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Impacts of Key Trends in Fleet Operations and Best Practices for Managing the Fleet of the Future

How are sustainability and smart technologies changing fleet operations?

May 4, 2021

Today's Discussion

Topics to be covered in today's presentation include:

- Trends Driving Transformation in Fleet Management
- Impacts on Fleet Operations, Business Models, and People
- An Integrated Approach to Managing Transformation
- What Should Fleets Do Next?
- Q&A

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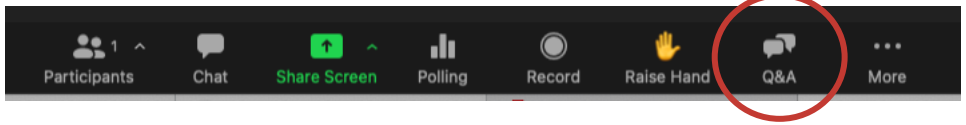
Workshop Logistics

01

Questions

We will take questions at the end. Please enter them using the Q&A icon at the bottom of your screen.



02

Technical Difficulties

Send us a message in the Chat window.

03

Recording

We are recording the workshop and will share it with all participants.

04

Follow-Up Questions?

We'd love to hear from you! Please reach out at info@scottmadden.com.

About ScottMadden

ScottMadden is a management consulting firm with more than **35 years** of deep, hands-on experience.

We deliver a broad array of consulting services—from strategic planning through implementation—across industries including the transportation and energy utility ecosystem.

WE DO

WHAT IT TAKES TO GET IT DONE RIGHT

Transportation

EXPERIENCE

We have been serving the energy industry since 1983. Our industry-leading clients trust us with their most important challenges. They know that we have seen and solved a similar problem. Our consultants have earned this confidence through decades of experience in the field, and they are on the front lines of this changing landscape.

SCOPE

ScottMadden has broad experience throughout the electric vehicle industry, working across a variety of clients and project types. As federal and state clean energy goals have proliferated, we have helped organizations plan for, and meet, their clean transportation goals.

SERVICES

We have helped our clients develop and implement strategies, improve critical operations, reorganize departments and entire companies, and implement initiatives in furtherance of their electrification goals.

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Meet Your Speakers

Trish Ferris
Partner

Patricia Ferris joined ScottMadden in 2004. Her consulting experience spans a number of areas, including operations improvement and process redesign, service delivery model and organizational design, merger and acquisition integration, strategy development, and project management. Prior to joining ScottMadden, Trish worked in management consulting for A.T. Kearney and at The Advisory Board Company. Trish earned her B.S. in Arabic Language and International Relations from Georgetown University and her M.B.A from Kenan-Flagler Business School at UNC Chapel Hill.

Kevin Hernandez
Partner

Kevin Hernandez is a partner with ScottMadden where he specializes in grid transformation, electric vehicles (EVs), and distributed energy resources. Since joining the firm in 2012, he has consulted with a variety of transmission and distribution utility clients on issues ranging from EV infrastructure to non-wires alternatives and energy storage. Kevin earned his B.A. from the University of Tennessee, Knoxville, an M.A. from the U.S. Navy War College in Newport, Rhode Island, and his M.B.A. from the Fuqua School of Business at Duke University. He is also an eight-year veteran of the United States Navy.

Stephanie Dolan
Senior Associate

Stephanie Dolan is a Senior Associate with ScottMadden where she specializes in shared services design and implementations, operations improvements, and service delivery models. Since joining the firm in 2013, she has consulted with a variety of transmission and distribution utility clients, higher education clients, national defense clients, and global conglomerate clients. Stephanie earned her B.S. from Clemson University and her M.B.A. from Kenan-Flagler Business School at UNC Chapel Hill.

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Fleet Modernization Is Being Driven by Two Convergent Trends

The convergence of advanced fleet management technologies and sustainability trends are causing a seismic shift in the way fleets will be managed in the future. These changes are complex and will affect every facet of fleet operations. Companies will need to modernize their fleets and the way that they're managed in order to meet increasing demands placed on today's fleets.

Smart Technologies

Smart technologies are providing access to fleet data, empowering fleet operators to manage fleets in ways not possible before and challenging traditional ways of doing business.

Sustainability

Growing interest in environmental issues, coupled with increasing customer expectations and pressure from regulators, is driving investment in more sustainable operations.

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Smart Technologies Are Creating New Opportunities for Fleets

Technologies are providing new capabilities to improve fleets. Two smart technologies that are transforming the way fleets operate and how fleet managers are making educated decisions are fleet management systems and telematics systems.

Fleet Management Systems

Purpose:

- Assists fleet managers in tracking and dispatching vehicles, scheduling and predicting maintenance needs, improving safety, improving vehicle efficiency (fuel and optimizing routes), and automating reports

Leading Practice Capabilities Include:

- Dispatching and tracking of vehicles to plan resource demand and reserving vehicles to promote pooling programs, where applicable
- Collecting robust data and asset utilization metrics through comprehensive reporting to inform business decisions
  - Right-sizing, increasing vehicle leverage, etc.
- Tracking maintenance records to inform vehicle lifecycles
- Managing fuel functionality to decrease fuel costs
- Leveraging data-based predictive capabilities for maintenance, fleet sizing, and other aspects of fleet management
- Automating the maintenance appointment scheduling process
- Providing seamless integration with existing systems inside and outside of fleets

Fleet Management System Capabilities Include:

- Reservation and dispatching
- Data warehouse and reporting
- Inventory management
- Fuel management
- Actionable fleet recommendation outputs
- Maintenance appointment scheduling tool

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Smart Technologies Are Creating New Opportunities for Fleets (Cont'd)

Telematics Systems

Purpose:

- Assists fleet managers in tracking vehicles, monitoring driver behavior (speeding, harsh breaking, accidents, etc.), reporting vehicle faults and maintenance needs, and informing efficiency opportunities

Leading Practice Capabilities Include:

- Tracking vehicles/assets through a GPS system to track vehicle duty cycle and to inform asset recovery, if required
- Pulling engine data (e.g., fuel consumption, coolant temperature, engine load, idling times, hours of service, vehicle diagnostics, etc.) to inform maintenance needs
- Monitoring a driver's driving habits/behaviors (e.g., harsh braking/acceleration, leaving vehicles running, etc.) to evaluate behaviors that incur an extra cost to the business
- Optimizing routes to increase fuel efficiency and evaluate duty cycle
- Logging drive time, service and maintenance records, warranty recovery, and compliance measures

Common Telematics Capabilities Include:

- GPS functionality
- Engine diagnostics
- Monitoring driver behaviors
- Route optimization
- Fleet administrative tasks

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The Ability to Leverage Data Will Separate High-Performing Fleets

Companies will benefit from robust and interactive dashboards provided by fleet management and telematics systems. Dashboards can be leveraged by fleet managers to analyze vehicle data, interpret results, and adjust practices as necessary to improve operations.

By reporting out on metrics and leveraging dashboards, fleet managers can view a comprehensive outlook to inform business decisions:

- Companies need to evaluate the appropriate reports to run and distribute. Some example reports or data measured by fleet systems include:
  - Vehicle diagnostics report
  - Idling report
  - Mileage/hours
  - Vehicle activity log
  - Hours of service
  - Engine on time/off time
  - State mileage for IFTA
  - Harsh event report
  - Speeding report
  - Hours of service violations
  - Stop report
- These systems can inform business decisions involving right-sizing initiatives, vehicle programs (take-home, pooling, etc.), vehicle-purchasing decisions, maintenance scheduling, and dispatching methods.

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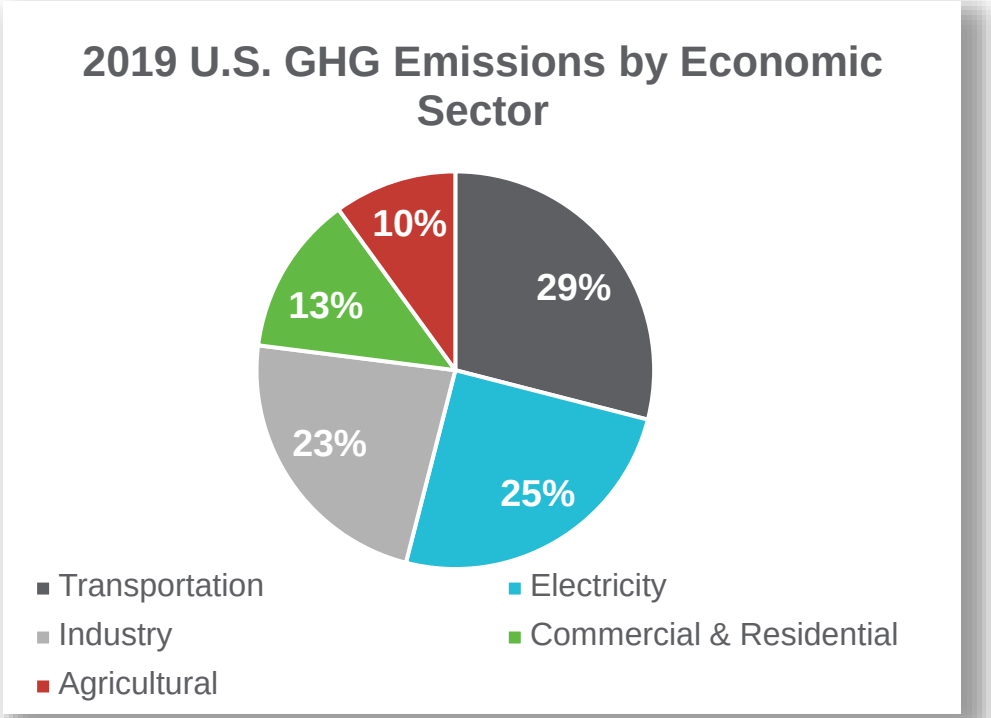
Transportation Is at the Center of Global Sustainability Efforts

Growing interest in environmental, social, and governance (ESG) issues, coupled with increasing customer expectations and pressure from regulators, is driving fleets to invest in more sustainable operations.

- Transportation is at the forefront of many companies' sustainability efforts due to its contribution to greenhouse gas (GHG) emissions relative to other sectors.
- Its disproportionately high contribution to emissions has made the transportation industry a target for government regulation, shifting manufacturers, and consumers toward cleaner solutions.
- According to the North America Council for Freight Efficiency (NACFE), approximately half of all fleets had adopted one or more types of technologies or practices to improve vehicle efficiency in 2018.

Key Fleet Sustainability Trends Include:

- Routing optimization
- Alternative fuels/electrification
- Idle reduction
- Speed/weight reduction
- In-cab cameras
- Advanced data analytics
- Driver fuel efficiency training



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Major Fleets Are Committing to Electrification

For many use cases, EVs are emerging as the most likely alternative to internal combustion engine (ICE) vehicles to meet corporate sustainability goals.

Industry

Amazon expects to have 10,000 custom electric delivery vans built by Rivian on the road by 2022. A total of 100,000 of these vehicles will be in service by 2030.

Walmart, the fourth largest private fleet in the United States, announced in September 2020 that it would transition its fleet to zero emissions by 2040.

FedEx will replace 100% of its pickup and delivery fleet with zero-emission vehicles (ZEVs) by 2040. FedEx Express purchases will be 100% electric by 2030.

UPS has also ordered 10,000 electric delivery vans from the UK-based start-up Arrival.

Utilities

PG&E has committed to electrifying 100% of its light-duty fleet, 10% of its medium-duty fleet, and 5% of its heavy-duty fleet by 2030.

Duke Energy will convert 100% of its light-duty vehicles to electric and 50% of its combined fleet of medium-duty, heavy-duty, and off-road vehicles to EVs, plug-in hybrids, or other zero-carbon alternatives by 2030.

Government

Federal officials have been ordered to develop a procurement plan that will transition the 645,000 vehicles owned by the federal government to ZEVs.

New York City will transition to a 100% electric fleet by 2040.

Los Angeles Sanitation & Environment will transition all refuse trucks to ZEVs by 2035.

Fleet Modernization Will Have Wide-Ranging Impacts

Two convergent trends—sustainability and technology—are shaping the future of fleet management. These trends have impacts on a company's business models, operations, and its people.

Impacts

Business Model Impacts

- Purchasing cycle and lease/buy decisions
- Vehicle residual value
- Financing possibilities
- Fuel costs and purchasing

Operations Impacts

- Changing maintenance needs and cycles
- Duty-cycle optimization
- Facility upgrade/modification
- Vehicle-charging cycle

People Impacts

- Adapting to new skill demands
- Shifting employee demographics
- Driver and maintainer training
- Retention and recruitment

Open Questions

- How will vehicles be procured—lease vs. buy?
- How soon will vehicles need to be procured to meet electrification goals?
- What vehicle types should be converted first?
- How many chargers will be needed? What capacity chargers will be needed?

- Will maintenance costs come down?
- How will maintenance frequency change?
- What will be the cost to retool?
- Will facilities be able to accommodate charging loads? What will charging load be by facility?
- What is the lead time on a facility's upgrades?
- What is the estimated cost of a facility's upgrades?

- What additional training will drivers and maintainers need? What's the lead time to conduct training?
- How will the right talent to meet the needs of today and the future be sourced?
- What are some additional safety considerations?

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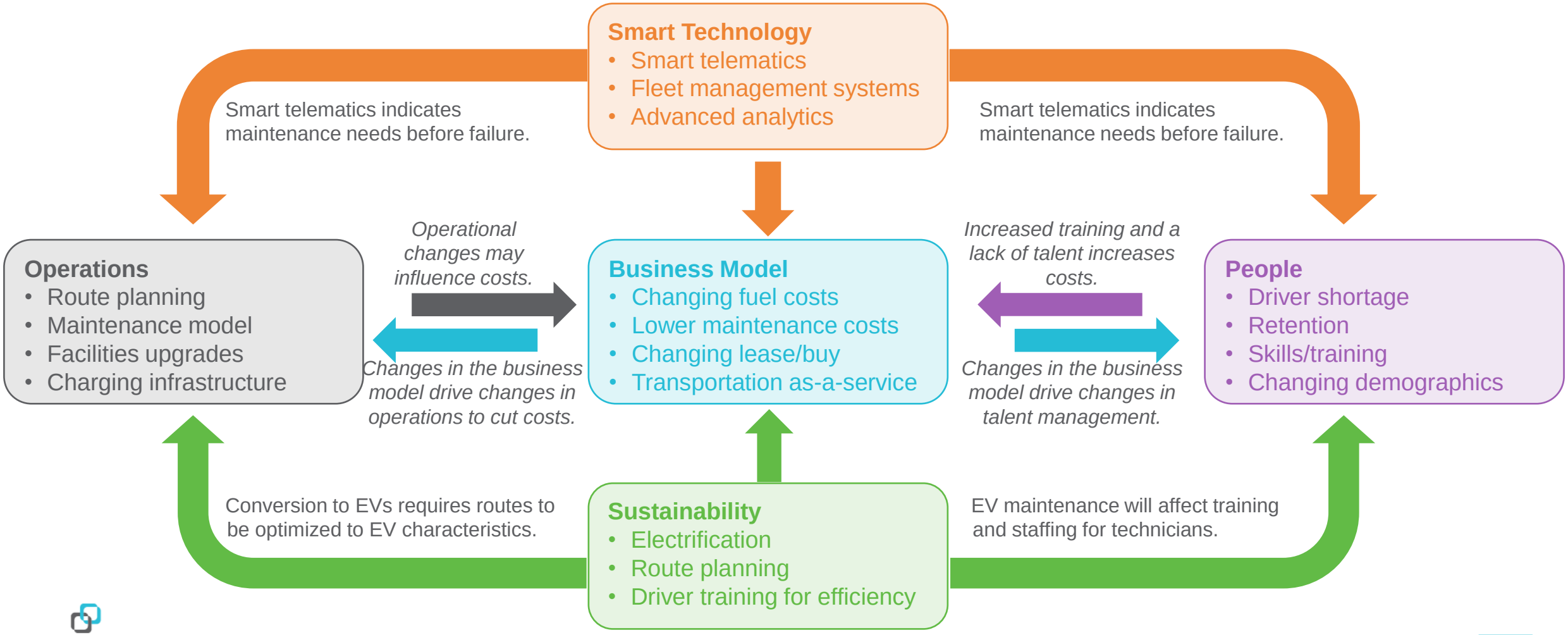
Impacts on People, Operations, and the Business Are Interrelated

The impact of technology and sustainability trends on fleet organizations must be approached holistically due to the interrelated nature of the changes.



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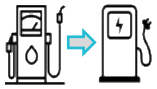
Business Models Are Adapting to Embrace the Fleet of the Future

Business models will require adjustments with the introduction of sustainability and technology efforts. Continuous improvement within business models will be at the forefront of the evolving industry.

	Sustainability	Technology
 **Purchasing decisions**	Evaluate the lease vs. buy decision or a hybrid of the two approaches and if this question is impacted as fleets transition from traditional vehicles to electric.	Leverage technology to track underutilization and vehicles with an extensive repair history to determine which vehicles should be replaced at the end-of-life cycle and which should just be retired.
 **Changing vehicle lifecycle and residual value**	Reduced maintenance requirements may result in longer vehicle lifetimes and increased residual value.	Utilize technology to monitor vehicle lifecycle.
 **Financing possibilities**	Fleet managers can evaluate the opportunity to finance portions of their vehicles in new ways (e.g., purchasing the vehicle, but leasing the battery).	Technologies can track purchases/leases as well as plan purchases and selling old vehicles. Using data from reports, fleet managers can determine the optimal way to finance vehicles.
 **Purchasing fuel options**	From diesel/gas to electric and with telematics informing and shaping good driver behavior (less idling time, less harsh braking, etc.), fuel options are changing.	

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Vehicle and System Technologies Are a Tool for Optimizing Operations

As sustainability goals are established and achieved and as technologies are implemented, business operations will be able to excel forward and become more efficient.

	Sustainability	Technology
Changing maintenance cycles	Maintenance cycles will need to be evaluated and may alter based on different needs from EVs.	Maintenance cycles can transition from reactive maintenance to proactive and predictive maintenance by leveraging technology capturing vehicle data.
Adapting facilities	Facility/garage footprints and operations will require adjustments/upgrades. Charging stations will need to be planned and built.	Facilities will need to be adapted to account for computer station space. iPads/tablets may also be introduced to assist mechanics/technicians in extracting vehicle data and servicing vehicles leveraging insights.
Evaluating the duty cycle	By optimizing duty cycles to suit EVs, vehicle energy consumption can be lowered, lowering energy needed per vehicle, charger size, and total demand.	Technologies can provide insights into duty cycles. Technologies open the door to utilizing many aspects of vehicle data to determine duty cycles (i.e., tracking hours in use, miles per cycle, load profile, etc.).
Refueling/charging cycle costs	Various advantages are available for PHEVs vs. BEVs, etc. While fuel expenses will decrease with the introduction of EVs, time lost while charging the vehicle and the cost of the charging infrastructure must be evaluated.	Technologies can map optimal routes to save on fuel/charging needs. Technologies can also alert drivers as to when their fuel/charging needs will arise during their trip.

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New Skills Are Required to Manage the Fleet of the Future

As vehicles and fleet operations become more technically enabled and fleets utilize more EVs, the pool of qualified candidates will shrink. Finding, attracting, and retaining the "employees of the future" have become an increasing challenge for fleet managers.

	Sustainability	Technology
 **Adapting to skill demands**	The skills of mechanics, drivers, and other employees will have to adjust to become experts in maintaining and servicing EVs.	The skills of mechanics, drivers, and other employees will have to evolve to become comfortable with the use of smart technologies and leveraging data from the technologies in order to make informed servicing and vehicle decisions.
 **Shifting employee focus**	Mechanics will transition from wrench-turning services to computer-based and battery-based services and become more of a technician. Drivers will be required to know how to operate and maintain EVs.	Employees will be required to navigate smart technologies and leverage telematics to gain valuable insight into vehicles. Employees will have to know how to use that data to improve operations.
 **Evolving training needs**	Employees will need to be trained in how to maintain, operate, and service EVs.	Employees will be trained in how to leverage telematics data to improve operations/driving habits. Employees may leverage other technologies, such as virtual reality, to train in a safe risk-free environment.
 **Focusing on employee retention**	Sustainability is a driving force across the industry. Many employees thrive off of evolving work environments and working with the latest and sustainable technologies, such as EVs.	Technology advances will support continuous learning opportunities and avenues of growth for employees. Once the "employees of the future" are found, it is critical to determine what motivates them and leverage those factors to retain them.

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An Integrated Approach Is Needed to Manage Fleet Transformation

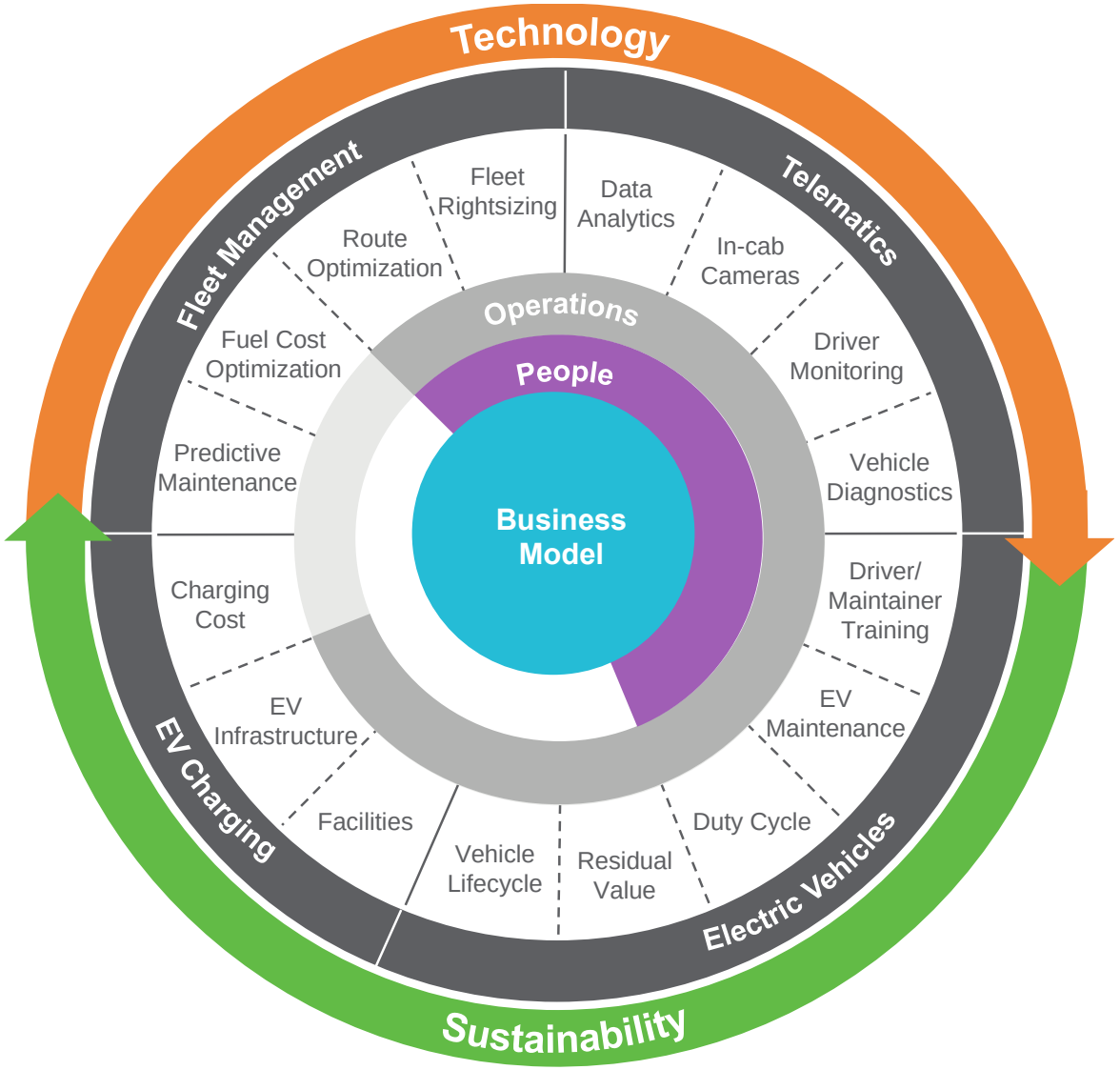
Due to the interdependencies between sustainability and technology, an integrated approach is needed to manage fleet transformation initiatives.

Fleet Management Systems

- How will data from the fleet management system provide insights into fleet size and makeup?
- How can fleet management systems be used to lower fuel consumption?

EV Charging

- How will EV-charging costs compare with fuel costs?
- What charging infrastructure will be required?
- Will facilities need to be upgraded to host EV charging?



Telematics

- How can telematics data be leveraged to inform business decisions?
- How will system data affect maintenance services?
- How can in-cab video inform driver-training programs?

Electric Vehicles

- How will EV maintenance cycles affect staffing and budgets?
- Will EVs be able to complete existing duty cycles
- Will it be better to purchase or lease EVs?
- What training will be needed to transition to EVs?

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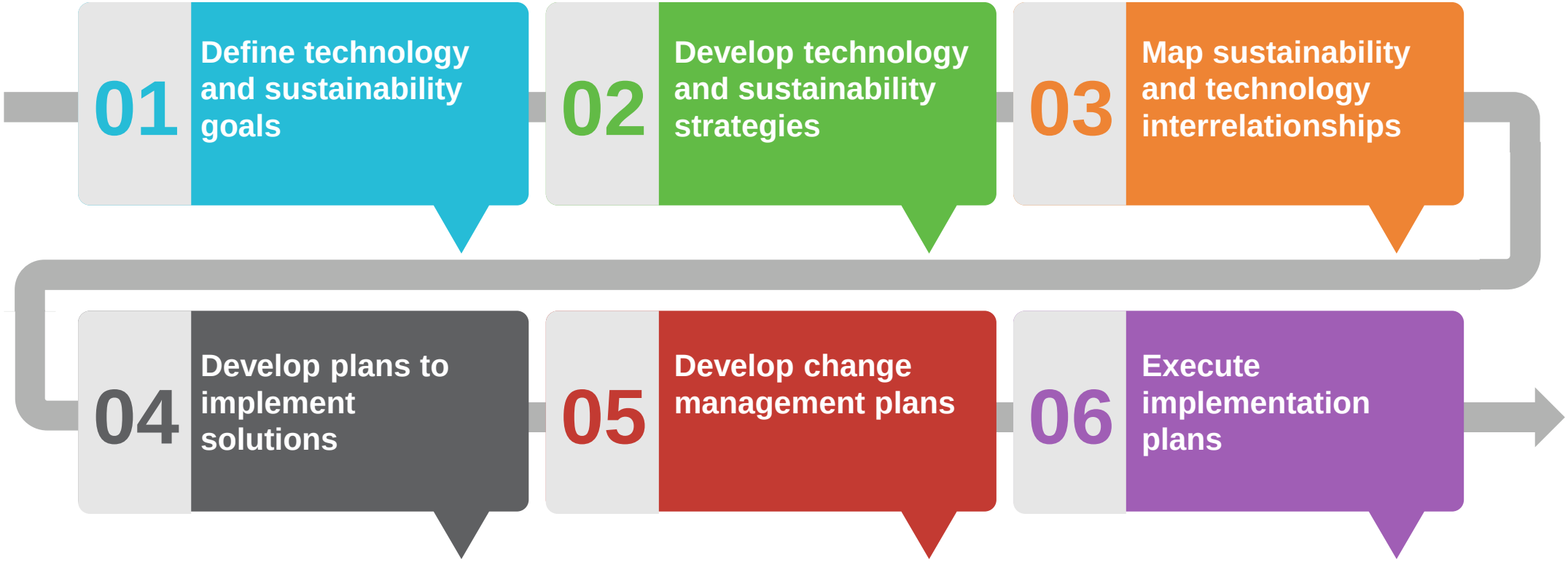
What Should Fleets Do Next?

Each fleet will have unique technology and sustainability goals it seeks to achieve. Plans to implement new solutions to achieve these goals begins with understanding interrelationships and developing strategies and plans to implement the desired outcomes.



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Questions

Get in Touch with Us

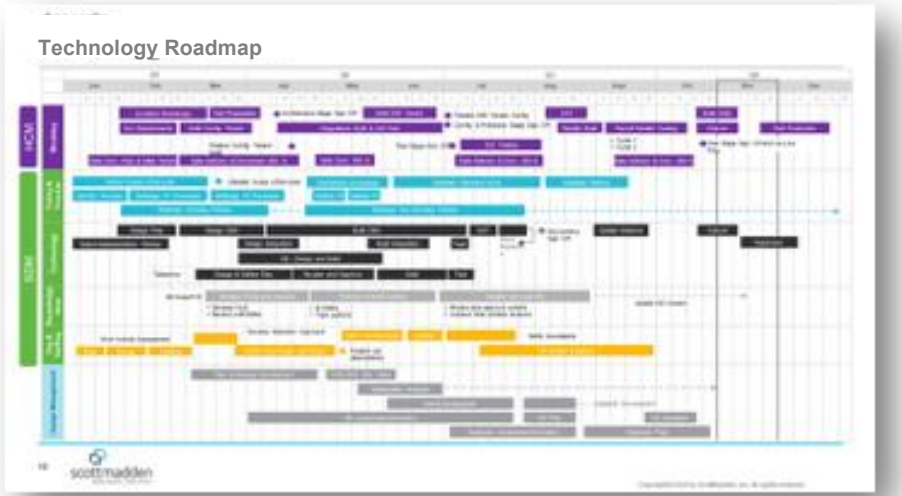
Interested in learning more about how your fleet can leverage smart technology to optimize operations or whether you're ready to evaluate your readiness for electrification? Please contact us at info@scottmadden.com to receive these additional resources:

Electrification Readiness Checklist

Is your fleet ready to begin considering electrification but you're not sure where to start? Contact us to receive our free electrification checklist for assessing your fleet's readiness for electrification.

Smart Technology Assessment

Does your fleet have established technology transformation goals and a plan for achieving them? Contact us for a complimentary assessment of your technology strategy.



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CONTACT YOUR SPEAKERS

Please reach out to us if you have any additional questions following the workshop.

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