

Expanding Operational Efficiencies and Business Opportunities with Fleet Management Workflow Automation and IoT Data Integration

October 2021

Shifting Into Next Phase of Fleet Management: Workflow Automation and Internet of Things Data Integration

Executive Summary

The crucial roles that vehicle fleets play in the modern economy have been spotlighted to an unusual degree during the pandemic of 2020/2021 as supply chain challenges affected the majority of industries. Vehicle fleets are fundamental delivery mechanism for commercial goods, commodities and people, forming the backbone of the economy and the intersection of multiple systems that drive business. With fleet's role as a physical nexus of multiple elements of business and the economy, fleet telematics systems have evolved significantly in the last decade to also become key integration platforms for data sources from vehicles, sensors, devices, cameras, and position trackers as well as the proliferation of data from core business software systems. Modern fleets have multiple systems monitoring drivers, vehicle condition, safety, regulatory compliance and other aspects of the business and in turn interpreting connected data into fleet insights.

The nature of IoT enabled fleet management platforms is expanding to not only manage and optimize the operation and performance of vehicle fleets, but also to integrate and analyze shared data streams coming from fleet telematics systems and logistics, inventory management, supply chain, ERP, security, CRM and other business systems. As the increasingly rich data from fleet systems have gained value in concert with data from other business systems, fleet management platforms are increasingly shifting focus from being point solutions to embracing the broader benefits of Internet of Things (IoT) capabilities and architectures. As fleet owners manage data insights from multiple systems, consolidated insight management and workflow automation will become the next horizon for digitalizing fleet-based business.

This report examines the profound impact that fleet workflow automation and digital vehicle control can have when managing the fleets of the future.

Leveraging IoT and Workflow Automation to Expand the Success of Telematics and Fleet Management Solutions

Since the introduction of GPS-based telematics in the 1990s, fleet telematics and management solutions have transformed fleet management practices and become fundamental tools for optimizing fleet performance. The successful implementation of fleet telematics technology contributes to operational efficiency improvement, fleet safety gains, fuel and maintenance cost reductions, vehicle rationalization efforts, risk mitigation and driver monitoring. The adoption of telematics and fleet solutions has not only contributed to well documented efficiency gains for fleets but has also generated remarkable returns on investment for users of telematics solutions. In a James Brehm & Associates 2020 research study of fleet managers, 41.5% of companies reported achieving ROI on their telematics solution investments in less than 6 months, with a full 71.7% of respondents reporting positive ROI within 1 year of implementation. In the broader world of complex IoT implementations, the operational and financial benefits of telematics-based fleet management solutions qualify as a segment of notable success.

Top Concerns Among Truck Fleet Owners and Managers

Top 5 Priorities of Fleet Managers Ranked in Order of Importance		5 Most Valued Features of Fleet Management Solutions – Ranked in Order as Very Important	
1	Reducing Collisions	1	Preventive Maintenance
2	Improving Drive Behavior & Safety	2	Driver Behavior Scoring/Coaching
3	Improving Driver Accountability	3	Arrival/Departure Monitoring
4	Mitigating Liability	4	Vehicle/Cab Tracking
5	Lower Maintenance Costs	5	Route Planning

Source: James Brehm & Associates 2020 Fleet Telematics Survey

Even with the diversity of fleet types in the market, the business priorities for most fleet owners and fleet managers gravitate around key elements of optimizing vehicle performance, vehicle maintenance, driver safety, operational efficiencies, risk mitigation and ensuring compliance with regulations. In recent decades, the expansion of connected sensors, devices and software platforms has led to proliferation of fleet management solutions and tools to measure vehicle and driver performance and provide crucial analysis of fleet operational data. The adoption of fleet management solutions, natively connected vehicles, monitoring equipment and video cameras has grown steadily but has often been implemented in piecemeal fashion resulting in the deployment of multiple solutions in parallel with each other to monitor and manage the broader fleet. As with many complex IoT efforts, fleet owners and managers face the challenge of consolidating multiple systems and establishing an integrated interface, or “a single pane of glass,” to tie together their parallel systems with a coherent dashboard to monitor fleet performance and view crucial data insights.

Proliferation Of Data Drives Shift to Integration, Analytics and Automation

The fleet management industry faces significant complexity in the face of pandemic related supply chain challenges, elevated costs, growing business model fragmentation, rising competition for top drivers and upcoming connectivity shifts with cellular networks. In addition to these complex external market elements, internally many fleet owners need to modernize their operations as they increasingly struggle to harness the complexity of extracting systematic and actionable insights from multiple software and IoT solutions from across their business operations, customers, and supply chain.

While still nascent in the market, the shift towards offering workflow automation capabilities among top fleet management solution providers highlights the push to facilitate process efficiencies, federate multiple growing data streams and to address core fleet owner concerns over safety/regulation compliance, efficient performance and risk mitigation. Fleet management point solutions address many of the core operational aspects of daily fleet operations, but as companies increase the scale of their fleets or the complexity of their business models, management of multiple point solutions essentially caps further gains of efficiency and ability to work effectively with increased data needs from business partner ecosystems and customer demands.

For larger fleets already having established broad implementation of fleet features, next level efficiencies must come from integration of fleet data systems with additional systems to optimize and automate processes and data analysis across platforms and partner ecosystem.

Evolution of IoT Fleet Telematics by Maturity Phase

Phase of IoT Fleet Maturity	Key Elements	Key Benefits
Phase 1: Telematics, Connectivity, and Data Collection	<ul style="list-style-type: none"> • GPS location capabilities • Cellular connectivity & data transmission from vehicle systems, after-market devices and driver inputs to fleet manager 	<ul style="list-style-type: none"> • GPS location tracking • Gain visibility into vehicle condition, location, cost efficiency • Monitor driver behavior • Receive alerts
Phase 2: Fleet Data Monitoring & Analytical Insights	<ul style="list-style-type: none"> • Fuel Management • Vehicle Maintenance • Routing and Dispatching • Vehicle Usage Tracking • Driver Performance and Behavior Tracking • ELD/DVIR/IFTA Compliance Tracking • Dash & External Vehicle Cameras • Asset/Cargo Tracking • Geofencing 	<ul style="list-style-type: none"> • Increased vehicle safety & performance monitoring • Improved data collection for regulatory compliance • Vehicle usage optimization/Fleet rationalization • Route optimization • Fuel savings • Predictive maintenance and repairs
Phase 3: Fleet IoT, Business process orchestration of connected fleets, systems integration, and process automation	<ul style="list-style-type: none"> • Federate and consolidate diverse data from vehicles and operations to facilitate automation of workflows and systems integrations: • Driver process automation to speed execution, add essential contextual data to work record and also eliminate data entry errors. • Supply chain and blockchain partners • Automated vehicle maintenance and vehicle services workflow management • Access/security flexibility • Automated vehicle availability tied to real-time demand/location 	<ul style="list-style-type: none"> • Cost-efficient scaling of fleet operations • Facilitation of business revenue model adoption • Reduced administrative workload and need for additional staff • Reduce or eliminate administrative bottlenecks to speed execution of work orders, compliance reporting, etc. • Enhanced customer/end user experience • Optimized systems integration with business ecosystem partners

Source: James Brehm & Associates, 2021

Leveraging IoT Platforms and APIs To Enhance Efficient Workflow Process Automation

The potential for automation, data federation, and integration will evolve as the industry recognizes new pain points within their operations. For the optimization of fleet management teams, the ability to integrate and federate data from third-party solutions like fuel cards, driver logs, GPS tracking systems, etc. automates labor intensive tasks like logging meter readings and fuel purchases. The integration of this data and subsequent analysis allows fleet managers to be more effective in their understanding of fleet performance, but also paves the way to use policy-based algorithms to automate critical tasks and thereby extending the fleet managers' productivity levels. Core operational and administrative focus areas that will benefit most from workflow automation and data integration include precision maintenance, optimization of vehicle utilization, and insurance risk management.

Reduce Administrative Costs and Time to Complete Vehicle Maintenance and Repair

One of the key benefits of connected vehicle solutions is the ability to leverage natively integrated sensors and systems to collect vehicle data in real time to support dynamic constant diagnostic review of vehicles, their performance levels, and automatically identify error codes indicating major repairs or, more commonly, flag the need to replace vehicle “consumables” such as brake pads, tires, fluid levels, engine belts, batteries, etc. For fleet managers, the focus on timely vehicle maintenance and repair is crucial for ensuring optimal vehicle performance and availability, compliance with safety standards and reducing the overall cost of vehicle operations.

Depending on the size and level of digitalization for a given fleet, the process for managing vehicle maintenance might involve paper-based vehicle records and work order initiation to data-triggered alerts and work orders for maintenance and repair issues that must be addressed by the fleet management team. Digitizing driver vehicle inspection reports (DVIRs) is another key process that can contribute to record logs and feed flag relevant data for automated maintenance/repair processes. Electronic DVIRs is another instance in which many fleets have adopted a trusted, best-of-breed



eDVIR solution independent of their fleet management platform that is crucial to integrate to improve record logs, regulatory reporting and facilitate eDVIR data into automated repair work order generation.

The automation of vehicle inspection processes, maintenance work order generation and execution of repairs is a key area in which fleet platform automation capabilities can reduce or eliminate much of the time and processing work associated with scheduling and managing maintenance and repairs. In addition, a well-integrated system would also automatically initiate other processes such as removing the vehicle from available motor pools and dispatch lists and ensure that other appropriate vehicle resources are available to fleet users. For fleets utilizing third party mechanics services, fleet management platform data integration with company resource software and maintenance/repair provider systems would also

automate scheduling of service, ensure inventory availability for required parts, update vehicle repair/utilization/maintenance logs, and integrate with insurance providers risk mitigation measurement software. For logistics fleets, the ability to automate the management and scheduling of multiple third-party mechanics/repair vendors is especially valuable in the current US environment as there is a shortage of mechanics and technicians trained to work on long-haul trucks and specialized fleet vehicles.

For organizations that historically have managed maintenance through spreadsheets and paper-based work orders, automated service orchestration not only speeds the processing of maintenance efforts but also establishes a detailed database of vehicle repair history and associated costs that can be mined for insights into vehicle performance by model, replacement cycle decision making, etc. For fleet managers that already receive platform-based alerts regarding necessary vehicle maintenance, fully automated orchestration of maintenance/repair work orders and integration with mechanical service organizations eliminates potential administrative bottlenecks and facilitates the ability to scale operations without the cost of hiring additional administrative staff to address growth in maintenance processing associated with expanded scale of fleet vehicles and operations.

Expand Fleet Efficiency and Availability Through Workflow Automation and Digital Vehicle Access Control

Ridecell, a California-based fleet automation and mobility platform company works with a broad variety of fleets. Ridecell's client base includes car sharing companies, corporate fleets, government vehicle pools, logistics delivery fleets and vehicle rental fleets. In addition, to systems integration and automation support, one of Ridecell's areas of focus is the application of secure, keyless vehicle entry integrated with their vetted vehicle reservation system. These specialized fleets have unique management requirements around access control, geofencing and security that demand enhanced integration/visibility into assets, workforce and supporting systems. For these segments, Ridecell's automated approach to secure digital access management streamlines the customer logistics of vehicle usage, adds security and customer policy reviews of end-users prior to usage, automatically synchronizes with fleet availability analysis and dispatch processes and also integrates customer billing mechanisms.

In this manner, Ridecell has blended the capabilities of automated workflow with IoT-enabled vehicle access control to reduce the time and process necessary for users to procure physical keys for specific vehicle, enhancing the end-user experience. For the fleet owners, digital access control for vehicles also decreases overhead and process friction often involved with traditional key-based access control systems. The Ridecell approach allows the fleet management system to automate the changing of the vehicle's state to lock/unlock the vehicle and even immobilize the vehicle depending on status and nature of the end-user at that given time. Combining the automation of workflow processes with real-time vehicle access control not only enhances vehicle security and risk mitigation, it also provides an example of leveraging IoT's vehicle system control capabilities with process automation. This powerful combination directly eliminates much of the conventional management overhead needed to customize user experience levels and allows the fleet management system to directly offer contextually dynamic and more efficient control of fleet vehicles.



Leveraging IoT Data to Enhance Vertical Industry and Insurance Engagement

Fleet management solution provider, Geotab, has increasingly shifted its offering to leverage federated fleet data to enhance value for vertical industry of fleet owners with unique needs profiles. With solution lines designed for fleets in construction, first responder, pharmaceutical, utility, oil and gas, and other segments, Geotab is leveraging segment specific data integration and automated processes to specialized fleets. Geotab's cross-system data integration with client business systems and specialized equipment IoT solutions facilitates customized dashboards, system-wide analytics, and billing platforms. In addition, Geotab has expanded its data integration efforts with a partnership with Verisk to participate in a data exchange platform for fleet insurance providers and customers.

Insurance companies leverage the data exchange to measure and mitigate risk associated with their customer fleets and facilitate the development of customized insurance products based on real fleet performance data as well as the monitoring of driver behavior with connected fleet solutions. This secure federation of fleet operational data is a key tool to document safe operations, policy/regularly compliance and driving behaviors. Strict adherence to hours-of-service limitations, driver behavior and diligent vehicle maintenance programs not only reduce chances of crashes they can contribute to lower insurance premiums and also improve chances against legal challenges of negligence. For fleet operators, well-documented regulatory compliance and insurance data integration contributes to lower insurance costs while also providing detailed records to assist in the processing of accident claims, fines and violations and expenses for insurance, replacement vehicles, workers' compensation and legal fees.

Conclusion

The growing diversity of fleets, their business models, and expanded requirements for profitable operations and integrated systems are sparking a shift in the fleet management platforms among solution providers. By adopting IoT platforms that facilitate the federation of data from multiple fleet solution sets with analytics and workflow automation software, large fleet owners will be better positioned to create greater operational efficiencies over conventional, siloed architectures. Of critical importance, these shifts will also allow enterprises to integrate their fleet data more effectively with business partners to enhance supply chain performance, add new customer experience elements and facilitate adoption of new business models. The focused application of federated data from across disparate fleet systems and solutions ultimately allows companies to shift beyond the core functionality of connected vehicles to leverage the more dynamic advantages of the Internet of Things.