

# The Fleet Manager's Guide to the Internet Of Things

*Key Challenges and Technology Innovations Driving  
the Next Generation of Fleet Management Industry*



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## Introduction

Today, the transportation industry is undergoing unprecedented transformation. Fleet management professionals are faced with new situations and decisions on a rapidly increasing basis. While many of these transformations are creating new business opportunities, some are introducing new obstacles that can lead to supply chain disruption and, ultimately, lost revenue.

### Fleet Management Market Conditions and Challenges

Once an industry of infrequent change, the transportation sector is currently experiencing pressures from every possible angle, including cultural, financial, and governmental forces. As a result, fleet managers are charged to better understand the current landscape and consider new strategies. This includes everything from route planning and vehicle maintenance, to driver safety and productivity, in order to gain a competitive advantage.

*Just a handful of the most significant outside factors weighing on the transportation industry include:*

#### ONLINE SHOPPING

E-commerce sales are booming, growing between 20 and 25 percent each year. While this rapid growth increases potential revenue for delivery businesses, it is also tightening trucking capacity, elevating the importance of final-mile delivery processes, and creating a demand for more precise pick-up and delivery times. In addition, e-commerce is changing shipping strategies from large volume and low frequency shipments to low volume and high frequency shipments, especially during the holiday season.

These shifts are also affecting warehouse and distribution center development, which means that the current impact of e-commerce on supply chain operations may only be just beginning. These conditions present a strong need for improved routing optimization and analysis of shipping capacity. For organizations with private fleets for last-mile delivery, in particular, the need for routing solutions that consider the current location of vehicles and other real-time data is more important than ever.

#### THE DRIVER SHORTAGE

Fueled by online shopping delivery and a surging economy, the current nationwide driver shortage accelerated in 2017, and it is expected to grow more severe in the coming years. A recent study from the American Trucking Associations (ATA) predicts that the shortage could reach 174,000 drivers by 2026.

#### DRIVER SAFETY AND PRODUCTIVITY

Fleet managers have a keen focus on eliminating preventable accidents to keep drivers safe, reduce lawsuits, bolster the company's reputation, and mitigate expenses related to repairs and downtime. Improving driver safety is also required by some government regulations. The ELD mandate, which went into full effect in the United States in April 2018, requires that trucks have either an automatic onboard recording device (AOBRD) or an electronic logging device (ELD) solution to log Hours-of-Service (HOS) and Record of Duty Status (RODS) – many other countries have already implemented a similar regulation or are planning to in the coming years. The intent is to improve the overall safety of commercial motor vehicles, but as with any new regulation, deploying a compliant solution can be complicated.

#### FUEL PRICE VOLATILITY

Fleet managers always seek new ways to improve fuel efficiency to reduce this significant expense. Without a crystal ball, fleet professionals are unable to accurately predict oil market changes and anticipate spikes. Fuel costs can be affected by natural disasters that close refineries, oil surpluses and shortages, as well as political forces. Fleet managers are exploring technology-based route optimization and driver management solutions to maximize efficiencies, to helping to curb costs, regardless of market fluctuations.

## Solutions: Driving the Next Generation of Fleet Management Innovation

In light of the current market complexities, transportation businesses and fleet managers now have a significant opportunity to re-invent their organizations to address challenges and drive new levels of productivity, safety, efficiency, and profitability. **The key to the future is technology.**



Internet of Things (IoT) technology is being actively adopted by the fleet industry to help address and alleviate the multiple obstacles. In fact, the transportation sector is witnessing an explosion of “smart, connected things.” The analyst firm IHS Markit predicted that there will be 30.7 billion IoT devices in use by 2020, and the transportation industry is finding new ways to innovate and solve challenges by leveraging telematics devices, sensors, location-based services (LBS) applications, software, and wireless connectivity across cellular, satellite, and near-field networks. Some experts believe that within five to 20 years, IoT will even help greatly diminish the current labor gap by enabling large fleets of autonomous delivery vehicles.

Today, IoT already enables fleet managers to track not just in-transit and geo-fenced locations at any given time, but also the actual status of both asset and cargo, including:

- Whether a truck is loaded or empty
- Internal temperature and atmosphere
- Shock
- Motion
- Fuel and oil levels
- Tire pressure
- Device on/off
- Tampering/intrusion

Fleet managers are gaining deeper insight into a wide range of important factors related to their businesses. With reliable, real-time data from connected assets, fleet professionals can gain visibility into what is currently going on, versus what was planned or anticipated. This enables managers and drivers to make immediate corrections to improve everything from profitability to safety.

*Some of the most significant IoT innovations can help fleet managers with:*

### VEHICLE TRACKING AND DIAGNOSTICS

IoT-based vehicle tracking can solve a wide array of transportation and supply chain issues, including the high demand generated by the aforementioned boom in online shopping. Vehicle tracking systems typically combine sophisticated GPS tracking technology with advanced mapping and reporting software. Tracking devices are installed on vehicles, which then transmit locational and diagnostic data to the system via a cellular data connection so that fleet managers know exactly where their vehicles are at all times.

By monitoring the vehicle's location in real time, fleet managers can more accurately predict the estimated time of arrival, quickly devise new routes while juggling the impact of real-time trends in traffic and weather, and plan for other downstream supply chain activities. Fleet managers can also help drivers reduce idle time and fuel consumption.

In some industries, fleet managers need to know more than just a vehicle's speed and location. If they are transporting perishable food items, they can increase product quality by ensuring that the refrigeration system is working to optimum levels. If cargo is fragile, managers can monitor to make sure the payload is secure. IoT-based solutions makes vehicle tracking solutions more efficient, economical, automated, and reliable, which means individual dispatchers will be able manage more vehicles.

Large organizations in particular, have another challenge: The risk that assets, such as vehicles and trailers, go underutilized or forgotten. This results in a significant loss of productivity and capital investment. Vehicle tracking helps make sure that all assets are located and on the road.

#### DRIVER MONITORING

It is more important than ever for fleet managers to know how their drivers are performing and manage them efficiently. Careless driving can open fleet companies to a myriad of risks. Studies show that driver behavior affects vehicle wear-and-tear, and that good driving behavior can improve the resale value of vehicles and reduce maintenance costs. **According to the EPA, good driver behavior can actually enhance fuel efficiency by 33 percent.** It can also lead to a lower number of accidents and lower insurance premiums.

And more importantly, monitoring driver behavior can help drastically increase safety. IoT applications help fleet managers track driving habits – such as speed, blinker usage, braking time – and learn areas how their drivers can be safer and more productive. Fleet managers can set rules and alerts for when drivers exceed speed maximums, brake too hard, drive too many hours, or do not follow the prescribed routes. The Federal Motor Carrier Safety Administration (FMCSA) now allows the driver's smartphone, tablet, or rugged handheld to be used for data capture and transmittal, tying into the fleet business's larger IoT platform and helping to ensure safety and compliance.

For some carriers that have not monitored these critical KPIs in the past, the ELD mandate is the impetus to invest in driver tracking and monitoring technology and begin gaining previously un-realized benefits.

#### FUEL MANAGEMENT

Fuel price volatility is a constant challenge for today's fleet managers. To help manage fuel costs despite market fluctuations, IoT devices can collect data on how long vehicles idle, average speed and gas mileage, providing a holistic view of vehicle fuel efficiency. That information can then be used to determine the timing and level of upgrades to vehicles. In addition, technology-based route optimization capabilities help maximize efficiencies and further reduce fuel consumption.

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#### REMOTE DIAGNOSTICS AND PREDICTIVE MAINTENANCE

Utilizing vehicle sensor data, fleet managers can avoid unscheduled downtime by assessing equipment conditions, recognizing warning signs, and servicing equipment before it fails. There are many ways a truck can be sidelined – the vehicle is running hot, brakes are wearing, tires treads are thinning, and more. With IoT capabilities, vehicles can now be connected to monitor factors as simple as tire pressure and as complex as transmission wear. This allows carriers to be more proactive in how and when they service vehicles to extend life, limit time off the road, and improve safety.

Historically, diagnostics were only performed on heavy-duty vehicles when the unit was scheduled for routine maintenance, when the dashboard lit up to signal a problem, or when the driver noticed noise, smoke, or abnormal vibration. Today, ongoing remote diagnostics via IoT combine dynamic mapping, vehicle health reports, fault code action plans, and notification alerts to allow for immediate analysis. With this insight, vehicles can be repaired well-before issues escalate.

In the event that a vehicle has a breakdown, fleet managers can route the truck to a preferred service center and even confirm an available bay. Remote diagnostics also allow fleet managers to share vehicle condition and symptoms with the service center prior to arrival. With this preliminary information, the repair facility can estimate the repair time or reroute to a different, more appropriate shop. For the fleet manager, knowing when a vehicle will be out for maintenance, and for how long, helps identify resulting changes in the downstream supply chain.

## UTILIZING FLEET ANALYTICS

With IoT, fleet managers have more information at their fingertips than ever before. However, utilizing that data in a strategic manner is the key to better managing operations and costs. Otherwise, just collecting large volumes of data and examining non-strategic stats can result in hours of analysis with no real benefit.

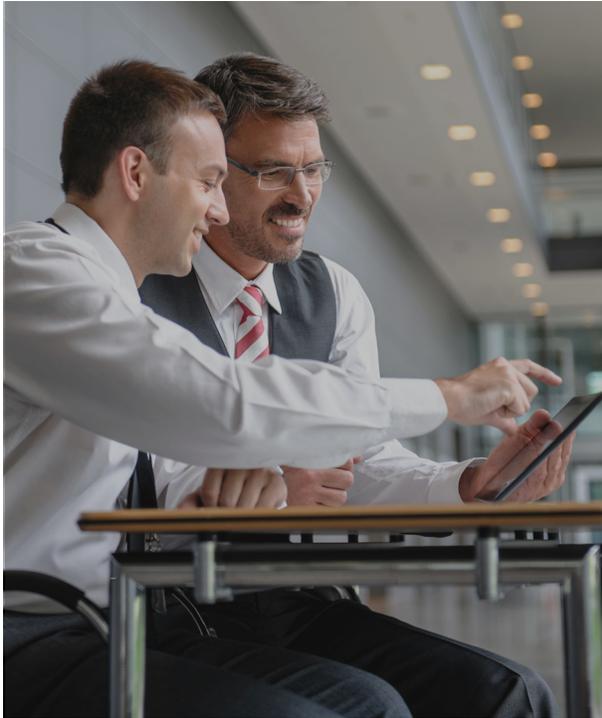
With the amount of information available on just about every component of a vehicle's use, operation, and overall lifecycle, it is important that fleet managers invest time and the appropriate technology into the data evaluation process. To ensure the right data is being captured and utilized, decide on an appropriate set of key performance indicators (KPIs).

Just tracking mileage alone is no longer enough data to make informed decisions. Modern strategic KPIs include cost-per-mile, fuel efficiency (mpg), order-to-delivery times, and days to sell for remarketed vehicles.



## Getting Started

While some transportation companies have been early IoT adopters, significant cost, technology, and informational barriers have often limited these innovations to larger organizations. The primary challenge has been cost. Many organizations have lacked the financial bandwidth to build, connect, secure, maintain, and update IoT applications.



However, IoT is moving from luxury status to being a necessity – as partly evidenced by the ELD mandate. The good news is that the IoT has been greatly democratized, with everything from sensors to secure, managed connectivity widely available and within the budgets of most growing companies.

Maximizing the many benefits of IoT-powered fleet management requires a strategic plan of attack. Successful IoT initiatives are cross-organizational efforts that start with multi-departmental business goals. The best way to determine where to start and finish is to have a clear, well-outlined plan for execution and an understanding of what constitutes success.

Working with key partners, transportation businesses can rapidly identify key business objectives, drastically reduce development time and deploy IoT fleet management solutions to gain significant competitive advantages.

KORE offers end-to-end solutions for rapid fleet management IoT design, deployment, and management. KORE Power Solutions and Location-Based Services are built upon reliable, secure and scalable wireless connectivity, combined with best-in-class equipment from leading manufacturers, a solid and stable management platform and fortified by world-class support.

[Learn more](#) about how KORE can handle the IoT technology so you can concentrate on growing your transportation business.