



Presentation Outline

- Introduction
- Industry Trends Affecting Fleet M&R Practices
- Reasons Organizations Outsource or Consider Outsourcing Fleet M&R Activities
- Using Activity-Based Cost Analysis to Gauge Outsourcing Desirability

About the Instructors

- Paul Lauria
 - More than 30 years' experience as a transportation and fleet management consultant
 - Clients have included large (>40,000 vehicles) and small (<100 vehicles) fleet owners across a wide array of industries
 - Experience conducting fleet management consulting assignments, best practices presentations, and/or training workshops in more than 20 countries around the world
- Steve Saltzgeber
 - More than 40 years' experience as a fleet maintenance technician, local and state government (Utah and Georgia), and corporate (Coca-Cola and Republic Services) fleet manager and fleet management consultant
 - Successfully transitioned from wrench turner to manager of a \$1.5 billion (annual capital and operating budget), 50,000-unit fleet

About Mercury Associates, Inc.

- Employee-owned firm incorporated and headquartered in Washington, DC area; employees located in 13 states and in Canada
- Largest dedicated fleet management consulting company in North America
- More than 600 clients served, with fleets of <100 to >200,000 vehicles and pieces of equipment
- Company's mission is to help organizations improve fleet management practices, improve fleet performance, and reduce fleet costs

Key Mercury Associates Services

- Fleet Management Best Practices Studies
- Fleet Management Program Consolidation and Organizational Restructuring Studies
- Fleet Cost Analysis, Reduction, and Containment Studies
- Fleet Utilization, Optimization, and Rightsizing Studies
- Fleet Management Information System Requirements Definition, Acquisition, Implementation, Hosting
- Outsourcing Feasibility Studies

Key Mercury Associates Services

- Development of Requirements, Specifications, and RFPs – Vehicles, Services, Information Systems
- Supplier Selection, Contract Negotiation, and Oversight
- Determination of Optimal Vehicle Replacement Cycles
- Evaluation of Lease versus Buy and other Capital Financing Strategies
- Contract Compliance Audits of Fleet Leasing Companies and other Suppliers
- Management Training
- Executive Recruiting

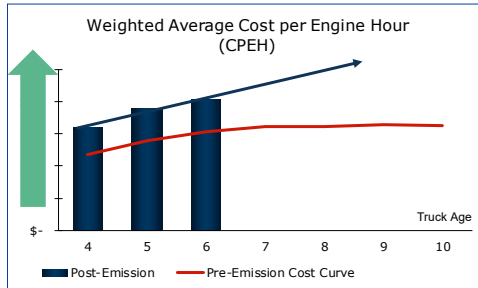
Representative Clients

- 3M
- Air Products
- Aramark
- BP
- Bell Canada
- BNSF Railway
- Brinks
- Danella
- GlaxoSmithKline
- Honeywell
- Intel
- Johnson Controls
- Pacific Gas & Electric
- Pfizer
- Quanta Services
- Rockwell-Collins
- Schindler Elevator
- Toyota
- Alyeska Pipeline Service Co
- British Columbia Hydro
- Carolinas HealthCare System
- Coinmach Services
- Cudd Energy Services
- Flint Hills Resources
- Georgia Power Company
- Goodwill Industries
- Gulf Stream Marine
- Hoosier Energy
- Horizon Utilities
- Hunt Brothers Pizza
- Laidlaw
- Lancaster Foods
- Lighting Maintenance, Inc.
- Southern California Edison
- Terra Renewal
- Whiting Oil & Gas
- US Army, Navy, Air Force, Marine Corps
- 12 of 15 federal government departments (Agriculture, Defense, Energy, Homeland Security, Interior, State, Veterans Affairs, etc.)
- US Postal Service; Canada Post
- Smithsonian Institution; NASA
- United Nations
- LDS Church
- RAND Corporation
- Transportation Research Board
- 33 of 50 largest cities in the US, including 10 largest
- 3 of 5 largest cities in Canada
- 35+ state and provincial governments
- 40+ colleges and universities

Industry Trends Affecting Fleet Maintenance and Repair Practices

- Brain drain: loss of practical experience and institutional knowledge due to baby boomer generation retirements
- 30 years of employer underinvestment in human capital
- Shortage of new talent entering the fleet management profession
- Job-hopping proclivities of millennial-generation workers
- Increasing complexity and costs of *automotive* technology due to safety and environmental impact-related concerns and regulations
- Increasing capabilities, complexity, and potential applications of *information* technology such as telematics and mobile apps
- "Big Data" phenomenon: expectation that all types of management activities will be increasingly *data driven* and not just based on experience and subjective judgment

Asset Complexity – Truck Emissions Systems



Examples of emissions complexity:

| System | Part Description | Pre-Emission | Post-Emission |
|-----------------------------------|--|--------------|---------------|
| Emissions/Exhaust After Treatment | Muffler vs. Diesel Particulate Filter Assembly | \$ 95 | \$ 4,719 |
| | Diesel Particulate Filter Only | \$ - | \$ 2,258 |
| | Turbo vs. Variable Geometry Turbo | \$ 967 | \$ 3,294 |
| Engine | EGR cooler vs. no EGR cooler | \$ - | \$ 1,096 |
| | Fuel Injector E6 vs. MP7 | \$ 106 | \$ 695 |
| | Cylinder Head E6 vs MP7 | \$ 1,779 | \$ 3,674 |

- Government emissions regulations and new engine technologies introduced between 2007 and 2010 continue to increase truck maintenance costs
- On average, a post-2007 emissions truck costs 25% more per engine hour to maintain when a truck comes off warranty (two years after purchase)
- Capital costs are up 30% since 2007
- Parts costs and total number replaced is expanding
- Need to continue working to mitigate cost impact by training technicians on new technologies to lessen reliance on higher cost 3rd party repair vendors and downtime

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Growing Technological Complexity of Fleet Assets

- In the early 1980s, vehicles with embedded computers had upwards of 50,000 lines of software code; vehicles in 2017 generally have more than 100 million lines of code
- Increasing demand for more and varied features
- Features once available only on luxury passenger vehicles eventually become standard equipment across many vehicle types and models

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Implications of Industry Trends for In-House Fleet M&R Programs

- Increasing difficulty in attracting and retaining skilled vehicle/equipment operators and maintenance technicians
- Growing need for employee training and certification
- Increasing reliance on third-party service providers (i.e., outsourcing) and supply chain management processes and techniques
- Growing demand for “data analytics” and, hence, for accurate, timely, and properly codified data
- Growing demand for training in the interpretation and use of telematics solution-generated data
- Need to replace fleet assets more frequently

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Condition of Actual or Potential In-house M&R Practices Under Which Outsourcing May or May not Make Sense

| | Low Quality | High Quality |
|-----------|-------------|--------------|
| Low Cost | Maybe | Unlikely |
| High Cost | Probably | Maybe |

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Why might outsourcing be the best means of achieving high quality and low cost?

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Why might outsourcing be the best means of achieving high quality and low cost?

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How to Determine Whether or Not to Outsource Fleet M&R Activities

1. Confirm that outsourcing is a realistic option; that the market is, in principle, capable of selling you services that you may want to buy
2. Identify the reason(s) for considering outsourcing:
 - Cost savings? Cost avoidance?
 - Service quality improvements?
 - Risk mitigation?
 - Improved focus on core mission?
 - Something else?
3. Define the type(s) of outsourcing to consider:
 - Internal or external
 - Full or partial
 - Labor substitution or vendor network
 - In-house or contract transaction management
 - Centralized or decentralized supplier management

How to Determine Whether or Not to Outsource Fleet M&R Activities

4. Assuming that cost savings or avoidance are the key reason for exploring outsourcing, identify the *avoidable* costs of performing the activities that are candidates for outsourcing
 - Identifying the costs of performing fleet management activities in house requires an *activity-based cost (ABC) analysis*
5. Once costs have been identified, assess their reasonableness and the extent to which outsourcing might (or might not) reduce them, keeping in mind:
 - Transition costs
 - Ongoing transactional (supplier management) costs

Key Steps in the ABC Analysis Process

1. Identify all annual costs associated with managing and operating the fleet
2. Define the different types of fleet-related goods, services, and in-house activities for which these costs are incurred
3. Allocate the costs to cost pools associated with each good, service, or activity

Key Steps in the ABC Analysis Process

4. Convert the costs in each pool to a unit cost of performing an activity or a markup on the direct cost of buying and furnishing a good or service
5. Subtract unavoidable costs to determine what costs would go away if the activity were outsourced
6. Assess the reasonableness (e.g., competitiveness) of the avoidable costs, their underlying *drivers*, and the likelihood that they could be reduced through outsourcing

1. Determine Annual Fleet Operating Costs

Direct (out of pocket) costs

- Personnel salaries and fringe benefit costs
- Parts and supplies
- Warranty and insurance claim recoveries
- Fuel
- Vendor and contractor services charges

1. Determine Annual Fleet Operating Costs

Indirect costs

- Depreciation
 - Fleet management infrastructure
 - Fleet management vehicles (e.g., mobile service truck, parts runner truck, wrecker)
- Support services costs
 - Procurement and contract management
 - Budget and finance
 - Legal
 - Risk management
 - HR management
 - Facility management
 - IT infrastructure and support

2. Define Fleet Management Activities

- Managing asset acquisition, replacement, and disposal
- Furnishing in-house maintenance and repair labor
- Furnishing in-house maintenance and repair parts
- Procuring sublet maintenance and/or repair services
- Procuring and supplying fuel

3. Allocate Costs to Activities

- Establish cost pools or buckets for each fleet-related product or service activity for which an annual cost will be calculated
- Develop allocation methods and statistics for allocating costs to pools

4. Convert Annual Costs to Unit Costs

$$TC_i / C_i = UC_i$$

Where:

TC_i Is the projected annual cost of providing all units of service of Type i (labor)

C_i Is the projected total annual consumption (by fleet users) of services of Type i (months, hours)

UC_i Is the cost of one unit of a service of Type i (\$/vehicle/month; \$/mechanic labor hour)

Calculating Unit Costs – An Example

$$\$2.39M / 21,000 = \$114$$

Where:

\$2.39M Is the total annual direct and indirect cost in Year X of employing and supporting a mechanic workforce of 15

21,000 Is the total number of hours of in-house mechanic labor projected to be charged to work orders in Year X

\$114 Is the “fully loaded” cost in Year X per mechanic labor hour

4. Convert Annual Costs to Direct Cost Markups

$$TC_i / C_i = M_i$$

Where:

TC_i Is the projected annual cost of providing all units of goods or services of Type i (fuel, parts, sublet services)

C_i Is the projected total annual consumption (by fleet users) of goods or services of Type i (gallons, dollars)

M_i Is the markup on the direct cost of one unit of a good or service of Type i (\$/gallon of fuel, % of direct parts costs, % of direct vendor charges)

Calculating Cost Markups – An Example

$$\$1.4M / \$0.5M = 36\%$$

Where:

\$1.4M Is the direct cost of (amount paid to purchase) all parts issued to work orders in Year X

\$0.5M Is the total direct and indirect cost in Year X of performing parts procurement, inventory management, and disbursement activities

36% Is the percentage markup on the direct costs of all parts issued to work orders (or sold over the counter) in Year X

5. Convert Total Unit Cost to Avoidable Unit Cost

$$TC_i - UAC_i / C_i = AUC_i$$

Where:

TC_i Is the projected annual cost of providing all units of service of Type i (labor)

UAC_i Is the projected unavoidable annual cost of providing all units of service of Type i (labor)

C_i Is the projected total annual consumption (by fleet users) of services of Type i (hours, months)

AUC_i Is the cost of one unit of a good or service of Type i (\$/vehicle/month; \$/mechanic labor hour)

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Calculating Avoidable Unit Costs – An Example

$$\$2.39M - \$0.27M / 21,000 = \$101$$

Where:

$\$2.39M$ Is the total annual direct and indirect cost in Year X of employing and supporting a mechanic workforce of 15

$\$0.27M$ Is the total annual indirect cost in Year X of employing and supporting a mechanic workforce of 15 that would not be avoided if M&R were outsourced

21,000 Is the total number of hours of in-house mechanic labor projected to be charged to work orders in Year X

$\$101$ Is the “fully loaded” cost in Year X per mechanic labor hour

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Other Key Points to Remember

- Outsourcing M&R activities will not compensate for a lousy fleet replacement program
- Suppliers do not have your best interests at heart; they must be actively managed
- Suppliers are not immune to the challenges facing in-house fleet maintenance programs
- Outsourcing does not mean that you no longer need a fleet manager

Fleet M&R Activities that Cannot be Outsourced

- Policy and procedure development
- Budgeting and financial management
- Supplier selection and performance management
- Customer service management
- Accountability to upper management

Questions

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For Further Information:

Paul Lauria

Mercury Associates, Inc.

Rockville, MD

plauria@mercury-assoc.com

301 519 0535

www.mercury-assoc.com

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