Best Practices for Fleet Operations

Managing Cost, Compliance & Centralized Control

Today's dynamic business landscape is challenging fleet owners to re-evaluate how they operate and which technologies they use to manage their fleets. The primary factors driving change for fleet managers are:

- Fluctuating fuel costs

- A driver shortage

- Increased and evolving governmental regulation

- Rapid technology advances with reductions in technology costs

New factors in the rapidly changing environment require fresh approaches and technology solutions, such as telematics and mobile applications. In this paper we look at both traditional and emerging best practices that industry experts suggest can reduce fleet operations costs by 5-20% by managing:

- Cost

- Compliance

- Centralized control

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Three Challenges Facing Fleet Operators

Minimizing Expenses, Meeting Regulatory Changes & Unifying Operations
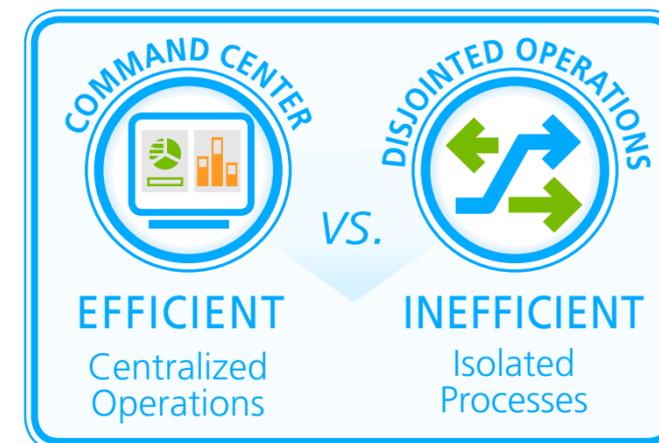
1 **Reducing Costs** - Fuel and labor are a fleet manager's top two operating expenses. Obviously, fuel prices can't be controlled by a fleet owner, but they can negatively impact a company's profits. To offset rising fuel costs, fleet managers must develop strategic and tactical plans that support multiple options to find efficiencies. Potential solutions may include driving fewer miles, right-sizing the fleet with fewer or more efficient vehicles, and capitalizing on backhaul opportunities to minimize empty miles and reduce 3rd-party delivery costs.

FUEL & LABOR

Responding to these **top two cost centers** is **critical** for fleet managers

2 **Managing Compliance** - New and evolving government regulations directly impact fleet operations. A 2015 ruling by the Federal Motor Carrier Safety Administration (FMCSA) mandates the use of electronic logbooks by all U.S. commercial vehicle drivers in the U.S. by December 2017. This followed regulations such as CSA 2010, requiring the collection of more and different types of statistical and performance data about drivers, vehicles, trips, loads and contents. Another regulation requiring a 20% reduction in fuel consumption and greenhouse gas emissions by 2018 may reduce fleet costs, but increase costs in other areas. Because compliance is imperative, additional costs must be absorbed. Technology can help fleet managers mitigate these costs.

ELECTRONIC LOGGING DEVICE (ELD)

Keeping pace with changing regulations and **turning compliance challenges into benefits** is a core capability of best-in-class fleets.

3 **Centralizing Control** - By creating a "command center" to centralize operations, fleet managers can capitalize on total enterprise assets along with holistic planning and execution across all facilities. This approach requires a common systems platform and shared processes to manage fleet assets, and to coordinate routes and schedules across all company operations. Managing the fleet holistically from a command center can maximize asset usage and minimize costs. Cost-effective, network-based SaaS platforms are overcoming technology barriers that traditionally separated and isolated back-office fleet systems. Advances in technology are fostering collaboration and enabling new best practices to emerge for fleet management.

COMMAND CENTER VS. **DISJOINTED OPERATIONS**

EFFICIENT Centralized Operations

INEFFICIENT Isolated Processes

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Minimizing Costs with Effective Planning

From Asset Allocation to Historical Planning to Integration & Beyond

Best-in-class fleet managers plan at two levels – strategic and tactical. Both can result in reduced operating costs, and both are positively impacted by technology solutions.

Strategic Planning

Fundamentally, fleet managers use strategic planning when they determine the existing network configuration is no longer effective or efficient, or when they are considering new service strategies or policies. Strategic planning often yields the greatest savings in the shortest timeframe.

Best-in-class fleets use historical data to strategically plan asset allocation, provide sufficient assets to meet service requirements, and to develop master route and territory designs.

Fleet managers frequently review plans to make adjustments to accommodate, for example, new customers or routes, seasonal demands, and other periodic peak demand issues. Determining the right level and allocation of assets is critical to meeting demands so that the fleet achieves service levels at the most efficient cost.

Traditionally, many fleet managers have used spreadsheets to perform territory planning, but spreadsheets have limited capabilities. They can only calculate – not evaluate – possible combinations of asset types and quantities, service, and cost to produce the best performance and lowest cost for the fleet.

However, solving allocation requires a way to evaluate all possibilities and determine how to get the right assets in the right place at the right time – and at the lowest cost. This can only be achieved when both strategic and tactical planning are integrated with back-office systems, enabling more dynamic adjustments to planning with minimal effort.

Benefits of Integrated Planning

▶ *Improved **customer service** and increased satisfaction due to better on-time performance*

▶ *Enhanced **equipment utilization** and reduced miles*

▶ *Prevention of **last-minute**, frenzied reactions that could result in service failures*

Tactical Planning Strategies

Immediate Benefits & Practices of Best-in-class Fleets

Because this level of planning deals with more short-term operations, it is more frequent and immediate in nature.
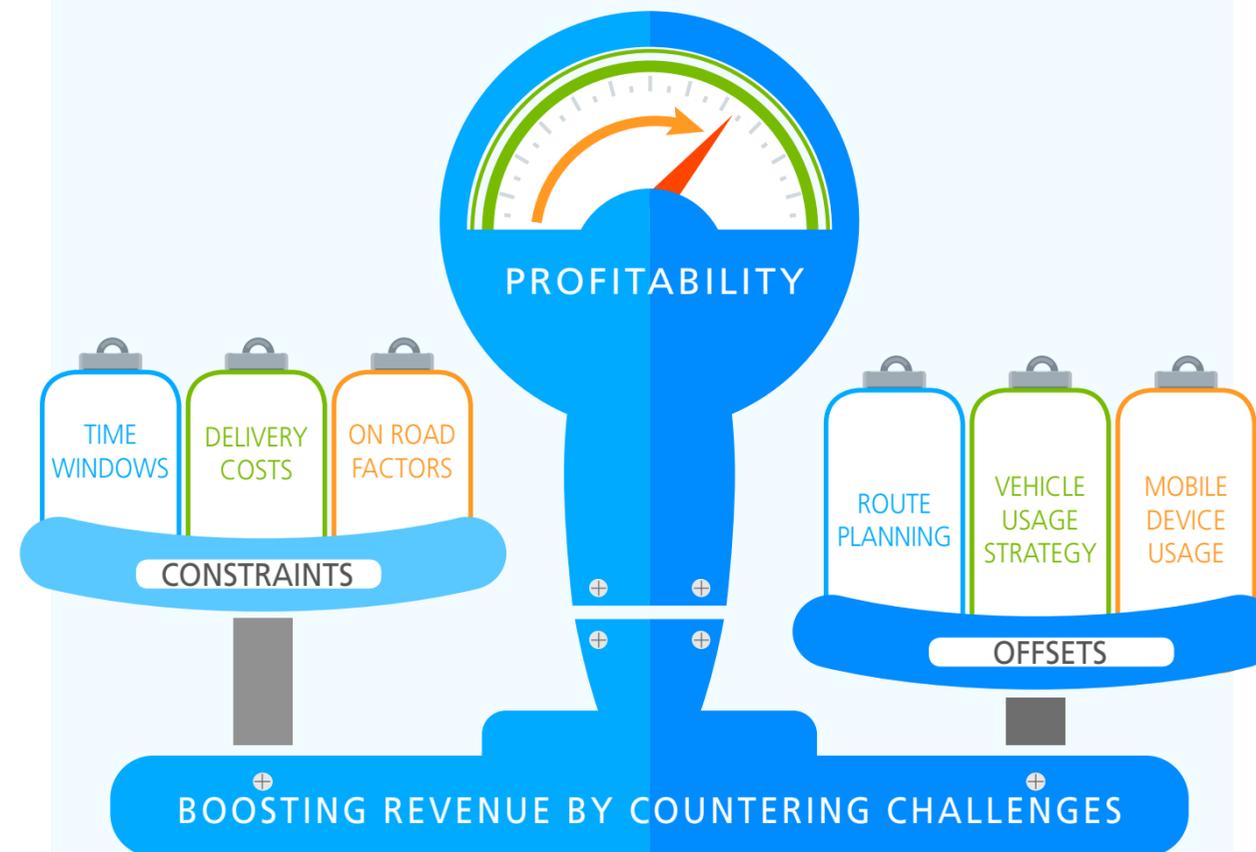
Tactical planning is the development of daily or weekly route plans and involves more than just sequencing orders for delivery.

Best-in-class fleets:

- Optimize daily route plans based on cost-of-delivery or route profitability, and capacity to meet delivery requirements

- Maximize vehicle utilization by determining the number of vehicles needed at any given time, routes they should run, and delivery sequence

- Develop plans respecting constraints such as appointment time windows, road restrictions, speed limits, and additional requirements for equipment and drivers

- Download route plans containing vehicle and driver assignments to each in-vehicle system and/or driver handheld mobile device to direct the entire trip

Offsetting Constraints with Tactical Planning

Best-in-class fleets are able to realize benefits and **boost profitability** *with the right technology in place.*

PROFITABILITY

TIME WINDOWS · DELIVERY COSTS · ON ROAD FACTORS

CONSTRAINTS

ROUTE PLANNING · VEHICLE USAGE STRATEGY · MOBILE DEVICE USAGE

OFFSETS

BOOSTING REVENUE BY COUNTERING CHALLENGES

Route Optimization

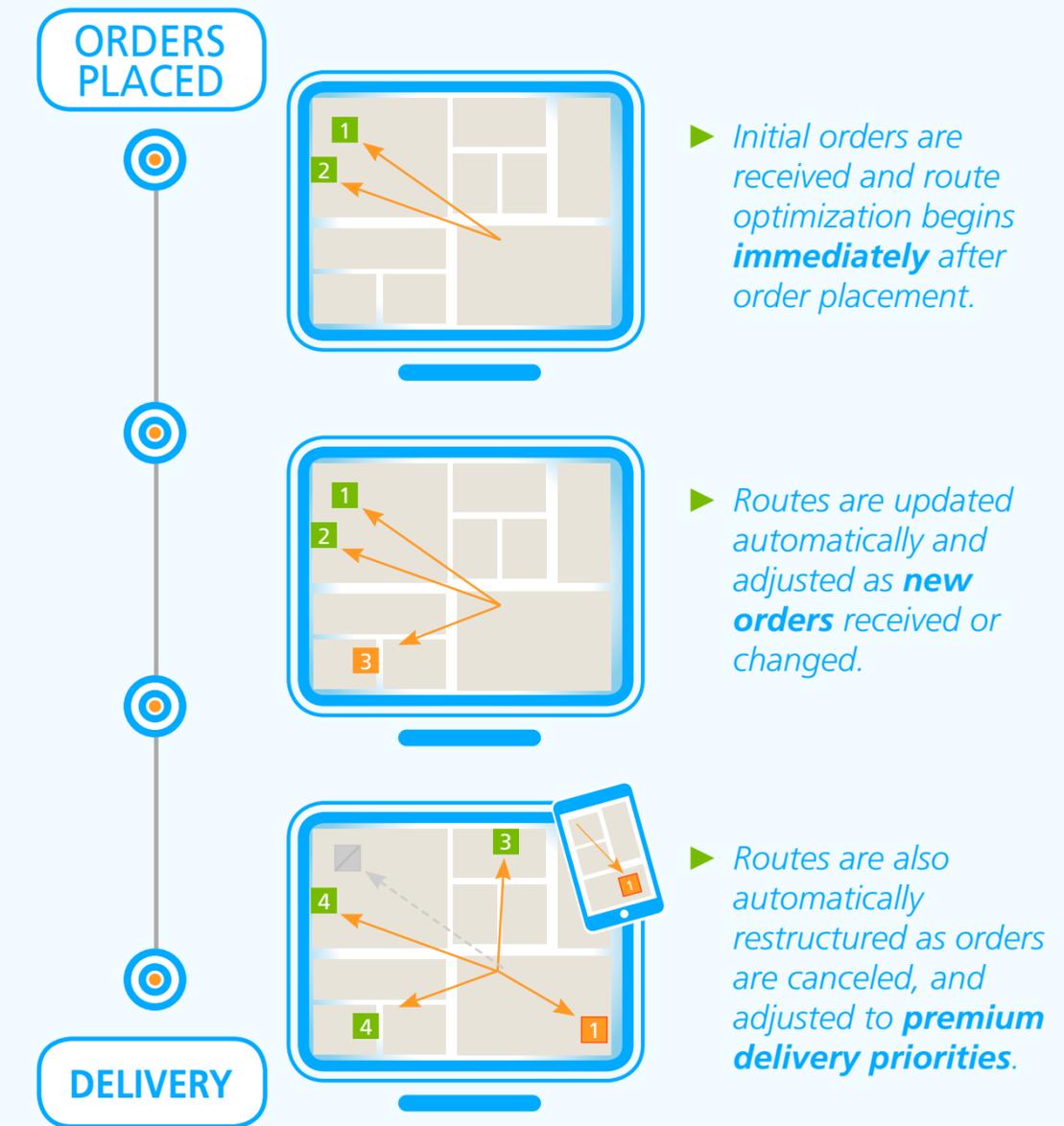## Flexible Delivery Windows & Dynamic Route Planning

Enabled by logistics technology systems for both strategic and tactical planning, route optimization allows managers to operate fleets more profitably and positively affect the company's bottom line. To build routes that maximize fleet performance, everything impacting operations must be optimized, including drivers, equipment, delivery windows and travel restrictions.

Understanding the difference between batch optimization and dynamic incremental or continuous optimization can have significant effects on route planning results and customer service.

With batch optimization, orders are either known in advance through master routes and/or added throughout the day in dynamic environments. Typically, route planning for the next day is then done by sending all the work in batch to the route optimization system. Unlike batch optimization solutions, the incremental dynamic optimization allows planners to place orders on schedules in real-time, helping to ensure delivery routes are realistic, efficient and productive. When an order must be adjusted at the last minute, the route planning system evaluates the most cost-effective way to deliver orders and then re-sequences stops accordingly.

Benefits of incremental dynamic optimization include improved performance-to-plan resulting in increased customer satisfaction, flexible delivery windows, reduced fuel consumption and operating costs, increased driver retention due to enhanced quality-of-life based on allocating drive-time more efficiently, as well as improved vehicle utilization.

Example: Continuous Route Optimization

ORDERS PLACED

► *Initial orders are received and route optimization begins immediately after order placement.*

► *Routes are updated automatically and adjusted as new orders received or changed.*

► *Routes are also automatically restructured as orders are canceled, and adjusted to premium delivery priorities.*

DELIVERY

Managing Execution & Monitoring Performance

Trip Management: Mobile & Onboard Technology & Beyond

Just as technology is crucial for planning asset allocation and route optimization, it also plays a pivotal role as fleet managers execute and monitor plan performance. Mobile and onboard computer systems, including vehicle-mounted or handheld, help manage the trip via real-time communications, monitoring and communicating vehicle position, and recording and reporting events. Fleet managers may use only one system or both types depending on their specific needs.

Vehicle-mounted systems can capture data from a variety of sensors within the vehicle that report equipment status, driver behavior and data needed for regulatory compliance. Although handheld devices don't accommodate these sensors, they serve other functions such as scanning contents on and off the trailer, photographing damaged goods and capturing proof-of-delivery signatures.

Trip management begins when the driver receives the route and delivery sequence from the integrated planning and dispatch system. Throughout the trip, real-time data is exchanged with the driver and vehicle via mobile resource management solutions to communicate route and schedule changes, as well as monitor performance and compliance. Driving instructions and vehicle location can also be delivered by GPS-enabled systems.

Because trip data is communicated automatically and interactively to the integrated planning and dispatch system, the need to transcribe manual logs is eliminated. This saves time and increases driver productivity, while reducing potential errors in reporting.   It also eliminates the need for drivers to return a portable device to the home base, dock it and download the data.

Capabilities of Mobile & Telematics Solutions

Best-in-class fleets are implementing field-deployed mobile & telematics systems to manage route execution, including:

- ► Accepting trip plans
- ► Managing dispatch & navigation
- ► Monitoring compliance to plan
- ► Interactively communicating between the vehicle and back-office systems - dynamic route changes, event status, and proof of delivery (POD) confirmations

Using Telematics to Lower Fuel Costs

Minimizing Expenses by Analyzing Information

Many companies are relying on the data provided by telematics to guide both strategic and tactical planning efforts by measuring trends and delivering real-time information via automated reports.

In a recent survey of more than 1,000 fleet managers, decreased fuel consumption was listed as one of the leading benefits of telematics.

More fleet managers are using their telematics systems to save time and money by improving vehicle maintenance. Instead of scheduling regular maintenance based on the calendar or the odometer, they rely on engine data provided by telematics that includes the actual time the vehicle was running, including idling.

Preventative maintenance based on engine data can lead to fewer breakdowns and more uptime, while eliminating driver maintenance logs and manual checks.

Because the cost of fuel is one of the fleet manager's top operating expenses, it's not surprising that solutions offering new ways to reduce that expense, such as telematics, are being adopted by more best-in-class fleets.
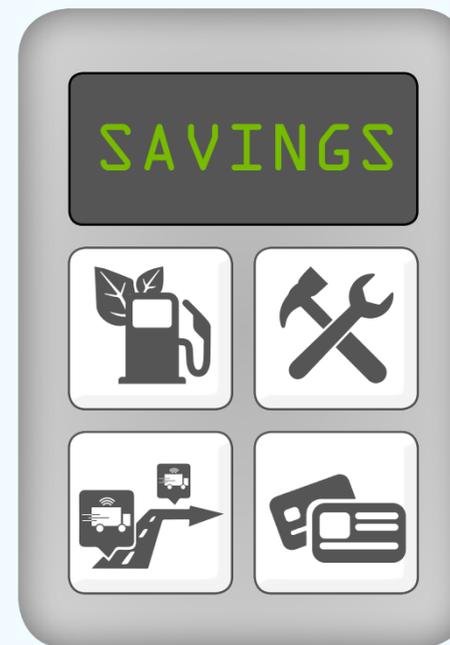
How can telematics impact fuel costs?

Fleet managers are using **telematics solutions** to save time and realize substantial cost reductions

SAVINGS

RESULTS!

► **1.** Identifying and reporting driver behaviors to stop **fuel waste** (speeding, excessive idling, quick acceleration)

► **2.** Optimizing **routing** to reduce mileage and fuel consumption

► **3.** Improving miles-per-gallon to lower fuel costs by optimizing the **vehicle maintenance** schedule

► **4.** Reducing fraudulent activity by **integrating fuel cards** to verify where and why fuel was purchased

Safety & Regulatory Compliance

Enhancing Driver Security & Fulfilling Regulatory Requirements

The desire to improve safety for all drivers on the road and minimize environmental impact has resulted in new government regulations requiring increased and more detailed reporting for fleet operations. Compliance with changing regulations is requiring some fleet managers to adopt new technology solutions while others must upgrade.

Best-in-class Fleets:

► *Employ electronic logging devices to collect all forms of trip and driver information for safety and regulatory compliance*

► *Use mobile and telematics systems to collect critical vehicle information for fuel consumption, engine performance and idle control, vehicle maintenance, trailer temperature control, and chain-of-custody reporting*

► *Implement in-vehicle telematics systems to collect and review driver performance and behavioral information*

► *Consult historical driver performance information to benchmark individual drivers against clearly-defined metrics and best-in-company performance, report performance-to-plan, and establish periodic reviews and continuous improvement programs for their drivers.*

A Paperless Environment

Moving to Digital Communication & Electronic Processes

Mobile devices and onboard computers enable automatic data capture of a variety of metrics (e.g. mileage, hours, driver, equipment) in a paperless environment.

These systems automatically capture and report:

- *Hours of Service:* Drive-time and resting time; electronic monitoring and reporting hours-of-service and hours-per-work-week with real-time notifications

- *Fuel Tax Accounting, Safety, and Compliance:* Mileage by state; GPS mileage and actual route traveled

- *CSA 2010 Compliance (USA Domestic Regulations)*: Driver and vehicle metrics and performance via onboard computers that monitor driver performance and behavior, account for vehicle inspections, and provide accident reconstruction

- *Driver Behavior*: On-time performance, out-of-route travel, idling time, and speed

- *Equipment Status:* Engine data, idle control, and trailer temperature (e.g. shock and vibration, temperature, open doors, lift gate status, etc.)

The Benefits of Digital Connectivity

Leading fleet operations are removing physical paper and manual processing to gain a **competitive advantage**. *Benefits include:*

- ✓ Better equipment management
- ✓ Lower mileage & idle time
- ✓ Regulatory compliance
- ✓ Shorter billing cycles
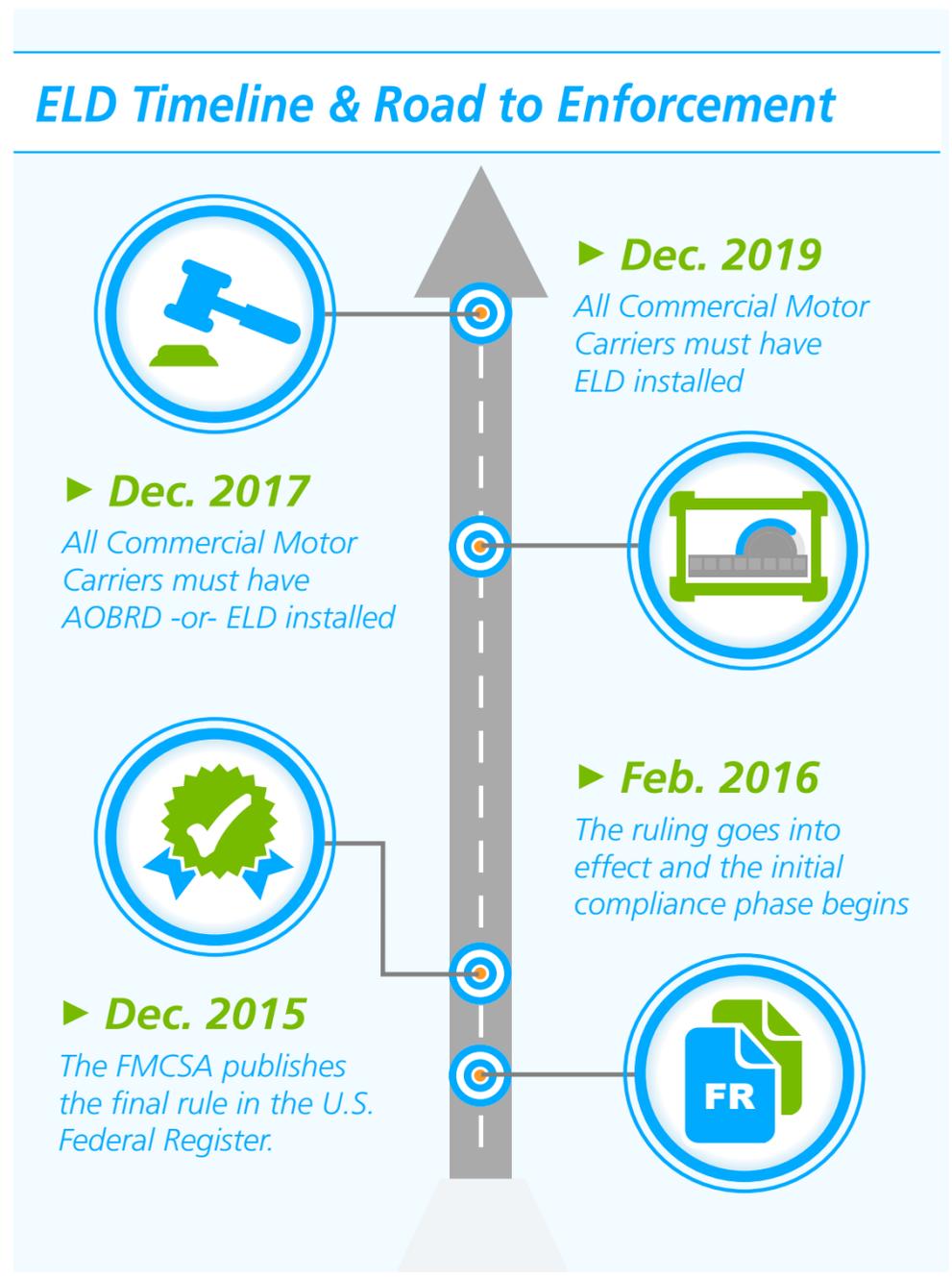- ✓ Cost savings
- ✓ & More

Transitioning to Electronic Logging Devices (ELDs)

Overcoming Regulatory Challenges & Leveraging Mobile-based Telematics

New regulations are accelerating the adoption of systems with telematics. In fact, by the end of 2017 all drivers required to record/report HOS must stop using paper logs and move to compliant Electronic Logging Devices (ELD) installed in their trucks. Fleets with Automatic Onboard Recording Devices (AOBRD) installed on their trucks must begin using a compliant ELD by 2019.

With telematics available on mobile apps, fleet managers and drivers can easily access real-time data on smartphones and other devices. Telematics can positively impact fleet operations in a number of areas, including:

- *Improving driver and back-office productivity* – Manual data capture, data re-entry and processing time are eliminated by automatically communicating results to back-office systems.

- *Increasing regulatory compliance* – Transcription errors and the potential of falsified data are eliminated when trip event data such as proof-of-delivery and confirmation signatures are captured automatically.

- *Providing command and control of drivers and vehicles* – Real-time communication via mobile resource management systems with GPS navigation and cellular devices enables visibility of vehicles at all times, making dynamic route changes possible.

- *Assessing and improving driver behavior* – Actual trip data can be summarized and used to identify under-performing drivers and encourage behavioral changes to reduce idling time and eliminate speeding, off-route driving, and unplanned stops.

ELD Timeline & Road to Enforcement

▶ Dec. 2019
All Commercial Motor Carriers must have ELD installed

▶ Dec. 2017
All Commercial Motor Carriers must have AOBRD -or- ELD installed

▶ Feb. 2016
The ruling goes into effect and the initial compliance phase begins

▶ Dec. 2015
The FMCSA publishes the final rule in the U.S. Federal Register.

Centralizing Command & Control

Unifying Fleet Operations & Creating a Holistic Approach

Historically, fleet operations have been decentralized, often operating independently and differently. This resulted in redundant resources and systems, inconsistent management practices, and diverse processes that ultimately increased fleet expenses. If locations had multiple, non-integrated systems performing the same tasks, the problems were exacerbated.

Today, fleet managers recognize that centralizing operations can not only increase control, but enable integration that reduces costs and improves productivity.

Best-in-class Fleets:

- Manage their fleets holistically from a command center through a centralized, network-based system. The system provides the flexibility to support effective local execution while enforcing common corporate objectives and standardized business processes.

- Use trip event and performance-to-plan information to provide information to consumers (e.g. customer service, customers, inbound suppliers) not directly involved in shipment management with visibility to in-transit shipment status, pick-up and delivery confirmation, and changes, exceptions, and corrective actions.

- Conduct post-delivery service and satisfaction calls/surveys that can be cost-effectively executed via automated and integrated interactive voice response (IVR) solutions to complete a holistic picture of the customer's experience.

Command Center with Localized Execution

COMMAND CENTER

Creating a "command center" to centralize fleet operations is a recognized best practice. It allows fleet owners to capitalize on their total enterprise volume and assets by planning and executing holistically versus one facility at a time.

Managing the fleet holistically from a command center can maximize asset usage and minimize costs. Centralization can also increase control through a closed-loop process, with planning results flowing directly into execution management and performance results being captured in a database used for business intelligence.

Conclusion

Implementing a Single Vendor, Holistic Technology Strategy

Leading enterprise fleet management solutions – whether SaaS or server-based deployment – support a centralized business process sharing data across the enterprise.

This business process can be deployed to distributed field operations while enforcing operational standards. These solutions eliminate islands of automation and process differences to maximize efficiency and minimize costs.

In addition to lowering costs, single vendor solutions can be deployed quickly without integration issues and unanticipated delays. They deliver the shortest time-to-benefit to the fleet owner. Implementation is measured in weeks, not in months.

Best-in-class fleet owners are successfully implementing this single vendor, holistic system strategy to minimize cost, manage compliance and centralize operations. The potential operational savings of 5-20% can more than offset the investment in technology.

Descartes leading solutions can:

- *Reduce miles driven*
- *Minimize fuel, labor and vehicle costs*
- *Enable better route optimization*
- *Address route changes in real-time*
- *Capture and distribute customer data*
- *Standardize and centralize processes*
- *Track vehicle performance*
- *Manage fleet compliance for new and evolving government regulations*

About Descartes

Descartes (Nasdaq:DSGX) (TSX:DSG) is the global leader in providing on-demand, software-as-a-service solutions focused on improving the productivity, performance and security of logistics-intensive businesses.

Customers use our modular, software-as-a-service solutions to route, schedule, track and measure delivery resources; plan, allocate and execute shipments; rate, audit and pay transportation invoices; access global trade data; file customs and security documents for imports and exports; and complete numerous other logistics processes by participating in the world's largest, collaborative multimodal logistics community.

Our headquarters are in Waterloo, Ontario, Canada and we have offices and partners around the world.

Learn more at **www.descartes.com**, and connect with us on **LinkedIn** and **Twitter**.

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