



## IMPROVED ROI WITH INTEGRATED TELEMATICS

### CONTROLLING COSTS

Managing a group of assets, whether far-flung, nearby, mobile or stationary, is a complex endeavor involving a myriad of factors and variables that ultimately impact on ROI.

**Maintenance & Service Costs:** For all assets, the cost of maintenance and fuel can be the determining factor for profitability with mobile assets.

**Fuel:** One of the biggest challenges faced by a fleet manager is the expense of high fuel usage. One underlying cause of this problem can be mechanical issues. Neglected mechanical maintenance of the asset, for example, can lead to an unnecessary increase in fuel consumption. Another source of excessive fuel usage is often inefficient or aggressive driving behavior. Whether deliberate or unintentional, incorrect driver behavior is a major contributor to a significant increase in fuel costs. Factors such as speed, acceleration style, idling and number of stops can decidedly affect fuel economy.



**Safety & Insurance** Company assets also face other major costs, which include insurance and regulatory compliance, that varies by type of industry. Companies provide training and incentives to lower their rates and compliance.

**Theft:** For example, construction sites are often unprotected and unsupervised during non-working hours, leading factors in asset theft are poor security of both the equipment and the site, along with a low risk of detection and arrest. The theft can be as large as a piece of heavy machinery, or as simple as a tank of fuel.

## THE TELEMATICS SOLUTION

Faced with these multiple challenges, most fleet managers are acutely aware that they need an integrated approach to effectively manage all components of their fleet. With the ultimate goal of a healthy Return on Investment, successful fleet management calls for a telematics system.

Telematics encompasses telecommunications, vehicular technologies, road transportation, road safety, electrical engineering (sensors, instrumentation, wireless communications, etc.), and computer science (multimedia, Internet, etc.).

### DATA MANAGEMENT & FUEL EFFICIENCY

Implementing telematics involves the installation in fleet vehicles of devices such as programable modem solutions that can track fuel usage, maintenance requirements, and overall asset performance in order to help fleet managers track fuel consumption and improve fuel economy. These devices might also may need GPS, cellular, and satellite capability so it can monitor miles driven, idle time, and the path taken, which can assist in tracking engine use and various factors of driver behavior. These features can help fleet managers identify opportunities for improvement and implement the appropriate training.

**“Even the most experienced drivers can benefit from training that teaches how fuel economy is reduced by idling, speeding, shifting frequently or improperly, accelerating or braking aggressively or frequently, and taking circuitous routes.”** - the Alternative Fuels Data Center



Equipment Location



Battery & Fuel Management & Efficiency



Machine Status

## MAINTENANCE & SAFETY

To achieve a healthy ROI, these are some of the major factors that should be considered, that telematics can reduce overall services costs, improve safety, & decrease downtime.

- **Expensive Repairs** - In addition to potentially causing higher fuel consumption, neglected maintenance can also result in expensive repairs to the asset. If initial problems are not caught right away, one small issue can develop into a much larger, multi-faceted problem.
- **Driver / Asset Downtime** – When the asset is stolen or damaged, the expense of the resulting downtime of both the asset and the driver can grow quickly.
- **Driver / Asset Safety** – A lack of emphasis on safety for both the driver and the asset will create a lurking threat to ROI that is guaranteed to ultimately become reality.

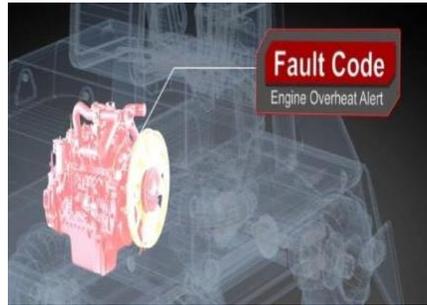
## THEFT MONITORING & TRACKING

A well-designed telematics system will feature solutions for both **work site and asset security**. Since it can be difficult or cost prohibitive to physically secure, an entire work site of construction equipment, each asset can have sensors installed that would detect and report unscheduled use or movement. To stem the tsunami of fuel theft, several factors can be monitored and alerted such as an abnormal fuel level change or an opened/closed fuel door.

Some intelligent telematics devices can also **control the asset remotely**, making it possible, for example, to shut off the engine of a stolen vehicle or piece of equipment, rendering it immobile and greatly increasing the chances that an immediate alert to law enforcement will result in recovery and arrest.



Equipment Utilization



Fault Codes



Scheduled Maintenance

## MACHINE HEALTH

With telematics, asset maintenance becomes part of the monitoring process. The condition and status of the asset's engine and parts can be monitored through [alert messages and analytics reporting](#), thus triggering any necessary maintenance and repairs as soon as a need is apparent. This will result in benefits such as lower downtime and [increased safety of both the asset and the driver](#).

## MONITOR + FEEDBACK = RETRAINING BEHAVIOR

Some telematics systems offer detailed monitoring capabilities that make it possible to [observe driver behavior](#). Sensors can detect every instance of poor driving habits such as harsh acceleration, harsh braking, speeding, and excessive idling. In addition, speeding can be tracked by location, number of occurrences, and duration.

To [ensure the lowest number of miles](#) is being driven, a deviation from the best/expected route can be tracked and identified; a play-back can demonstrate a reenactment of the route taken.

## LEADING TELEMATICS TRENDS – VIDEO & BATTERY MANAGEMENT

[The value of video telematics](#) lies in its ability to enhance safety, reduce costs, improve operational efficiency, and provide a valuable tool for businesses and individuals to manage and monitor their vehicles. It's a versatile technology that can have a positive impact on a wide range of applications.

[Telematics and battery management systems](#) are essential for the efficient operation of EV trucks and equipment. They help in optimizing energy usage, extending battery life, reducing operating costs, and ensuring the safety and reliability of these vehicles, especially in commercial and fleet applications where reliability and efficiency are crucial.



### QConnect™



- ULTRA-COMPACT RUGGED GLOBAL CELLULAR MODEM
- Customize and unify your global asset tracking needs with QConnect. The global, IP67 rugged and programmable QConnect solves your telematics problems even in the toughest environments, that includes LTE / GPS / Wi-Fi / BLE / Ethernet.

### Q4000



- SATELLITE AND CELLULAR DUAL MODE MODEM
- The industrial-grade Q4000 features cellular (LTE Cat M / NB IoT), satellite or dual-mode network configurations and fully programmable onboard applications with GPS.

## The Business Case for Telematics – Being Data Driven



**Enhanced Equipment Efficiency:** Telematics allows businesses to monitor the real-time performance of equipment. This includes tracking factors such as engine health, fuel consumption, operating hours, and equipment usage patterns. By analyzing this data, organizations can identify inefficiencies, reduce downtime, and optimize equipment utilization, leading to cost savings and improved productivity.



**Preventive Maintenance:** Telematics enables predictive maintenance by providing data on the condition of equipment components and systems. This helps organizations schedule maintenance tasks based on actual usage and wear-and-tear, reducing the risk of unexpected breakdowns and expensive repairs.



**Location Tracking and Security:** Telematics provide real-time location tracking, which is crucial for preventing theft and ensuring the security of expensive equipment. In case of theft, equipment can be tracked, and authorities can be alerted, increasing the chances of recovery.



**Safety and Compliance:** Telematics can help monitor equipment operation to ensure compliance with safety regulations and best practices. It can record and transmit data related to equipment operation, promoting safer usage and reducing the risk of accidents and liability.



**Fuel & Battery Efficiency:** Telematics data can be used to track fuel consumption and identify opportunities for improving fuel efficiency. By optimizing routes and equipment operation, businesses can reduce fuel costs, battery usage, saving money, and carbon friendly.



**Data-Driven Decision-Making**: Telematics provides data to make decisions. Businesses can use this data to analyze performance, optimize workflows, allocate resources more efficiently, and make strategic decisions regarding equipment procurement and replacement.



**Improve Asset Utilization**: Telematics can help organizations identify underutilized equipment, which can lead to more effective allocation and potentially reducing the need for additional purchases.



**Customization and Alerts**: Telematics systems can be customized to provide specific alerts and notifications based on user-defined criteria. For example, alerts can be set for equipment idling, equipment entering or leaving predefined geofenced areas, or maintenance schedules.



**Long-term Cost Savings for Service**: By proactively managing equipment performance and maintenance, businesses can extend the lifespan of their equipment and reduce the total cost of ownership. And when a failure happens, 1 trip not 2 – you know the problem.



**Real-Time Video Logging**: Whether tracking driver behavior, delivering accident reports, capturing delivery evidence, or simply auditing for training purposes; video telematics allows your machine to be safer and report issues faster.



**Competitive Efficiency Advantage**: Embracing telematics can give businesses a competitive edge by increasing efficiency, reducing costs, and improving overall operations. This can be particularly important in industries where equipment plays a critical role.

## Total Expense of Machine Operation in a Lifetime

**Improved Maintenance**: It precisely informs the replacement cycle of various consumables, so it prolongs the life of the equipment through advance inspection and exchange.

**Reduce Fuel Cost**: Calculates daily fuel consumption, calculates fuel consumption according to workload and method, provides the most economical driving range, analyzes driving habits, etc., and performs the correct operation.

**Reduced Premiums**: Thorough equipment management makes it possible to reduce premiums, etc.



**Better Parts Management:** Reduces unnecessary waste by carrying out exchange of accurate consumables replacement cycle and performs annual plan maintenance

**Better Utilization:** Through the maintenance management of the equipment and the operation history management, it is possible to form a high used value compared to other equipment.

## Key Values by Channel



### OEM:

- Monitoring of equipment to determine critical CANBUS data alert and performance for **Product improvements**.
- Monitoring of equipment through the **warranty** period to ensure proper maintenance and parts usage
- Real-time operation hours will provide more accurate usage of machines and it used for more accurate **forecast** in that region.

### Dealer:

- Monitoring CANBUS alert to advise customer of potential **Machine problems** and prevent major repairs
- Provide consumable part to **proactive machine repairs** to avoid machine down.
- **Reduce service costs** with accurate service intervals Service as needed, reduce number of field service calls Avoid underserving on high utilization machines



### Rental:

- Monitor CANBUS alerts to proactively diagnose machine performance to **Prevent machine down** situation.
- **Increase rental revenue per machine:**
  - **Charge for use** after called off-rent (i.e. short-term rents - Early Identification an overtime billing)
  - **Reduce credit abuse** (i.e. rain days, downtime)



### CONTRACTOR

- Monitor CANBUS alerts to proactively diagnose machine performance to **Prevent machine down** situation
- Reduce ownership costs by **increased utilization**, right-sized fleets
- **Improve gross margins** by reducing job costs through lower equipment costs allows your machine to be safer and report issues faster.





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Headquartered in San Diego, California, Quake's solutions, products, and design services span the globe. Quake Global has engineered and manufactured market-leading asset monitoring and tracking communications systems for trucks, heavy equipment, ships, fishing boats, pipelines, trains, and utility meters around the world are being monitored,

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