THE ULTIMATE GUIDE TO FLEET TELEMATICS

PDF
Who This Guide Is For

**The Telematics Curious.** You do not currently have a telematics solution, and are wondering if it is something your organization should invest in. You want to learn what the main types of telematics are and what they deliver.

**The Telematics Update.** You have been using telematics for a while, but are looking for an update on the state of the industry. You want to learn what is new and what are some of the key features now available.

**The Telematics Disappointed.** You have a telematics solution, but aren’t getting what you expected. You want to learn what the market norms are, and if your vendor is under-performing.

**The Telematics RFP Writer.** You are scoping an RFP for telematics and want to understand what options are available and what features are most valued by fleets.
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A fleet of vehicles plays a critical role in the daily operations of many organizations. If a vehicle isn't available when someone needs it, they are unable to do their job. At the same time, operating a fleet involves significant costs. Given the importance and the costs involved, organizations hand the reigns to a given person: the fleet manager.

Fleet managers are responsible for keeping costs low while delivering high availability of a safe and reliable fleet of vehicles. The result is that fleet managers need to be equally fluent in the finance, operations, and technical aspects of automotive technology.

Operationally, this means knowing what is required of your fleet, understanding which vehicles are best suited for which applications, tracking and predicting the Total Cost of Ownership (TCO) of those vehicles, knowing when the vehicles need to be serviced, training drivers for safe and economical driving, and being aware of what is going on with your fleet at any given moment.

And with so many moving parts, managing a fleet can look something like this...

This is where telematics comes into play. Designed to be a fleet manager’s best friend, fleet telematics aims to help fleets plan for the future, ensure productive day-to-day operation, and react to unforeseen events in real-time.

Backed by data, it helps fleet managers automate important functions, and allows them to focus more on the bigger picture items.
While telematics is a combination of the words telecommunications (the exchange of information over distances) and informatics (the science of processing data), we propose a more direct definition:

**telematics**

/ˌteləˈmadiks/

noun

Telematics tell people how well their machines are working.

In other words, telematics is a system that collects data to provide you with actionable information and guidance. The best telematics systems understand that its job is to save – not consume – the time of the fleet management team.
<table>
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<th>General Fleets</th>
<th>Utility Companies</th>
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<td>Governments and Municipalities</td>
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Who Uses Telematics In Their Fleets
It begins with either a physical device or piece of software inside the vehicle. It can make its way into the vehicle straight from the original equipment manufacturer (OEM) or from a third-party provider.

OEM telematics can make sense when your fleet is mostly comprised of one vehicle manufacturer, and you are completely satisfied with their telematics offering. In any other scenario, using a third-party provider typically makes more sense.

A third-party solution allows you to deploy across all your vehicle makes/models, and doesn’t restrict you to one manufacturer moving forward. They are also generally better designed for fleet applications, allow you to tailor your solution, and are quicker to see features added to the system.

<table>
<thead>
<tr>
<th>OEM TELEMATICS</th>
<th>3RD PARTY TELEMATICS</th>
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<tbody>
<tr>
<td>✔ Installed on the assembly line</td>
<td>✗ Needs to be installed manually</td>
</tr>
<tr>
<td>✔ Integrated within warranty</td>
<td>✔ Solution comes with its own warranty</td>
</tr>
<tr>
<td>✔ Easier access to enhanced signals</td>
<td>✔ Potential access to enhanced signals</td>
</tr>
<tr>
<td>✗ Only works for that OEM, meaning you may have different portals and data definitions</td>
<td>✔ Works across different makes/models, only have to use one portal</td>
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<tr>
<td>✗ Slow updates</td>
<td>✔ Faster updates</td>
</tr>
<tr>
<td>✗ Typically individual-focused</td>
<td>✔ Focused specifically towards fleets</td>
</tr>
<tr>
<td>✗ Can’t switch providers</td>
<td>✔ Able to switch telematics providers</td>
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For the purpose of this guide, we'll be digging deeper into the third-party telematics systems.

There is no one-size-fits-all solution.

All telematics systems were not made the same. Consider these potential use-cases:

- GPS tracking to provide not only location information but also insight on vehicle speed and mileage covered
- Communications tech to keep driver and dispatch on the same page
- Sensors to monitor vehicle performance, driving behavior, and self-diagnostics for maintenance purposes
- Cameras to relay information on road conditions
- EV charging data to understand infrastructure requirements

Thus there are different types of telematics systems designed for the unique purposes that they serve.

Let's take a look at the different levels.
Level 1: GPS Tracking

The first level involves only the use of GPS tracking. “Only” GPS tracking can still deliver a great deal of data though, giving users access to features such as:

- Map location
- Vehicle speed
- Vehicle idle time
- Geofences (for real-time location-based alerts)
- Fuel economy when fuel card integration is available

This is accomplished by installing a GPS tracking device, or tapping into the vehicle's own GPS connection. The data is then transmitted to an online portal where it can be analyzed and processed for reporting.

Even with the limited number of features GPS tracking provides, the benefits are considerable. Fleets are able to know where their vehicles are in real-time. They can improve customer service with better dispatching, enabling near-by drivers to show up to client emergencies. They can improve productivity by optimizing routes. They can improve fleet efficiency by reducing idle events and providing feedback to better train drivers.
Fleets can also use the hard acceleration/braking & speeding metrics to increase driver safety, consequently bringing down insurance costs. Lastly, getting the vehicle GPS data can help automate compliance reporting when meeting with company executives.

The downside of GPS tracking is that you’re only able to get high-level data. You’re not able to get information directly from the vehicle, such as diagnostic reports or accurate fuel efficiency data. You also can not access any important electric vehicle-specific data.
## Level 1: GPS Tracking Overview

### Benefits

- ✔️ Real-time location of vehicles.
- ✔️ Better customer service. With precise locations of your fleet vehicles, dispatchers can communicate with customers to deliver accurate time estimates.
- ✔️ Greater efficiency. Whether you operate gasoline vehicles, hybrids, or EVs, improving economy is a constant struggle. GPS tracking helps with:
  - ✔️ Driver feedback to better train drivers & increase fuel efficiency
  - ✔️ Cutting down operating expenses/labor costs
  - ✔️ Geofences for real-time alerts and to help analyze activity
  - ✔️ Reporting to identify areas of improvement
- ✔️ Better productivity. Optimized routes make drivers more productive and happier on the job.
- ✔️ Safer drivers. Driver feedback not only reduces fuel efficiency, but also decreases the odds of getting into an accident.
- ✔️ Reduced insurance.
- ✔️ Can begin to automate compliance reporting.

### Drawbacks

- ✗ Unable to get vehicle-specific data. Limited to what GPS tracking data can provide.
- ✗ Only provides high-level insight, and is not a good source for granular, highly accurate data.

### Use Cases

- ➡️ General fleets hoping to track their vehicles and assets.
- ➡️ Fleets looking to get started with telematics.
- ➡️ Real-time location of vehicles.
While GPS tracking is a good starting point for fleets looking to adopt telematics, on-board diagnostics (OBD) take it up another level. Anyone familiar with the “check engine” alert on a vehicle display understands what it is capable of. All vehicles from the 1996 model year onward have an OBD-II port available.

Plugging a device into the OBD-II port allows users to retrieve basic vehicle data. With this information you’re able to calculate fuel economy, record accurate trip logs, view engine temperature, and tap into the stream of Diagnostic Trouble Codes (DTCs) – among other options.

These features are useful for accurate reporting and providing real-time driver feedback, but also enable you to run a better maintenance program. By receiving DTC alerts from the vehicle, you’re able to address maintenance-related issues as they arise.

The downside of OBD-based telemetry is that the type of information it provides is still somewhat limited. On-board diagnostics became standardized after a ruling by the California Air Resources Board and EPA, and its sole mandate was that you need to be able to retrieve emissions data from any North American vehicle. If you’re looking to retrieve anything more than emissions-related data, you’ll need a more advanced solution.
Level 2: On-Board Diagnostics
Overview

Benefits

✔ Everything from Level 1 telematics (if the device has GPS tracking built in).

✔ Better fleet maintenance. With DTC alerts, fleet owners can service vehicles faster and maintain them in better condition.

✔ Real-time driver feedback. Information from the vehicle can quickly be relayed to an app.

✔ Provides more information than GPS tracking, and with better accuracy.

Drawbacks

✖ Still lacks some important data, such as odometer readings and seat belt status.

✖ Not compatible with plug-in vehicles. Not being able to support all vehicles means there could be holes in your fleet operation down the road.

Use Cases

➔ Fleets looking for more than just GPS data.

➔ Fleets who are looking to improve their maintenance program.

➔ Fleets who don't intend on adopting EVs in the near future.
Level 3: Enhanced Signals

Level 3 Enhanced Signal telematics goes beyond what GPS tracking and on-board diagnostics can accomplish by bringing a wider range of data into the equation.

By tapping into enhanced signals from the CAN bus, you’re able to retrieve data that isn’t made readily available through the OBD port. You’re able to access information such as:

- True odometer readings
- Seat belt status
- Individual tire pressures
- Power take-off status (for bucket trucks)
- Auxiliary loads (particularly useful for EVs)

The big one here is the true odometer readings. Having this information allows you to schedule vehicle maintenance based on the mileage they’ve traveled, without needing your drivers to record the information themselves.

Monitoring seat belt use helps enforce that your drivers are as safe as possible in the case of an accident. Insight into individual tire pressures can help prevent accidents due to blown tires, but also improves the vehicle’s efficiency by having them inflated to optimal levels.
Level 3: Enhanced Signals

Much like the “Internet of Things,” Level 3 telematics is still largely undefined. Since you’re able to tap into a wide array of data, fleet managers are able to pick and choose what they’d like from the vehicle as opposed to being restricted by a limited set of features.

The challenge up to this point has been that different vehicles can transmit different signals. Not only do telematics providers need to build hardware that is capable of reading these signals, they need to have the engineering team to program the hardware to actually do so.
## Level 3: Enhanced Signals Overview

### Benefits

- ✓ Everything from Level 1 and Level 2 telematics.
- ✓ Better preventative maintenance scheduling.
- ✓ A clear picture of each vehicle’s mileage and condition.
- ✓ Enhanced safety features.
- ✓ The potential to tailor solutions to your data requirements.

### Drawbacks

- ✗ Does not support electric vehicles.

### Use Cases

- → Fleets looking for an advanced telematics solution
- → Fleets who are looking to optimize their maintenance program.
- → Fleets who don’t intend on adopting EVs in the near future.
With the number of available plug-in vehicle models growing by the month, fleet managers have begun seeking comprehensive solutions to accommodate the segment.

At the highest level, a telematics system with EV support is really just an extended form of Level 3 enhanced signal telematics. EVs pose new challenges though, and the level of complexity to support them goes far beyond just pulling another signal from the vehicle.

Telematics providers need to decode each electric vehicle model, and provide a new way to present the information (such as energy consumption, state-of-charge, or battery health) in the back-end.
The benefits of having a telematics system for your EVs are substantial. Predictive analytics can help you choose the right electric vehicles for your fleet, based on your specific duty cycles. Monitoring the vehicles can help increase how much you utilize them (reaping the cost savings), optimize charging behavior, help you understand where charging stations might be beneficial, and automate emissions reporting.

Taking advantage of integrated smart charging technology can also help reduce demand charges and shift your charging to off-peak hours.

Especially with the first generation of electric vehicles running on ranges of 100 miles or less, they require careful management to ensure a positive experience. Even with longer range second generation electric vehicles, EV telematics will help ensure you're maximizing their ROI.
## Level 4: Enhanced Signals + EV Support Overview

### Benefits

- **Electric Vehicle Monitoring**
  - Increase utilization of EVs in your fleet
  - Optimize charging
  - Plan out your EV charging infrastructure
  - Maximize the EV fraction for plug-in hybrids
  - Monitor battery health
  - Automate plug-in compliance reporting
  - Home-charging reimbursement for employees

- **EV Suitability Analysis**
  - Understand where EVs are best suited
  - De-risk EV adoption
  - Right-size your fleet

- **Smart Charging**
  - Reduce demand charges and shift charging to off-peak hours
  - Automate charge schedule
  - In the case of utilities, deploy residential demand-response programs

### Drawbacks

- There may be a slight learning curve for users when interpreting electric vehicle metrics.

- Drivers and management may need to adapt to the new technology.

### Use Cases

- Fleets looking to adopt or purchase more electric vehicles.

- Utilities looking to monitor their fleet, encourage EV adoption among customers, or run a residential smart charging program.

- Electric taxi fleets hoping to maximize ROI through better dispatching.

- Researchers looking for a plug-and-play system to retrieve EV data.
We've created a chart to list a few of the popular telematics providers. The chart does not necessarily represent that one is better than the other, but rather indicates the level of telematics that their solution provides.
Get the future-proofed telematics platform.

As you may have learned from this guide so far, not all telematics platforms are created equal.

If you are simply looking for basic GPS tracking, there are plenty of low-cost options available to you.

On the flip side, if you are looking for Level 4 telematics that can support all your current and future vehicles, provide rich vehicle data, optimize your maintenance program, and improve your fleet’s efficiency, FleetCarma might make for a great option.

If you’re interested in scheduling a demo, simply click the button below to start the dialogue.

REQUEST A DEMO
As with any connected technology, transferring data to and from devices opens up the possibility of information being exploited. These concerns became heightened when the FBI released a public service announcement in March 2016 about the potential to hack third-party devices attached to diagnostics ports.

To help mitigate these risks, it’s important to establish standardized employee guidelines and work with a telematics provider who places an emphasis on data protection. Top telematics providers will feature:

- Encrypted data streams
- Secure transfer of information from the vehicle to the network (and vice versa)
- Hardening of devices

Some providers will also feature the ability to turn off GPS data where it is especially sensitive, such as police or special forces fleets.

For any level of vehicle telematics to work for an organization, security needs to be an established component of the technology, and fleet managers should do their due diligence while exploring options on the market.
Also common with connected technology is the concern of having too much private information become readily available. Drivers and employees may begin wondering if their movement is being tracked by a Big Brother figure.

The situation may be even trickier when drivers use company vehicles during off-hours for personal trips. Similar to police fleets, turning off GPS tracking for personal trips may also be an option.

Generally, drivers feel more comfortable and “buy in” to the concept of telematics when fleet owners:

- Provide full details of the tracking software being used, including what information is being recorded
- Offer incentives for improved driving habits

Active participation by employees is a must when adopting a new telematics solution. In order to maximize ROI, there needs to be an open communication channel and everyone needs to be on the same page.
The Future of Fleet Telematics

With today's vehicles becoming more and more sophisticated, it opens up the realm of what is possible using telematics.

Cameras, sensors and more advanced GPS have led to the self-driving car. While early semi-autonomous driving systems have been far from perfect, many see fully autonomous driving as the way of the future.

Imagine the role telematics will play when vehicles are able to communicate with each other and operate themselves. Concerns about driver workloads and scheduling may give way to wireless charging “self-driving-only” lanes on the highway.

The human element will of course always remain prominent, but autonomous cars paired with advanced telematics has the potential to drastically reduce operating costs, increase hours of service, and automate mundane tasks.
With an idea of the options available and the concerns you must address within your company or organization, one of the above telematics solutions may look like the right choice. Before you sign on, run through this checklist to make sure you are covering all the bases.

☑️ **Are organizational weaknesses addressed?**

Taking on a new telematics solution is like making a major hire – you want to be sure it'll improve the most prominent weaknesses within your organization. If shoddy fuel economy and lackluster driving skills are plaguing your fleet, you'll need more than just the basic level of telematics.

☑️ **Is the future of your fleet considered?**

With government emissions caps being mandated and economy standards rising, the future of fleets will require much greener driving systems. As you and your team ponder the right telematics solution, consider how it will support your future vehicles. Odds are electric vehicles are on every fleet's horizon, so plan appropriately.

☑️ **Can employees handle the shift?**

Since most telematics platforms involve minimal driver participation, you should not have to worry about implementing technology and setting aside time for training. However, the information may prompt changes in driving style and the way cars are monitored. Make sure your team is ready to make the adjustments.

☑️ **Will security be an issue?**

The mere suggestion of a data breach or some type of network insecurity can scare stakeholders away. Make sure you have everything in order when it comes to data streaming and encryption.
What other changes will come with a telematics upgrade?

If an EV telematics solution makes it obvious you need better charging equipment, are you ready to allocate resources to that project? Other findings may lead you to selling off older fleet cars and moving into more economical choices. The reports can shine a light on several inefficiencies in your business, so be prepared for changes in other areas.

Can your company afford it? Or afford not to?

What separates fleet owners from the average car consumer is the consideration of the full life-cycle cost of ownership. When you hear a proposal for a telematics solution, you should have an idea what it could save you in operating costs so you can justify the initial expense. You might see a fine line between affording the solution now and not affording to run old fleet vehicles in the coming years.

Is driver safety provided for without fleet telematics?

Telematics’ enhanced safety features offer fleet managers peace of mind when sending drivers out into service, and insurance premiums can drop as a result. Before deciding against a solution, think about what it will mean for your drivers’ safety and your insurance costs.
Was this guide to telematics helpful?

Hopefully this guide provided you with an understanding of what fleet telematics is, how various solutions can greatly differ, and what to look out for.

If you have any lingering questions, we'd love to help answer them for you.

Simply contact us using the button below and we'll get back to you within a few hours.

Thanks for reading!

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