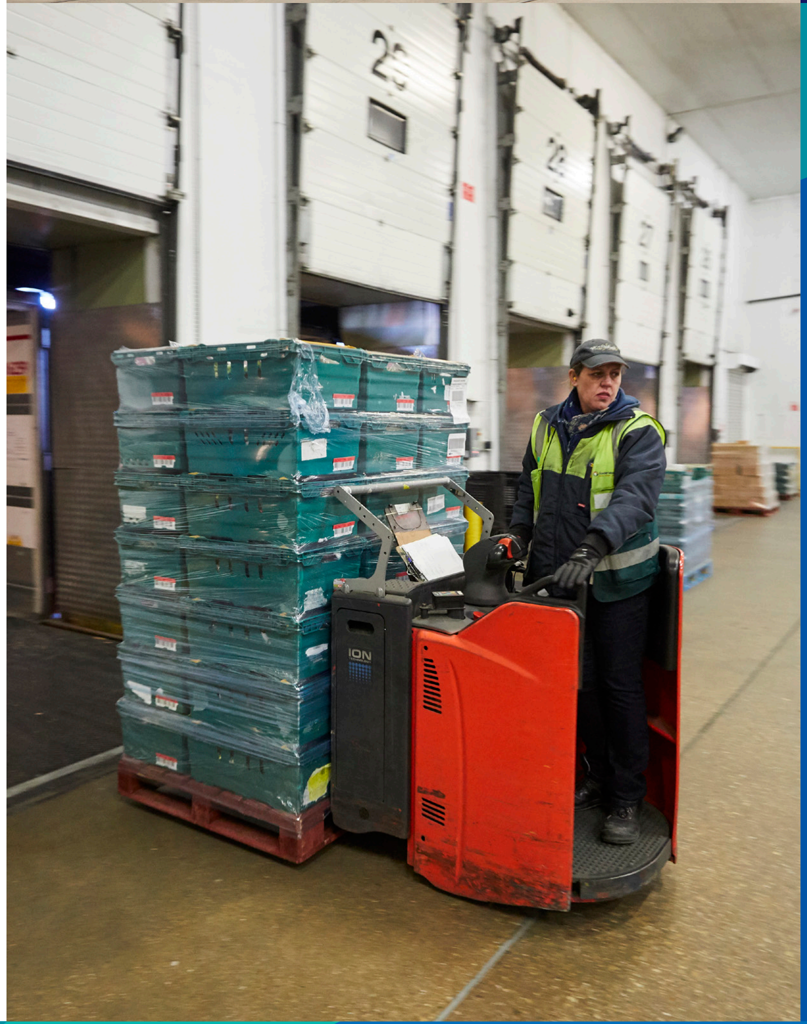
THE COLD CHAIN

COLD CHAIN FEDERATION

- Critical to the food supply chain
- Vital to our economy
- At the forefront of global environmental challenges

FROZEN & CHILLED › STORAGE › DISTRIBUTION › NETWORK



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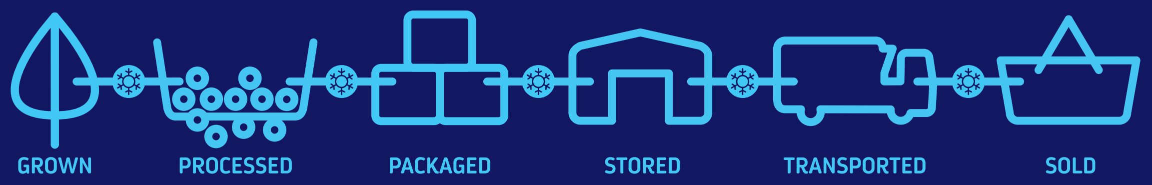
COLD CHAIN FEDERATION

FROM PRODUCER TO CONSUMER



THE COLD CHAIN EXPLAINED /

The cold chain is a network of specialist facilities and vehicles that store perishable goods in a secure temperature-controlled environment. Cold chain exists at every stage of the supply chain from the point of production, through to manufacturing and storage and ultimately on to retail or catering establishments and people's homes.

- The cold chain safeguards the nation's chilled and frozen supply chain maintaining the security, quality and availability of food, pharmaceuticals and other produce.
- The UK frozen food industry is worth in excess of £8 billion[1] and the chilled food industry in excess of £12 billion[2]. The cold chain employs in excess of 100,000[3] people in the UK, from warehouse operatives and drivers to systems analysts and robotics engineers.
- The cold chain connects the UK to the world, it makes significant trade in perishable goods possible and is at the foundation of global food and pharmaceutical security.
- The industry is in a period of rapid modernisation and is at the forefront of national and global policy issues such as **climate change & energy management, air quality and post-Brexit trade and customs changes**.
- The Cold Chain Federation is the voice of the UK's cold chain, with its members operating more than 450 specialist storage facilities and more than 30,000 vehicles across England, Wales, Scotland and Northern Ireland.

Sources: [1] British Frozen Food Federation, [2] Chilled Food Association, [3] Cold Chain Federation data

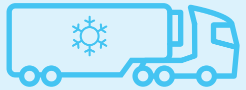
COLD CHAIN IN NUMBERS /

OVER 450

COLD STORES across England, Scotland, Wales and Northern Ireland covering **244** parliamentary constituencies

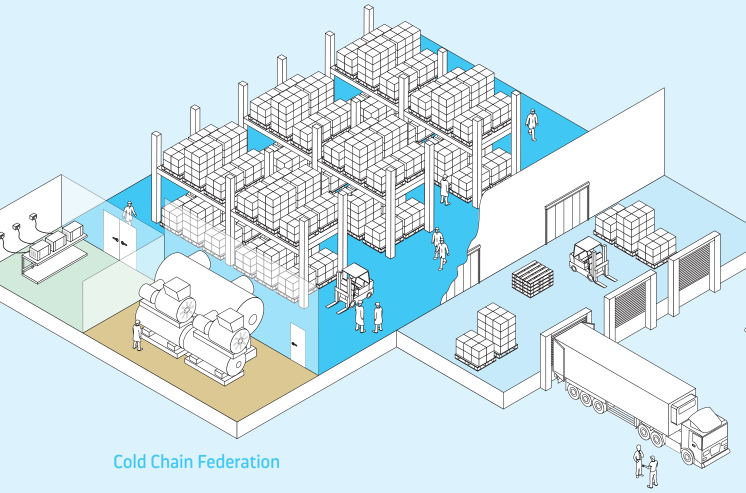
OVER 3.5bn[4]

CUBIC METRES of storage space



OVER 30,000[5]

REFRIGERATED TRAILERS plus approximately **40,000** insulated vans[6]



[4/5] Cold Chain Federation data, [6] The Society of Motor Manufacturers & Traders and Cold Chain Federation data

COLD CHAIN FEDERATION

ECONOMIC BENEFIT /

- The cold chain directly employs over 100,000 people in the UK – with many more indirect jobs in food manufacturing and retail
- Cold chain businesses are a significant employer across all corners of the UK, particularly in rural and 'deprived' communities.
- The UK frozen food industry is estimated to be worth in excess of £8 billion and the chilled food industry in excess of £11 billion.

The UK is a significant importer and exporter of temperature-controlled products:

- In 2019, the UK traded a similar value of pharmaceutical and medicinal products, exporting £23.4bn and importing £23.7bn[7].
- Food in 2018:
  - **Meat:** £6.8bn of imports, £1.9bn of exports.
  - **Dairy:** £3.4bn of imports, £1.9bn of exports.
  - **Fish:** £3.2bn of imports, £1.8bn of exports.
  - **Fruit & veg:** £11.1bn of imports, £1.3bn of exports[8].

Nationally and globally the cold chain is experiencing significant growth and attracting investment. Drivers of change are macro-factors such as growing population and volatile weather patterns, significant growth in demand for chilled and frozen food, drivers to reduce food waste and above all maintaining food and pharmaceutical quality and safety.

CASE STUDY: Global investment in the UK cold chain

Cold chain businesses are being seen globally as attractive long-term investment opportunities. The UK is no exception in this and a number of major international acquisitions of cold chain businesses have taken place in recent years. In 2018, one of the largest UK temperature-controlled logistics specialists was acquired by a private equity owned US based international cold chain organisation. The acquisition has seen significant investment in UK facilities and created new jobs across the company's 12 UK sites.

[7] Department for International Trade 'UK Trade in Numbers' 2020,
[8] Defra 'Food Statistics in your pocket: Global and UK supply' 2020

THE COLD CHAIN IS CRITICAL TO MINIMISING FOOD WASTE AND KEEPING PRODUCTS SAFE /

Reducing food waste

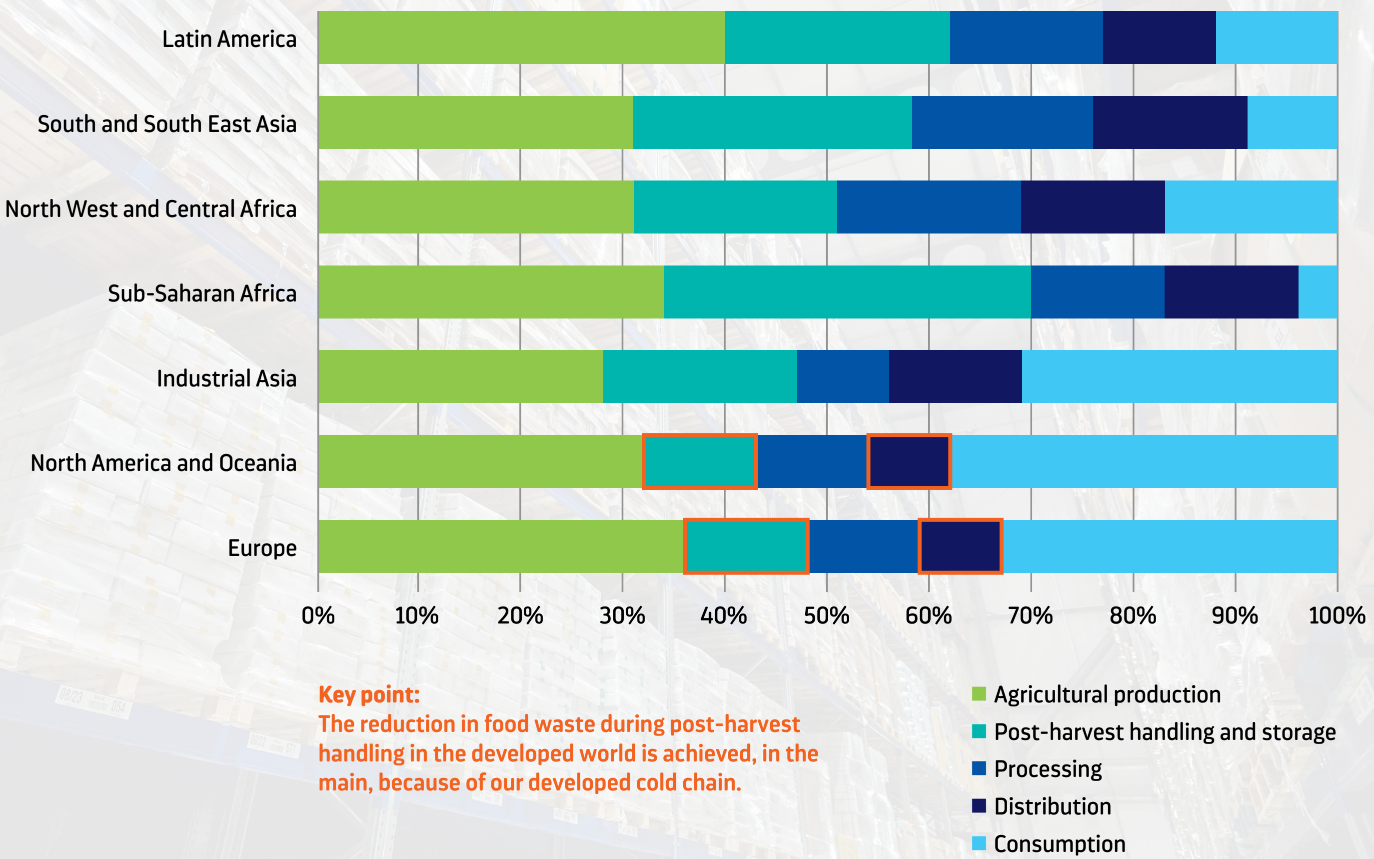
Food waste is a global climate catastrophe and the existence of a reliable and efficient cold chain in the UK is critical to minimising wastage before it reaches the consumer and maximising shelf life both in the retail environment and in people's homes.

A comparison of the resilience of the food supply chain in Europe compared to parts of the developing world like Sub-Saharan Africa shows just how much food perishes before it reaches the consumer. It is for this reason that the UN has singled out promoting clean cold chain as one of the key drivers of reducing food waste and tackling climate change.

Maintaining food safety

Chilling and freezing food is 'nature's pause button' it slows or stops the bacterial growth that causes product decay, extending product life and preventing food illnesses. This is particularly crucial for 'high risk' foods such as meat and seafood which the UK often imports from across the world. A stable and traceable cold chain is critical to protecting the health of the nation.

Food waste by global region and supply chain stage



Key point:
The reduction in food waste during post-harvest handling in the developed world is achieved, in the main, because of our developed cold chain.

[9] Graph redrawn from Food and Agriculture Organization of the United Nations. 2013b. Food wastage footprint.

HOW THE COLD CHAIN WORKS /

ON-SITE STORAGE

GROWN & PRODUCED

The UK produces 53% of the food we eat, from meat and dairy to fruit and vegetables. Most produce must enter the cold chain as soon as it is harvested to maintain shelf life, quality and safety.

PHARMACEUTICALS

MANUFACTURED / PROCESSED

Some products grown or imported by the UK are transported to facilities for processing, to be combined into other products, e.g. pre-cooked food, or more complex medicines.

IMPORTED

The UK imports food and pharmaceuticals from across the world, either to go straight to market, or for processing. Shipments can come via rail, air or sea.

PORT/AIRPORT STORAGE

STORED: THIRD PARTY LOGISTICS

A significant proportion of manufacturers and retailers use the services of specialist cold chain logistics providers to transport and store their products. Some products however go straight to export or to retail facilities.

PORT/AIRPORT STORAGE

EXPORTED

The UK exports ingredients and finished products, either to go straight to market, or for processing. Shipments can leave the UK via rail, air or sea.

STORED: REGIONAL DISTRIBUTION CENTRES

Retailers with a large number of outlets utilise their own network of regional distribution centres to coordinate deliveries to their stores.

SOLD: RETAILERS & WHOLESALERS

Retailers and wholesalers make up a significant proportion of the cold chain, including in-store fridges and freezers and home delivery vehicles.

PURCHASED: CONSUMERS

Consumers are the ultimate user of cold chain products. The primary destination of cold chain products are homes, restaurants and public service buildings such as schools and hospitals.

THE COLD CHAIN IS AT THE FOREFRONT OF MEETING THE CARBON ZERO CHALLENGE /

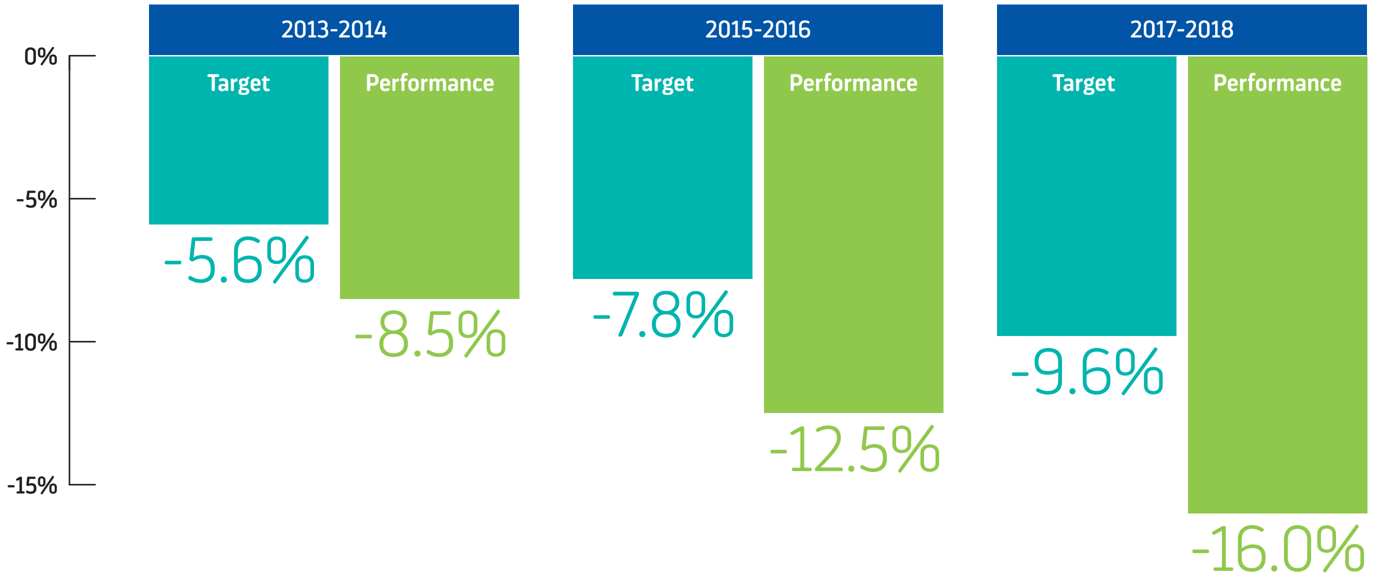
Cutting energy use and emissions

The cold chain is vital to our society and economy however, refrigeration is energy intensive. Cold chain businesses recognise their responsibilities and are investing in technological innovation and industry-wide plans to cut both energy use and carbon emissions.

Climate Change Agreement

The Cold Chain Federation administers the Climate Change Agreement for cold storage – the sector has consistently overachieved the targets set by the Government to improve energy efficiency in cold stores.

Energy efficiency improvement – industry target versus performance under the climate change agreement



The Government set our industry a target for energy efficiency improvement by 2020 of: 12%

By 2018 our industry achieved an energy efficiency improvement of: 16%

This was across circa **400** UK cold stores.

Major investments in infrastructure and renewables

As part of their commitments under policies such as the Climate Change Agreement and to strengthen resilience amidst uncertainty over future energy prices, cold chain businesses have invested significantly to reduce their energy usage and carbon emissions.

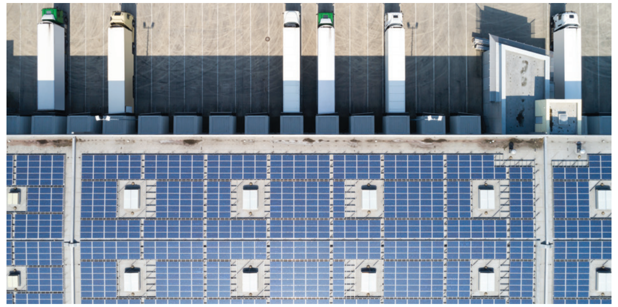
Measures taken include:

- Upgrading warehouses to make them more energy efficient by taking measures to reduce heat ingress into cold stores e.g. more efficient plant, insulation, doors and installing LED lights.
- Designing new stores to maximise energy efficiency.
- Transitioning plant to low global warming potential (GWP) refrigerants.
- Trialling demand management to achieve a smarter grid supply.
- Installing solar panels to warehouses where feasible.
- Investing in lower emission on site power generation, e.g. combined cooling & power (CCP) and biogas.
- Implementing automation and robotics to warehouse operations.

CASE STUDY: Investing in renewables

A Cold Chain Federation member, operating a 35-acre cold storage site recently invested in a anaerobic digester which utilises waste products from local agriculture to provide 70-90% of the whole site's energy needs. The energy produced has been certified as 100% renewable.

Policy recommendations



Although cold chain businesses have made significant strides in reducing energy usage, significantly more will need to be done if the industry is to help the UK meet its 2050 carbon zero target. Greater clarity on future targets, taxes and regulations is needed to help businesses plan ahead for the major investments required; cold chain businesses will require support from Government to meet the UK's sustainability goals.

Support could include:

- Renewal of the successful Climate Change Agreement scheme beyond 2025.
- Grants or low interest loans for major capital expenditure on infrastructure.
- Greater tax incentives, for businesses making the biggest investments into low carbon technology.
- Improved building regulations, to set minimum standards on warehouse efficiency.

COMMITTED TO IMPROVING AIR QUALITY THROUGH REDUCING HARMFUL EMISSIONS /

The cold chain relies heavily on the road network to distribute temperature-controlled products across the country and beyond. Principally, this is achieved with diesel powered heavy goods vehicles (HGVs) with trailers and vans kept cool by either separately diesel-powered transport refrigeration units (TRUs) or for smaller vehicles, powered directly via the primary diesel engine. Innovation has seen smaller vehicles, particularly those operating in urban environments, switching to electric, or hybrid alternatives.

However, a significant challenge to UK carbon zero targets and air quality improvements is the lack of economically viable alternatives to fossil fuels to power larger HGVs and refrigerated trailers. Greater research into lower emission technologies for these vehicles is required as well as support for businesses looking to trial and incorporate these into their fleets.

CASE STUDY: Investing in lower emission technology

A major cold chain distributor has recently announced they are moving their entire fleet to an electric generator hybrid system which powers the refrigerated trailer from the HGV's engine. This investment will provide significant CO_2, NO_x and particulate matter (PM) reductions whilst virtually eliminating the requirement for the secondary diesel TRU engine on their trailers.

Policy recommendations

- A roadmap agreed between industry and Government for the decarbonisation of freight in the UK, to include transitioning away from separately diesel-powered transport refrigeration units.
- Greater support to businesses transitioning to lower emitting technologies including investing in supporting infrastructure, grants and scrappage schemes.
- Clarity on future regulatory changes to red diesel subsidies for non-road mobile machinery.

LEAVING THE EU PRESENTS CHALLENGES AND OPPORTUNITIES FOR THE COLD CHAIN /

Employment

In order to keep food moving, cold chain businesses rely on workers from across the EU and beyond to work in temperature-controlled warehouses and to drive refrigerated HGVs. The points-based immigration policy is likely to inhibit European workers filling many logistics roles in the future. The impact of this, specifically the Government's hope that vacancies are filled by domestic applicants must be closely monitored to prevent serious worker shortages which could disrupt the UK's food supply.

Trade and customs

The UK is a net importer of cold chain products, most notably food and pharmaceuticals. The majority of this trade is with the European Union and therefore post-Brexit trade agreements will have a major impact on cold chain businesses involved in cross border movements. Global trade opportunities with new countries could also open up new opportunities for the cold chain and UK businesses are ready to meet this challenge.

Changes to customs checks following the post-Brexit transitional period could have significant impacts on cold chain businesses involved with importing and exporting products with the EU, particularly those trading products of animal origin (POAO). Without unprecedented changes to infrastructure and personnel at UK places of entry, the potential requirement for systematic sanitary and phytosanitary (SPS) checks on food imported from the EU could cause significant impacts to supply chains reliant on this trade, specifically delays which could affect short life produce and therefore profitability.

Policy recommendations

- A review into the impact on food businesses of post transitional period changes to import and customs requirements.
- Implementation of a 'place of first arrival' based checking system for UK imports, to prevent delays at the UK border for cold chain businesses importing time critical produce.
- Review into the impact of immigration changes on recruitment in logistics businesses.

AN OPPORTUNITY FOR THE UK TO LEAD THE WORLD AS WE RECOVER FROM THE EFFECTS OF COVID-19

We live in a warming climate which will increase the demand for cooling across the globe. Throughout the world the cold chain's greatest challenge is meeting the growing requirement for cooling solutions whilst simultaneously reducing the energy and carbon emissions associated with refrigeration, storage and distribution.

The global Covid-19 crisis has created an additional challenge to businesses across the world, but it has also highlighted the importance of the cold chain in maintaining food supplies in the face of crisis and demonstrated the resilience of businesses and their employees in the face of significant adversity. With the support of the Cold Chain Federation, UK cold chain businesses have adapted fast in the face of shifting supply chains and rapidly changing consumer behaviour created by social distancing measures to continue to serve the UK's food requirements.

There are significant hurdles ahead as we recover from the impacts of Covid-19 and continue to adapt to other emerging socio-economic and environmental challenges, however cold chain businesses in the UK have shown they can rise to these challenges. Our cold chain is regarded as an exemplar across the rest of the world for its efficiency, reliability and adoption of innovative technology. Supporting and investing in a clean and efficient cold chain represents an opportunity for the UK to continue to be at the forefront of the global cold chain and export its knowledge across the world.

Whatever uncertainty the future holds for the UK and its economy, the cold chain will continue to deliver a crucial service to the whole of society.

COLD CHAIN FEDERATION

ABOUT THE COLD CHAIN FEDERATION

We are the voice of the UK cold chain. Our 150 members operate more than 450 specialist storage facilities and run more than 30,000 vehicles across England, Wales, Scotland and Northern Ireland. They operate within the UK and internationally.

The organisation can trace its history back to original formation in 1911. Formerly FSDF (Food Storage and Distribution Federation), we became Cold Chain Federation in 2019. Find out more **www.coldchainfederation.org.uk**

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