



# The future of moving goods

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[kpmg.com/uk/mobility2030](https://kpmg.com/uk/mobility2030)

**KPMG convened a discussion event on the Future of Moving Goods, attended by a variety of senior industry figures from OEMs, energy and power companies, transport authorities, logistics players and others. KPMG presented some of its thinking and predictions, which was followed by a wide-ranging discussion.**

Rapidly emerging developments in mobility technologies, including the rise of electric vehicles (EVs) and alternative fuels, and connected and autonomous vehicles (CAVs), allied with the spread of smart AI capabilities, mean that the mobility landscape is set for momentous change in the coming years.

While media and public attention often focuses on the impact of these changes on passenger vehicles and the movement of people, it is perhaps the movement of goods between businesses and to consumers that is most ripe for disruption and change. The cost, efficiency and utilisation benefits from new mobility solutions will provide a powerful incentive for commercial operators to embrace them.

The rest of this article looks at the key themes discussed at the breakfast and some of the lively discussions that took place as the market begins to move from theories about the future to trialling and finding real solutions.

# Last mile delivery

No one really needs reminding that we are seeing a dramatic rise in e-commerce and online shopping across developed economies.

As KPMG's recent *Autonomy Delivers* report sets out, consumers will continue to make fewer shopping trips – instead, ordering goods to come to reach them.<sup>1</sup> When it comes to shopping, people are moving less, while goods are moving more.

This trend means that last mile delivery has become a key focal point for the testing and introduction of new technologies and business models, to improve cost efficiency and delivery speed. Logistics networks are becoming more localised to bring operations nearer to consumers. In a trend known as 'micro-fulfilment', businesses from Ocado to Argos and Parcelly are beginning to adopt smaller hubs rather than large centralised depots.

At the same time, new competitive models are emerging, such as one-hour delivery services (Ocado, Sainsbury's partnership with Deliveroo) and on-demand peer-to-peer services (Pedals, Nimber, Stuart), which can help market participants compete with the incumbent giants.

All of these solutions are needed as consumers increasingly expect their orders to be fulfilled instantly along with rising degrees of convenience and flexibility. Businesses unable to meet these expectations will simply see customers going elsewhere with a few swipes on their phone.

More visibly to consumers, many players are developing new modes of last-mile delivery, from drones (Amazon, Uber Eats) to autonomous delivery bots (Starship, Oxbotica, Toyota AI Ventures, Boxbot), trialling them in certain urban areas including South-East London and Milton Keynes in the UK. Delivery fleets may increasingly be equipped with teams of drones and ground transportation robots that can be launched to make multiple deliveries across an area, including direct-to-boot services and digital parcel lockers. KPMG expects investment in this area to skyrocket over the next few years.

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<sup>1</sup> *Autonomy delivers: An oncoming revolution in the movement of goods*; KPMG US, 2018



Traditional delivery vehicles will change significantly too, for example, as powertrains increasingly become electric. Indeed, KPMG expects that almost 70% of Light Commercial Vehicles (LCVs) will be electrified by 2030, driven firstly by regulatory pressures but ultimately by total cost of ownership (TCO) parity between electric LCVs and their internal combustion engine (ICE) equivalents in the early 2020s.<sup>2</sup>

However, a wider range and number of commercial EV models will need to be available, as well as advances in battery models and charging infrastructure to really facilitate widespread EV adoption. OEMs will need to rapidly develop new EV models while government needs to find ways of stimulating investment in charging infrastructure and encouraging standardisation while also thinking about access issues/restricted zones in cities.

It will also be LCVs that, in KPMG's view, see the fastest uptake of CAV technologies. We expect that by 2030, around a third of LCV sales will be Level 4 or 5 autonomous.<sup>3</sup> The reduced need for drivers will reduce TCO for CAVs, also offering greater operational uptime (machines don't sleep). That said, safety concerns will be key, so the safe performance of CAVs will need to be proven. There could also be social policy and union resistance, if CAV adoption means a reduced demand for drivers without a suitable re-purposing and re-training.

In the integrated ecosystem that will arise, partnerships and collaborations will be central. No player within a value chain will be able to fulfil everything on their own – from an investment need, risk management or capability and asset perspective – which means new commercial relationships and alliances will be needed.

Given all of these factors in a complex and rapidly emerging market, it will be key for operators – whether they are retailers, logistics businesses, leasing companies or OEMs – to understand the impact of new technology, customer demands and competitors on their business models. They will need to make the right strategic moves – at the right time – to tackle these challenges, implement the right operating models and ultimately flourish in the market.



LCV

**2030** Total parc: **4m**  
Total sales: **400k**



**2040** Total parc: **↗**  
Total sales: **↗**



- ICE (incl. full hybrid)
- EV (BEV & PHEV)
- H2 fuel cell

<sup>2</sup> KPMG Mobility 2030 analysis

<sup>3</sup> Ibid.

# Commercial freight

If last mile delivery is the visible shopfront of the movement of goods, long-haul transport is the storeroom at the back that makes it possible.

One significant contrast between future long-haul transport and last mile delivery will be in powertrains. KPMG expects that in 2030 around 80% of Heavy Goods Vehicles (HGVs) will still be ICE vehicles, largely due to the limitations of electric battery ranges and charging timeframes. However, there will be a broader mix of fuels among HGVs. For example, we expect that hydrogen will account for perhaps 8% of HGVs – a much higher penetration than amongst LCVs where we expect hydrogen will amount to a percentage or two.<sup>4</sup>

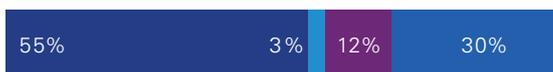


HGVs

**2030** Total parc: **375k**  
Total sales: **39k**



**2040** Total parc: ↗  
Total sales:



- ICE (incl. full hybrid)
- Bio-LNG
- EV (BEV & PHEV)
- H2 fuel cell

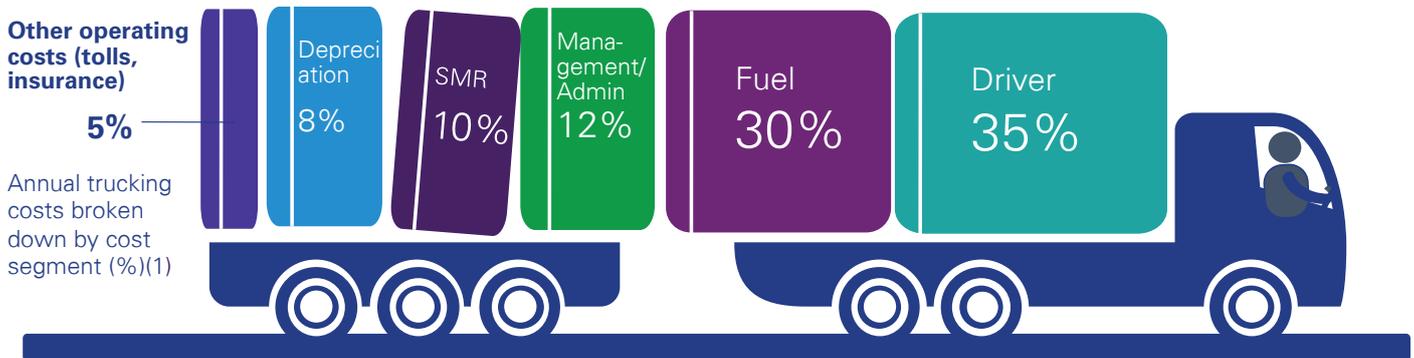
There is no doubt that hydrogen will play a role in the path to decarbonising our society, and has significant potential as a powertrain for HGVs in particular. Government-backed funding mechanisms will be needed to support the development of the required infrastructure for the production of hydrogen and the creation of fuelling stations.

At the same time, internet-connected devices and digitisation will reduce costs and lower emissions for freight operators, who must consider how to run fleets more efficiently and/or with reduced miles travelled. Fuel represents around 30% of their operating costs – but as we have seen, we expect to see relatively modest changes there. The main focus will therefore fall on the biggest cost – the driver, who accounts for some 35% of operating expense.<sup>5</sup>

It is the development of CAV technologies that is therefore likely to bring the most significant cost savings for commercial fleets – and therefore become the hottest focus of attention for operators. Taking the driver out instantly transforms the economic equation. What is more, the driver – being a mere human – is the least reliable part of a commercial vehicle operation, and can only legally work for a specified number of hours a day. Technology, on the other hand, has the potential to work with reliability for as long as it is required to do so. On top of this, fleets will also increasingly be monitored and maintained while on the move through over-the-air software updates, telematics and vehicle prognostics systems, and video safety solutions.

<sup>4</sup> Mobility 2030 analysis based on wide range of industry perspectives

<sup>5</sup> Mobility 2030 analysis



As CAV models develop, HGVs could become more like ‘boxes on wheels’. The ultimate prize – although some way off – will be to remove the truck at the front of a vehicle altogether so that the trailer can be extended (as well as motorised) to carry a greater load at lower unit cost. This is particularly relevant in European markets where there are binding truck/trailer length limitations. The whole vehicle could be controlled by integrated autonomous technology running at optimal efficiency and cost effectiveness.

We have also already seen trials of ‘platooning’ where convoys of autonomous trucks travel together. This is much better suited to countries with long open roads and fewer, simpler interchanges, such as the US or parts of Scandinavia, than to more densely populated locations. Whilst some trials have been reasonably positive, the efficiency gains have to date been somewhat disappointing. Platooning remains in its early stages – but is a development to watch.

Meanwhile digital freight brokerage – sometimes called ‘Uber for trucks’ – through players such as Coyote, Convoy and Uber Freight, is already addressing under-utilised capacity through instant load matching, reportedly reducing empty miles by up to 8-10%.

What’s more, it helps to ease traffic congestion by reducing the number of vehicles on the road, and reduces CO2 emissions as well. There are already a large numbers of apps developed around the world through which loads can be matched to vehicles and there is no doubt that we will see a boom in this area.

Another growing feature is the use of connectivity to monitor the health and wellbeing of drivers. Drivers will still be needed, even in an autonomous future, and shortages have already become a challenge for the industry. Health monitoring in the cab, transmitting data in real-time to a central computer system, will help improve the quality of working life on the road.

# Discussion points

There were many areas of lively discussion at the event. At this early stage, it often appears there are no 'right answers' – it's a matter of moving from hypotheses and theory to testing the market and trialling solutions. Some of the talking points included:

## 1 Generational factors

Today's younger generations place huge emphasis on convenience and speed, but also on environmental issues. How quickly will this drive change, and will it endure?

## 2 Last mile handovers

What will the winning solutions be for the handover of goods from autonomous vehicle to customer? What if the customer is out? Will we see a system of digital lockboxes? Various models are being trialled but without an obvious solution so far.

## 3 Predicting pace of change

KPMG analysis suggests that by 2030, 80% of HGVs will still be traditional ICEs. Will this pace of change be fast enough to meet targets, and will electric drivetrain and hydrogen fuel cells really only see significant take up after 2030?

## 4 Carrier wars

Could we see a future where, to reduce congestion, delivery companies must bid to deliver in certain postcodes or at certain times of the day?

## 5 Micro-warehousing

At what pace and to what extent will distribution networks move away from big distribution centres to smaller local hubs?

## 6 Charging hubs

How will we get the infrastructure at the scale needed for moving goods? Local grid capacities remain an issue in anticipated hotspot areas.

## 7 Eastern promise

With increasing numbers of new entrants from China and India in the HGV manufacturing space, how will Western OEMs adapt to fend off the challenge?

## 8 Hyperloops

What role will more futuristic solutions play such as underground hyperloops, as per Magway in the UK or Elon Musk's Boring Co? Will these remain confined to specific, contained areas, such as airports and industrial sites, or be developed for wider use?

# Moving towards the future

There was an upbeat and positive mood at the breakfast event.

The government's recent announcement of a net zero emissions target for the UK by 2050 appeared to have had a motivational impact on many of the industry players present. The government's commitment has focused minds and generated a determination to push on with projects that will contribute to meeting the target.

Overall, there seemed to be a consensus that the time has now come to move from discussing possibilities to

actively soft-testing solutions: placing some bets and developing them, including through the formation of new partnerships and collaborations with like-minded businesses.

This aligns with KPMG's five strategic principles for transitioning to the new mobility ecosystem: decode disruption, compete for the customer including through partnerships, understand how you can monetise data, un-strand assets by repurposing them, and search for scale.

The moving goods ecosystem looks set to speed up.



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