reporting, will demand a level of traceability that most supply chains are currently unable to provide.

Genuine resilience

Building genuine resilience requires moving production closer to consumption. Controlled-environment agriculture is one part of the answer, though its sustainability credentials depend entirely on how it is implemented. The potential advantages are significant: dramatic reductions in water use, no pesticides, minimal fertiliser inputs, and a far smaller land footprint than conventional farming. But energy source is the critical variable. Controlled Environment Agriculture powered by fossil fuels does not solve the problem; it relocates it.

Measurable and auditable

At Planet Farms, we grow leafy greens and herbs year-round, with water, land and fertiliser consumption reduced by more than 95% compared to conventional open-field farming, with pesticides eliminated entirely. Our supply chain is measurable and auditable at every stage. This is what genuinely resilient, lower-impact food production looks like: scalable, measurable, and transparent about the conditions required to make it work.

“THE PRESSURE ON FRESHWATER RESOURCES WILL BECOME ONE OF THE DEFINING CONSTRAINTS ON FOOD PRODUCTION OVER THE NEXT DECADE.”



PROFESSOR SIMON PEARSON

Director of the Lincoln Institute for Agri-Food Technology

THE BIGGEST PRESSURE POINTS TODAY ARE THE SPEED AND SIMULTANEITY OF CHANGE. CLIMATE VOLATILITY, LABOUR AVAILABILITY, ENERGY COSTS, WATER STRESS, BIOSECURITY RISKS AND TIGHTENING MARGINS ARE NO LONGER ISOLATED CHALLENGES.

Resilience in food and drink supply chains does not come from standing still. It comes from innovation: the ability to absorb shocks, learn quickly and adapt. The food industry has done this for centuries. It has responded to war, disease, market disruption, energy shocks, changing diets, labour constraints and new regulatory expectations. Each period of adaptation changes the sector hopefully making it more capable and more resilient.

Biggest pressure

The biggest pressure points today are the speed and simultaneity of change. Climate volatility, labour availability, energy costs, water stress, biosecurity risks and tightening margins are no longer isolated challenges. They interact across farming, processing, logistics and retail. The key question is whether the sector can adapt quickly enough while continuing to supply safe, affordable and sustainable food.

Foresight matters

Climate change is the defining long-term challenge because it changes the operating assumptions on which much of the food system has been built. Here, foresight matters. We need to think seriously about plausible futures: more extreme weather, changing crop suitability, water scarcity, new pest and disease pressures, disrupted trade routes and greater scrutiny of carbon and biodiversity impacts. Resilience will come from adapting in advance, not simply recovering afterwards.

Innovation investment

That requires investment in innovation, skills and data. Automation, robotics, AI, sensing, forecasting tools and traceability systems can all help, but only if they are embedded in practical supply-chain decision making. The most resilient businesses will be those that use innovation to learn faster, diversify intelligently and act before disruption becomes crisis.



AMANDA JOHNSTON

Director of Innovation, Sheffield Hallam University's Advanced Food Innovation Centre (AFIC)

Food and drink supply chains are increasingly exposed, shaped by a combination of global dependence, structural concentration, and emerging systemic risks. In the UK, this exposure is particularly visible: around 40% of food is imported, with that reliance continuing to grow, while 94% of food sales are concentrated among just nine major retailers. This creates a system that is highly efficient, but also inherently fragile - vulnerable to disruption at multiple points, from global sourcing through to domestic distribution.

Convergence of pressures

That fragility is now being tested by a convergence of pressures. Climate change is already altering production patterns and increasing the frequency and severity of shocks, from extreme weather events to rising temperatures that are driving new risks such as mycotoxins in stored grains and nuts. At the same time, ongoing geopolitical conflicts - particularly in Ukraine and the Middle East - are exposing critical dependencies in areas such as fertilisers and energy, amplifying both cost volatility and supply risk. These pressures are compounded by wider market and political uncertainty, alongside growing threats including food fraud, illegal imports, and cyber-attacks, which highlight the increasing interdependence of physical and digital vulnerabilities.

Intensification of challenges

Looking ahead, these challenges will intensify as population growth places greater demand on already stretched systems. The cost of inaction is significant: the UK food system is projected to face billions in additional costs linked to environmental damage, rising food prices, and worsening food insecurity. Against this backdrop, resilience demands a shift in approach. There is growing emphasis on more localised and decentralised supply chains, aligned with place-based policy, regional strengths, and community networks.

At the same time, investment in automation, AI, and digital tools presents a major opportunity - particularly given that 98% of UK food manufacturers are SMEs - but this must be underpinned by strong cyber resilience. Without this, increased digital adoption risks introducing new vulnerabilities alongside operational gains.

Research and innovation

To meet these challenges, the sector also requires stronger support to collaborate with the UK's research and innovation base. A key structural issue is that food and drink manufacturing remains undervalued: it sits outside key definitions of advanced manufacturing and is often excluded from national and regional innovation funding. Addressing this gap will be critical to unlocking the investment and capability needed for long-term transformation.

Ultimately, the future lies in balancing efficiency with adaptability - diversifying supply, investing in greener energy and electrification, and building stronger regional networks that can absorb shocks and sustain long-term food security. Achieving this will require sustained, targeted investment across a sector that is already operating under significant financial pressure.



DR ISMAIL ABUSHAIKHA

Course Director, MSc Sustainability and Executive MSc in Logistics and Supply Chain Management, Cranfield School of Management, Cranfield University

LOOKING AHEAD, CLIMATE CHANGE AND WORKFORCE CHALLENGES ARE LIKELY TO BECOME TWO OF THE MOST SIGNIFICANT RISKS FACING THE SECTOR.

Food and drink supply chains are facing a combination of pressures unlike anything we have seen in recent decades. The UK relies on imports for around 40% of its food supply, exposing businesses to geopolitical uncertainty, trade disruptions and increasingly frequent climate-related shocks. At the same time, extreme weather events are affecting agricultural production both in the UK and across key sourcing regions, raising concerns about the long-term resilience of food systems.

Labour shortages

Looking ahead, climate change and workforce challenges are likely to become two of the most significant risks facing the sector. Labour shortages remain a persistent issue, with vacancy rates in UK food and drink manufacturing reaching 5%, compared with 2.3% across the wider economy. These pressures are particularly important for a sector that contributes £37 billion annually to the UK economy and represents almost a quarter of total manufacturing turnover.

Resilience and sustainability

Building resilience requires organisations to move beyond viewing sustainability as a compliance exercise. Resilience and sustainability are increasingly interconnected. Resilience is not only about protecting products and material flows; it also depends on the people and communities that underpin food supply chains. Ongoing concerns around labour shortages, worker welfare and modern slavery risks highlight the importance of responsible sourcing and stronger supplier relationships.

Investment in supplier diversification, end-to-end visibility and digital technologies will play an important role. Ultimately, the most resilient food and drink supply chains of the future will be those that successfully integrate environmental and social sustainability into their core business and supply chain strategies.



PIERRE-FRANÇOIS THALER

Co-founder and co-CEO of EcoVadis

COMPANIES THAT EFFECTIVELY ENGAGE SUPPLIERS ON CARBON CAN ACHIEVE 3-6X RETURN ON INVESTMENT THROUGH EFFICIENCY IMPROVEMENTS, EMISSIONS REDUCTIONS AND AVOIDED COSTS.

Food and drink companies are facing a period of immense pressure, from rising energy costs and geopolitical uncertainty to shifting consumer expectations and climate disruption.

These challenges are bringing greater attention to a fundamental issue: the bulk of the risks and vulnerabilities facing food and drink businesses sit outside their direct operations.

Increasing expectations

At the same time, companies are facing increasing expectations to understand and demonstrate the environmental and social performance of their supply chains.

Scope 3 visibility

This is where Scope 3 visibility becomes so important. Findings from the EcoVadis-BCG Carbon Action Report show that Scope 3 emissions in the food and beverage sector are, on average, 45 times higher than Scope 1 and 2 emissions. Having a clearer understanding of where those emissions sit, and working with suppliers to address them, helps businesses identify risks, improve decision-making and build more resilient supply chains.

3-6 times ROI

The business case for action is also clear. Companies that effectively engage suppliers on carbon can achieve 3-6x return on investment through efficiency improvements, emissions reductions and avoided costs. But achieving this requires businesses to move beyond estimates and industry averages and build a stronger understanding of supplier performance through primary data.

Reduction targets

To encourage progress, businesses should also work with suppliers on reduction targets, ensure there is ownership of those targets internally and treat decarbonisation less as a cost and more as the investment in long-term business resilience that it is.



CLARE BOTTLE

CEO of the UK Warehousing Association (UKWA)

While we still grow and manufacture a large amount of food and drink in the UK, it is a relatively small part of our overall food system. According to government figures, 80% of people in the agrifood sector work in wholesale, retail and catering. So much of the activity is distributing and serving the product to the end consumer.

Hidden from the above statistics are all of the workers involved in the storage and transportation of food and drink. Based on Savills research from 2024, over 70 million square feet of warehouse space is connected to food retail – about the same as is used for online retail (a sector which gets much more attention).

Difficulties with recruitment and retention, tax and regulation, and energy cost and availability are all weighing on the logistics sector, with implications for food and drink distribution.

Awkward transition

We are in an awkward transitional phase. The Government is trying to electrify our energy system. This would be good for food distribution in that it would help the transition to electric vans and trucks, while reducing emissions, but it comes with a large bill to upgrade the grid.

Solar projects

There is a way through. Logistics companies are pushing ahead with warehouse solar projects and buying electric HGVs. Generating power will help to reduce bills, while EVs reduce vulnerability to fuel price shocks. Neither solution is yet at the scale needed, however.

Collaboration

We are going to need collaboration – with government, but also crucially between businesses – to harness technologies available and make our food and drink supply chains greener and more resilient.

DIFFICULTIES WITH RECRUITMENT AND RETENTION, TAX AND REGULATION, AND ENERGY COST AND AVAILABILITY ARE ALL WEIGHING ON THE LOGISTICS SECTOR, WITH IMPLICATIONS FOR FOOD AND DRINK DISTRIBUTION.



KATIE INGHAM

Commercial Director, CHEP UK and Ireland

Rising costs across energy, materials and transport are one of the most significant pressures we're seeing for operators in the food and drink supply chain. However, it's uncertainty that is creating a further challenge for businesses, impacting their ability to forecast accurately, plan effectively and make informed decisions.

Supply chain strategy shift

Ongoing disruption is also driving a shift in supply chain strategy, with businesses increasingly moving from highly lean, efficiency-focused 'just-in-time' inventory models towards a more balanced 'just-in-case' approach. While this provides a greater buffer against disruption, it also introduces new considerations around increased demand for warehousing capacity.

Regulatory changes

Changing regulatory expectations are also influencing operations. For example, the drive to reduce packaging waste, including through Extended Producer Responsibility (EPR) and Packaging and Packaging Waste Regulations (PPWR), is encouraging businesses to remove unnecessary materials, increase reuse and recyclability, improve reporting transparency and accelerate the transition to a circular economy.

Operational demands

As protective packaging is reduced, it creates new considerations around storage and handling, particularly in markets where weather conditions make outdoor storage challenging. Managing these evolving operational demands, alongside broader cost, capacity and compliance pressures, will increasingly require businesses to have greater visibility and control across their supply chains.

Digital adoption

Looking ahead, one of the biggest opportunities - and risks - will be how businesses adopt digital capability. Technologies that improve forecasting and visibility will support better decision-making, but uneven adoption across the supply chain could create new bottlenecks between highly advanced operations and more traditional businesses that are yet to invest in automation and digital tools.

Ultimately, collaboration will be key. No individual business can create resilience alone; it depends on strengthening the nodes between each point in the supply chain. Stronger partnerships, shared insight and a willingness to work across traditional boundaries will be essential to building supply chains that are more adaptable and better prepared for future disruption.

NO INDIVIDUAL BUSINESS CAN CREATE RESILIENCE ALONE; IT DEPENDS ON STRENGTHENING THE NODES BETWEEN EACH POINT IN THE SUPPLY CHAIN.



DAVID COOMBES

Founder and CEO, Flow Skills Online

RESILIENCE IN FOOD AND DRINK SUPPLY CHAINS IS NO LONGER JUST ABOUT INFRASTRUCTURE OR INVENTORY. INSTEAD, IT IS FUNDAMENTALLY ABOUT PEOPLE AND SKILLS; THE CAPABILITIES OF THE WORKFORCE AND ORGANISATIONS TO ANTICIPATE, ADAPT AND TRANSFORM.

The food and drink supply chain has to be one of the most challenging of any supply chains to forecast and operate. It is increasingly shaped by disruptions such as climate change, geopolitical instability, labour shortages and shifting consumer expectations.

People and skills

Resilience in food and drink supply chains is no longer just about infrastructure or inventory. Instead, it is fundamentally about people and skills; the capabilities of the workforce and organisations to anticipate, adapt and transform.

The key future disruptions which will shape skills needs include environmental and resource pressures such as climate volatility impacting crop yields and ingredients; technological disruption; economic and geopolitical risk including trade barriers, supply fragmentation and cost inflation on inputs and transport; and shifts at the social and consumer level such as a demand for transparency, sustainability and ethical sourcing, as well as changing dietary preferences (e.g., plant-based, functional foods).

There is no question that, to build resilience, organisations must invest in skills development – whether that is upskilling around digital and analytic technologies or embedding sustainability competencies across roles – and redesign jobs and workflows to integrate human/AI decision-making and create flexible, cross-functional teams.

Talent pipelines

They will also need to strengthen talent pipelines, be that through partnerships with education providers or apprenticeships in food tech and logistics, and foster organisational culture to create agile, innovation-driven environments and ensure empowered decision-making at all levels.

Ultimately, the organisations that will succeed are those that combine digital intelligence with human adaptability, build cross-disciplinary capabilities and embed sustainability and risk awareness into everyday decision-making.



KATIE LLOYD-YOUNG

Sustainability Manager (UK&I), Linde Material Handling (UK) Ltd

LOOKING AHEAD, CLIMATE DISRUPTION WILL BE THE DEFINING RISK. EXTREME WEATHER, RESOURCE CONSTRAINTS AND SHIFTING GROWING CONDITIONS WILL INCREASINGLY IMPACT BOTH SUPPLY AND DISTRIBUTION.

Food and drink supply chains are under sustained pressure, but what's becoming clear is that resilience and sustainability are no longer separate conversations. Energy volatility, labour shortages and demand uncertainty are all immediate challenges - but they're also exposing how reliant many operations still are on inefficient, high-carbon systems.

Looking ahead, climate disruption will be the defining risk. Extreme weather, resource constraints and shifting growing conditions will increasingly impact both supply and distribution. At the same time, expectations around Scope 3 emissions, transparency and accountability are accelerating - meaning businesses won't just need to act, they'll need to prove it.

Operational performance

In my view, the most resilient supply chains will be those that treat decarbonisation as a driver of operational performance. Electrification of fleets and warehouse equipment is a good example - it reduces emissions, but it also cuts exposure to energy price shocks when paired with the right energy strategy. The same applies to automation and advanced material handling, which can improve consistency, reduce waste and make better use of labour.

Data

However, none of this works without better data. Digitalisation - real-time visibility, smarter forecasting, and connected operations - is what enables faster, more informed decisions and highlights where emissions and inefficiencies really sit.

Redesigning supply chains

Ultimately, resilience won't come from layering sustainability on top of existing models. It will come from redesigning supply chains so that low-carbon, efficient and adaptable operations are the default.



ROD ADDY

Director General, Provision Trade Federation

THE FOOD INDUSTRY'S SUCCESS IN WEATHERING PAST DISRUPTION MUST NOT BECOME AN EXCUSE FOR COMPLACENCY.

The food industry's success in maintaining supplies during the Covid pandemic may have created a dangerous impression that, whatever disruption comes its way, the sector will always be able to cope. Industry and government worked closely together, and although there were some shortages, the food supply chain continued to operate. However, that experience should not become a reason for complacency.

Contingency planning

Businesses are already taking important steps to strengthen their contingency planning, including hedging against volatility in raw material and energy costs. What remains less evident is a coordinated, cross-departmental government strategy that considers how different risks interact across the food supply chain. Given that food is recognised as part of the UK's critical infrastructure, ensuring people continue to have access to food must be treated as a fundamental priority.

Multiple challenges

The concern is not simply one individual risk, but the possibility of several events occurring simultaneously. Climate disruption, energy volatility and geopolitical instability are already affecting the sector. A major cyber-attack or an animal disease outbreak, such as African swine fever or foot and mouth disease, could place additional pressure on a system that is already managing multiple challenges.

Climate volatility is also having a direct impact on food production. Research from Durham University found that 87% of UK farmers had experienced lower productivity as a result of droughts, floods or heatwaves, while the Government's food security digest reported that 40% of mainland Europe was experiencing drought in June 2025. These pressures will make diversifying sources of supply increasingly important.

Technology can support greater domestic production, including through methods that are less exposed to floods and droughts. However, this must be supported by reliable and cost-effective energy, with renewable generation offering significant opportunities. Businesses will also need sufficient warehousing and storage capacity, more effective regional distribution arrangements and, where products allow, greater consideration of holding reserve stock.

Cyber resilience

Cyber resilience must form part of this preparation. Businesses need clear contingency plans covering how teams will communicate and operate if digital systems fail, supported by regular simulations so key personnel understand their roles. Ultimately, food supply-chain resilience will depend on government, industry and other organisations planning and working together before disruption becomes a crisis.



ROB GITTINS

Managing Director, Palletways UK

THE KEY IS TO BUILD ADAPTABILITY INTO THE OVERALL LOGISTICS STRATEGY RATHER THAN RELYING ON A SINGLE APPROACH.

The shortage of food on shelves following Brexit, and the associated lack of drivers, demonstrated how quickly transport pressures can affect the wider food and drink supply chain. The transport and food sectors adapted and developed ways to keep products moving, but the underlying workforce problem was not resolved.

Drivers shortage

The average UK driver is now aged over 55 and there are still too few new recruits entering the sector. This is not only a UK issue, but a challenge affecting transport operations internationally. Food and drink products will still need to be collected, moved and delivered, so developing a sustainable workforce must remain a priority.

Adaptable transport solutions

Adaptable transport solutions can help businesses manage volatility. Pallet networks can move small quantities at short notice, including delivering minimum quantities of raw materials to growers and manufacturers unable to purchase in bulk. Logistics providers can also hold stock and deliver it the following day through a consignment-stock arrangement.

This can operate alongside a company's established supply and distribution model, giving food and drink businesses an additional option when demand changes, stock is urgently required or normal arrangements come under pressure. The key is to build adaptability into the overall logistics strategy rather than relying on a single approach.

Early warning

Information from drivers also provides an important early warning of disruption. Drivers are at the front end of the supply chain and can provide real-time intelligence about emerging problems. In some circumstances, this direct operational insight can be more valuable than analysing historical data, particularly when it is shared quickly with customers and other organisations across the chain.

Electrification will form part of the sector's future, but the technology and supporting infrastructure are not yet suitable for every operation. Battery-powered vehicles can work for

some lighter, urban deliveries, but charging capacity and vehicle efficiency remain barriers for long-distance transport. Similar issues apply to forklift fleets operating continuously, where fast-charging technology must meet the demands of 24-hour operations.

Smaller transport businesses are also under significant pressure from rising fuel costs and limited credit capacity. Without greater support, some may be unable to continue operating. Strengthening these businesses, alongside improving cyber protection and addressing workforce shortages, will be essential to maintaining reliable food and drink distribution.

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