



Government Office for Science

Foresight Future of Mobility project

Freight Roundtable

7 September 2017, 1530 to 1700, 1 Victoria Street
Chaired by Chris Witty (Deputy Government Chief Scientific Adviser)

This is an abridged summary of the roundtable, and in the spirit of free and open discussion, comments have not been attributed to specific attendees.

The roundtable was structured around three main questions regarding freight and logistics:

- What impact will increasing autonomy have on the freight sector?
- How will increasing use of data and technology impact the future of freight and logistics?
- How to support future demand for freight while minimising congestion and its environmental impacts?

Key points

- Freight services are siloed within companies, whilst consolidation would be desirable to minimise traffic. Deliveries by Light Goods Vehicles (LGV) are increasing, but there isn't a consensus on what is driving this trend.
- Automation of freight handling will be transformational, particularly for road freight, though it would strongly affect a large, low-skilled workforce.
- Maximising efficiency and minimising the environmental impacts of freight are complimentary goals, though additional infrastructure will be required to enable widespread adoption of alternative fuels.
- Advanced manufacturing may change patterns of freight, whilst competition for land and road space may impact freight in and around built up areas.

Current challenges

There was debate on patterns of freight, and the impact of e-commerce:

- Freight is siloed within companies, with numerous independent operators.
- Consolidation among operators being counteracted by increasing number of small, direct deliveries in Light Goods Vehicles (LGV) and vans.
- It was claimed that 50% of van use is for trades rather than delivery.
- E-commerce was not the driver for increased deliveries, but was a factor.

- 50 million tons of goods arriving through ports, then being driven to far away depots, despite others being closer-an argument for the servitisation of depots?

Automation was seen as having immense potential:

- Rail was an early pioneer in automation, and encountered issues around public acceptance and liability.
- Future developments, including advanced signalling and fully autonomous trains, are threatened by loss of electromagnetic spectrum.
- Complete autonomy of freight vehicles would be transformational, though safety in urban areas would be a primary concern.
- Automation of customs processes would reduce friction and improve efficiency, perhaps occurring at the freight destination rather than en route.
- Road freight was considered the area where automation would bring biggest benefit, with rail, ship and air freight requiring comparatively fewer crew.
- Automation is likely to have a large impact on the 2 million low-skilled workers in the industry.
- Autonomous Vehicles (AV) and Mobility as a Service (MaaS) have the potential to increase the number of vehicles on the road.

Maximising efficiency and minimising environmental impacts are seen as complementary goals for freight:

- Improved use of data and route optimisation have driven down mileage.
- Alternative fuels (electrification and Renewable Natural Gas (RNG)) will reduce the impact of what remains.
- RNG supplies mostly used for heating and electricity, driving up prices, whilst the costs for electrical infrastructure were passed onto the freight company.
- Government could help through incentives for switching use of RNG, and by supporting electrical infrastructure upgrades.
- 'Bi-mode' Heavy Goods Vehicles (HGV) were suggested to reduce impacts in built-up areas, though current electric vehicles cannot move heavy freight.

Other factors impacting freight

A variety of other issues were considered important in shaping the future of freight:

- Land value and land use planning, with rail depots in the capital being sold for housing, the London Mayor's transport strategy reducing vehicles but increasing housing, and the mixing of freight and passenger vehicles around Heathrow leading to congestion and inefficiency.
- The lack of regulation of vans, and freight making up 30% of road occupancy, whilst the infrastructure on which private freight services run is public.
- The possibility of adjustments to Vehicle Excise Duty (VED) or the introduction of road use charging to apportion costs.
- A slow-moving regulator in the maritime sector, and a lack of a central body to oversee upgrades to port facilities.
- Lack of connectivity at sea hampering the use of big data and automation.

Future technology developments

The roundtable was asked to predict what 'science-fiction' developments might occur in freight:

- A move back to centralised manufacture (via advanced manufacturing techniques) and distribution.
- Automation of freight handling and an amended regulatory environment permitting wide-scale night deliveries.
- Powerful diesel-hybrid freight trains.
- Continued harmonisation between the UK and Europe in freight regulations and HGV design.

Issues to consider

Key areas of uncertainty or interest were identified:

- There are opportunities arising from increasing data on the types of freight being carried and where, whilst privacy is less of an issue in tracking loads.
- The need for long term certainty on communications infrastructure is a cross-cutting issue, along with electrical infrastructure.
- There are different views on whether the move towards greater personalisation of delivery is having a major impact on the road usage. Are last mile deliveries increasing? Are they being driven by e-commerce? Government needs to hear the arguments on both sides.
- Automation is coming, but on a 10 to 15 year timescale.
- Some pinch points on freight are government's fault, for example customs processes and regulation. Can these be done differently, and how can technology help?
- More information on non-surface freight and moves between modes would be useful.
- Ways to optimise the trade-off between air quality, carbon emissions, and the efficiency of the system.

We would like to thank the following organisations for participating:

DB Cargo UK, Eurotunnel, Fisher Advisory Ltd, Freight Transport Association, Heathrow, Institute of Logistics, Infrastructure, Supply and Transport (LIST), Rail Freight Group, Road Haulage Association, The Chartered Institute of Logistics and Transport (CILT), UK Chamber of Shipping, UPS

The views and opinions expressed during this meeting do not reflect official or company policy, or the position of Government.