ANALYST REPORT
Transportation

Transport and logistics move beyond vehicle tracking

Transport and logistics were one of the earliest use cases for cellular connected devices and in many countries, remain the largest application areas. Suppliers initially targeted the market with IoT solutions focused on high-value assets, such as containers and the heavy good vehicles that carried them, where the return on investment was easily demonstrable. The next stage of the market will be to move beyond simply tracking the location and state of the vehicles, to closer monitoring of the assets themselves, writes Tom Rebbeck, the research director of enterprise and IoT at Analysys Mason

Discerning consumers of durians in China can track the origins of their fruit thanks to the involvement of the Internet of Things (IoT) in transport supply chains. Through a code on the packaging, Chinese consumers can access information about where the fruit was grown and its journey to China.

Examples of IoT being used to improve logistics and supply chain link back to the origins of the term 'internet of things'. Working for Proctor and Gamble, Kevin Ashton coined the phrase when he was trying to gain a better understanding of demand for lipstick by connecting supermarket shelves back to the supply chain.

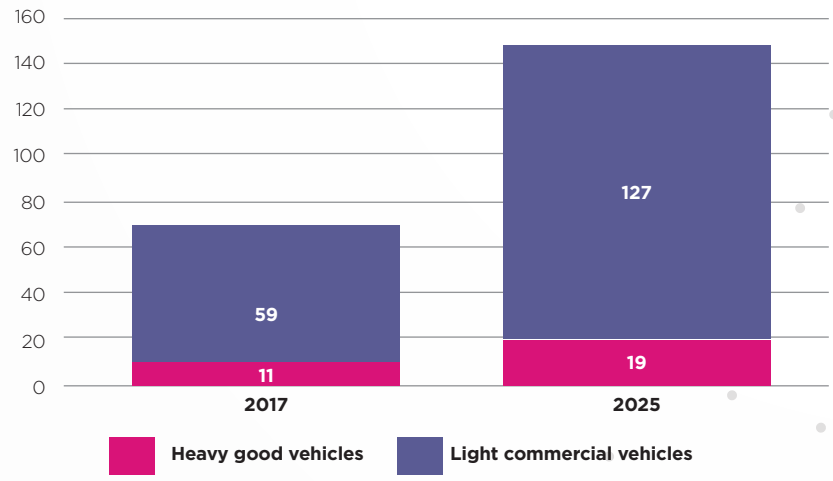
This report explores the demand for transport and logistics, the strong interest in telecoms operators in this sector, before considering how the market is developing to track more than just high-value assets.

Motivations for using fleet management solutions differ by region

Fleet management is by far the largest application in the transport and logistics category. The key applications that are deployed by fleet owners include vehicle tracking, vehicle diagnostics and fuel efficiency.

Tom Rebbeck, research director, Analysys Mason

Figure 1: Total number of cellular connected vehicles, 2017 and 2025, worldwide
[Source: Analysys Mason, 2018]



We expect strong growth in the fleet management category

Figure 1 shows Analysys Mason's estimate for the number of cellular connected vehicles at the end of 2017 and our forecast for the market 2025. The forecast is split into two categories, heavy good vehicles and light commercial vehicles. Overall, we expect the total number of connected commercial vehicles to increase from 70 million in 2017 to 146 million in 2025.

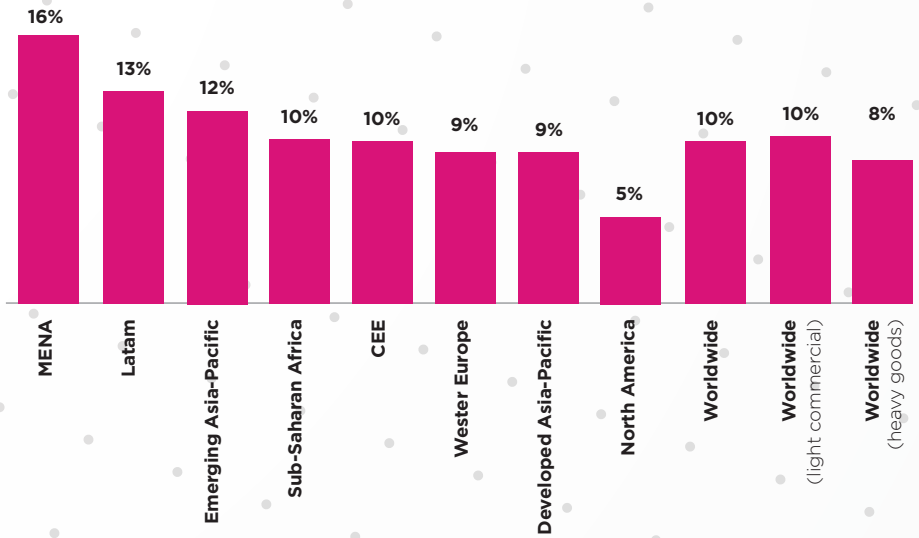
As can be seen from the chart, in terms of connections, the market for light commercial vehicles is significantly bigger. This is due to the much larger addressable fleet of light commercial vehicles.

The number of light vehicles that are connected is also expected to grow faster than the market for connecting heavy goods vehicles. As the cost and complexity of fleet management solutions continue to decline, solutions will become increasingly attractive to managers of smaller commercial vehicles. We expect to see strong growth in the light commercial vehicles market in all regions. Even in North America, the most advanced market today, connections will increase by 6%. Especially in high-income regions, the market for connecting heavy goods vehicles is already approaching saturation and so less growth is possible. Adoption of fleet management solutions took off earlier in the heavy goods category as the return on investment for these vehicles was more easily demonstrated.

In terms of value, the total value of fleet management solutions globally in 2025 will be around US$19 billion, up from around US$12 billion in 2017. The increase in value of the market (up 64%) will be slower than the number of connections (up 110%) due to price declines, the increasing popularity of lower cost solutions and the gradual shift in the market towards solutions for light commercial vehicles.

Figure 2 shows the growth rates of connections by region. Growth rates in fleet management solutions reflect the development of the economy. In low and middle-income countries, where penetration of fleet management solutions has historically been ▶

Figure 2: Growth rates by region, all fleet management, plus worldwide totals, CAGR 2017-2025
[Source: Analysys Mason, 2018]



relatively low, growth rates will be highest. In high-income regions, growth rates will not be as high, but driven by the adoption of fleet management in light commercial vehicles, could approach 10%. North America, by far the most mature region for fleet management, is notable for its growth rate of 'only' 5%.

The requirements for fleet management solutions differ in their nature between high income and middle/low-income countries. Fleet owners in high-income markets are primarily seeking to reduce fuel costs, which constitute their largest overhead along with employee costs. Therefore, they are deploying solutions that monitor driver behaviour and vehicle performance. Fuel costs can be reduced by up to 20% by deploying a fleet management solution, providing tangible benefits and strong support for the investment case. These benefits have help drive adoption of fleet management solutions, especially in North America.

For fleet owners in middle and low-income countries, while improving fuel efficiency is also important, other factors in particular reducing vehicle and fuel theft are significant motives behind adopting connected vehicles solutions. Vehicle theft is a key motivator for deploying track and trace solutions in countries such as Brazil and South Africa, and fuel theft is a major issue in Nigeria where the cost of fuel is high. The cost of the device and installation charges are inhibiting adoption in some emerging markets, particularly in Africa.

Fleet management is the application to gain most attention from telecoms operators

For most aspects of IoT, telecoms operators have been relatively conservative and made few acquisitions. Fleet management though is one domain where operators have been willing to invest, and in the case of Verizon, spend substantial sums of money doing so. Some notable acquisitions of fleet management companies by telecoms operators can be seen in **Figure 3**.

Figure 3: Selected acquisitions of fleet management companies by telecoms operators
[Source: Analysys Mason, 2018]

Target	Acquiring operator	Date	Details
Ocean	Orange	2015	Acquisition of a French fleet management company. At the time of the deal, Orange claimed it would make it the largest fleet management company in France
MTData	Telstra	2017	Australian fleet management company that was founded in 2003
Telogis	Verizon	2016	A venture-backed firm that had annual revenues of a reported US$100 million at the time of acquisition
Fleetmatics	Verizon	2016	US$2.4 billion acquisition of a global fleet management company. The largest IoT related acquisition of any telecoms operator

The main motivations for telecoms operators acquiring fleet are:

- The acquisition of fleet management firms allows telecoms operators to take position in more of the value chain. Most fleet management solutions include a device, service, as well as connectivity revenue. Over the lifetime of a contract, connectivity revenue typically represents less than 20% of the total value. Acquisition allows telecoms operators to retain more of the value.

- The market is relatively mature, limiting the risk. While many IoT businesses are still as yet unproven, the market demand for fleet management is well understood. As discussed above this is in part because the business case for end users is well documented and widely recognised. In buying fleet management companies, telecoms operators are not buying a start-up that still needs nurturing but mature, established businesses. This may well fit better within the existing telecoms operator model, which is ill-suited to growing early-stage businesses.

- Most fleet management companies are more service than technology companies. While the offering is underpinned by technology, the service and support elements of fleet management are the crucial differentiators (similar to telecoms operators). As such, most fleet management companies are national, rather than global companies, which also fits well with the footprint of telecoms operators.

- In most high-income countries, the fleet management sector is a mature, if fragmented, market. Fleet management solutions have been around for over a decade and in most high-income markets, established companies have a strong position in the market. This means that it would be hard for new entrants, like telecoms operators, to enter the market organically. Acquisition is the surest means of gaining share.

While the logic of acquisition is clear, a number of challenges remain for telecoms operators to enter the fleet management business. Probably the largest is that fleet management is significantly different from the core telecoms operation. The value chain is different, as are ▶

routes to market, sales structures, support processes and so on. Telecoms operators that want to play in the fleet management market need to have divisions that become fleet management companies – structures from the telecoms business cannot be forced on to what is a different business. Acquisition can provide these processes but careful management is needed by operators who are not typically used to supporting multiple different types of business.

The rewards for acquisition are clear. In its Q4 2017 results announcement, Verizon reported that its telematics business generated over US$230 million. Verizon also claims to be the largest fleet management company in the US. Fleet management revenue for Verizon may well exceed US$1 billion in 2018.

Logistics will move beyond tracking vehicles to monitoring goods

Fleet management and logistics were early adopters of IoT technology as the business case was relatively easy to prove and payback often been rapid. However, until now, IoT has mostly involved tracking the vehicle, and in some cases the container, but not the item being transported. This is probably going to change, especially as low power wide area (LPWA) technology develops and helps to further reduce the cost of connectivity and of the device.

Examples of experimentation of LPWA for transport and logistics already exist. RM2, has what it claims to be the world's first smart palette. Unlike traditional wooden pallets, RM2's composite palette can house a tracking device that is connected to an LTE-M module. By adding connectivity, the customers can track the pallet as it moves through the supply chain, and so have a much better real-time view of where goods are. Customers can also accurately locate each pallet within a warehouse. In time, they may also be able to monitor the exact conditions of the pallet, in terms of temperature, humidity, vibration and so on. There are also benefits for the owners of the pallet itself – they have a clearer view of their inventory, which should lead to more efficient management of resources and less wastage.

LPWA technology is also being applied to cold chain monitoring. For example, in Belgium, the ▶

company Quality Guard is using Proximus's LoRa network to connect sensors in commercial fridges. The sensors measure the temperature, light, humidity and door openings, and provides alarms when the sensors detect abnormalities.

Tracking is also moving behind traditional assets. New connectivity technologies such as LPWA will facilitate the way for the monitoring of lower-value assets that are transported from site to site such as gas and oxygen cylinders.

Fleet management is only the first stage

One of the core hopes for IoT was that it would give all parties a better view of assets in different stages along the supply chain. Fleet management is only an initial move to realising this vision and has given asset owners a real-time view, at least of the vehicle carrying an asset. While fleet management continues to grow, it is gradually approaching maturity. The next stage will be to gain a more detailed view not just of the location of the vehicle, but a richer view of the state of the actual asset beyond just location. As lower-cost connectivity solutions emerge too, we should also see this evolve to cover a wider range of assets.

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About Analysys Mason

Analysys Mason is the global specialist adviser in telecoms, media and technology (TMT). For more than 30 years Analysys Mason has played an influential role in key industry milestones and helped clients through major shifts in the market. We continue to be at the forefront of developments in the digital economy and are advising clients on new business strategies to address disruptive technologies.

Our global presence matched with unique local perspective has helped hundreds of clients across TMT sectors around the world. Clients call on us to help them better understand industry and technological challenges and changes so that they can thrive in demanding market conditions and position themselves for the future. In addition to our global network of consultants, our research is relied on by many of the world's leading operators, vendors, regulators, investors and market players. Covering all key areas in telecoms and telecoms software, clients rely on our insight to inform their decision making.

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