# **Service Relationship Management**
# Driving Uptime in Commercial Vehicle Maintenance and Repair

Decisiv™

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## Introduction

It's important to understand how using a Service Relationship Management (SRM) technology platform reduces service event process delays while enhancing the productivity of the entire North American trucking service supply chain. These efforts can improve asset utilization for fleets, while addressing the ongoing challenges of rate pressures, thin margins and volatile fuel prices that face the North American trucking industry.

However, there is little attention given to downtime associated with service and repair events. The implementation of an SRM platform to service and repair programs can eliminate inefficiencies while providing a competitive and financial advantage for forward thinking fleets.

Fleets that employ an SRM approach to maintenance and repair events will be able to increase asset utilization (truck availability) by reducing Days out of Service (DOS). This ultimately maximizes return on assets (ROA), increases revenue and enhances productivity of your fleet assets.

The results of a survey of ten fleet operators and ten service providers who attended the Decisiv Maintenance Summit in November 2012 offer some surprising statistics:

- Service events per asset averaged a little less than 1 up to 2.5 events per month
- Days Out of Service (DOS) per event per month ranged from 1 to 6 days, across an average fleet size of 277 tractors
- Wrench time averaged 16.2% of the entire cycle time
- Nearly 84% of time was needed for coordination and communication

These numbers reflect the clear impact that DOS has on the North American trucking market, and suggest a staggering $35B in lost revenue and opportunity costs.

## Quality and Process Improvements

Companies can offset this financial loss by making significant improvements across the service supply chain. However, they are still challenged to improve service quality while lowering costs and improving speed and quality at which the service is performed. While common sense suggests this cannot be overcome, in product-based industries this classic cost-speed-quality tradeoff (where you can improve two but not three) has been solved. Some of these techniques have recently been introduced into service industries such as government contracting, financial services and healthcare where 50% cost reduction and 66% reduction in

cycle times are typical[1].

Many of these same principles can be applied to the North American trucking market. While you may not think of applying Lean Manufacturing and Six Sigma in the commercial trucking space, it provides a framework for analyzing the widely varying quality standards that exist in today's service and repair process. For instance, the survey results from the Decisiv Maintenance Summit put today's fleet service event process at the same level of quality, reliability and predictability as airline baggage handling.

The reason for applying these techniques is simple. Services, despite their unique characteristics, are produced in similar fashion to products – through a supply chain or network of partners. Proven techniques for optimizing supply processes may be applied to simultaneously reduce defects, eliminate waste, increase asset productivity and ultimately improve the overall output of the service process.[2,3,4]

Service Relationship Management (SRM) is the collection of techniques for managing the interactions across an entire supply chain to improve efficiency of the service cycle and optimize the return on service assets.

## Efficiency Metrics for Defining SRM

By eliminating defects, waste and delays in the service and repair process, SRM increases the revenue capacity, productivity and trust created by a collaborative service event management process.

There are three forms of service process efficiency[5]:

- Transaction efficiency
- Value efficiency
- Quality efficiency

SRM can improve each of these forms of efficiency for both the service provider (internal shops or external service providers) and consumer (operators of commercial assets such as trucks and trailers).

Let's look at each form of efficiency in terms of service events for commercial trucking fleets and conclude with results from a recent study of North American truck fleets and independent service providers demonstrating the benefits of SRM implementation.

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1 George, M. L. (2003). *Lean Six Sigma for Service*. New York: McGraw-Hill, Sampson, S. E., & Spring, M.(2012)

2 George, *Lean Six Sigma for Service*

3 Sampson, S. E., & Spring, M. (2012). *Customer roles in service supply chains and opportunities for innovation.* Journal of Supply Chain Management, 48(4), 30–50.

4 Vargo, S. L. (2009). *Toward a transcending conceptualization of relationship: A service-dominant logic perspective.* Journal of Business & Industrial Marketing, 24(5/6), 373–379.

5 Xue, M., & Harker, P. T. (2002). *Customer efficiency: Concept and its impact on e-business management.* Journal of Service Research, 4(4), 253–267

## Transaction Efficiency

The purpose of transaction efficiency is to increase the capacity of a service asset (e.g. the number of trips or deliveries made) while reducing customer waiting times (downtime or DOS). The primary metric for assessing transaction efficiency is Asset Availability. Simply stated, the more an asset is available, the greater the increase in productivity.

For instance, a truck's availability is a critical factor impacting productivity and revenue. Repeated repairs or delays in getting the truck back on the road after a breakdown lowers the transaction efficiency of the truck asset and the driver.

Similarly, allowing trucks to sit in a service bay or service location for extended periods lowers the transaction efficiency of the repair facilities. Likewise, the productivity of technicians or repair assets (e.g. service bays) suffers as asset availability declines.

Reducing DOS for assets creates increased transaction efficiency of the service process and will positively affect the supplier and fleet, the consumer of maintenance and repair services.

## Value Efficiency

While transaction efficiency increases the number of transactions an asset may service, value efficiency seeks to increase the value created per unit. Therefore, the primary metric for assessing value efficiency is Return on Assets (ROA).

Since the commercial trucking industry has high fixed costs, even a small improvement in asset utilization will yield a large gain in net margin from operations. So improving the ROA can be achieved by increasing the Asset Utilization Rate.

Therefore, process improvements in service and repair events improve the overall financial health of a fleet – raising profit margins by eliminating non-value-added steps that can lower asset utilization and increase DOS (i.e. time not associated with fixing the asset).

## Quality Efficiency

Quality efficiency measures the quality of a service (i.e. service and repair of fleet assets) to increase the level of trust and brand reputation of those involved in a service network (both internal and external). By representing service quality using the standardized values of Six Sigma, consumers of service and repair events (fleets) can easily compare performance of internal and external service.

Service providers can also utilize the same metric to determine which steps should be the focus of reengineering efforts in order to have the greatest impact on improving the quality, speed and cost of the service they deliver.

The primary metric for assessing quality efficiency is the standard deviation of performance, or Sigma Value of the service process. Sigma (σ) is a letter in the Greek alphabet used by statisticians to measure variability. The reliability and performance of a business process can be measured by variance. Six Sigma[6] derives its name from the goal of minimizing defects (errors or delays) to six standard deviations (or 6σ) from the mean. This equates to 3.4 defects per million opportunities.

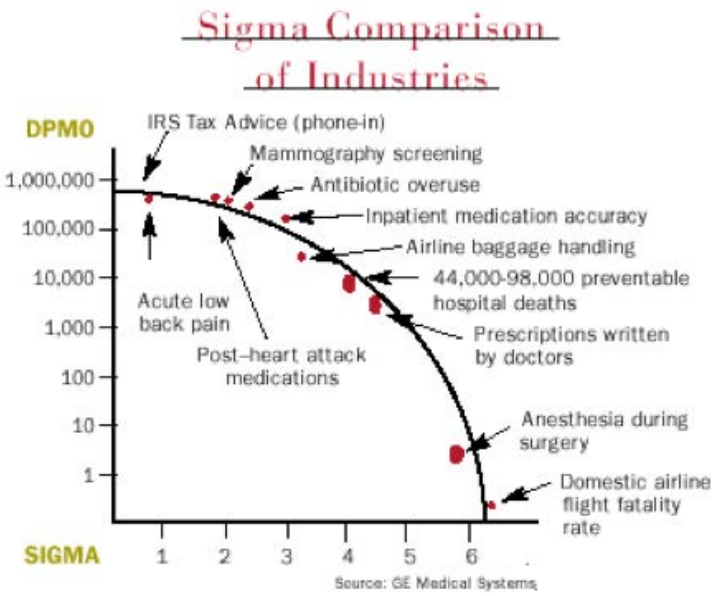


Figure 1: Various sigma values.

The sigma values for various processes from the provision of tax advice to air transportation are charted in Figure 1. Services involving a high degree of judgment, such as financial advice and medical diagnosis, tend to have lower sigma values than services involving more standardized procedures.

Traditionally, companies accepted three or four sigma performance levels as the norm. This level of performance equates to nearly 7 defects (errors or delays) in every 100 opportunities. For a trucking fleet operating weekdays only, a sigma value of 3.0 would translate to an average of 1.5 DOS per month per asset. Keep in mind, that the range in the Decisiv Survey was between between 1 and 6 DOS per month per asset per event!

## Benefits from Implementing SRM

Understanding the three forms of efficiency clarifies how they build upon each other. Increasing asset availability can improve asset utilization. Improved asset availability is made possible by reducing service cycle delays, caused by communication failures and lack of collaboration between members of the service network. The delays are eliminated by applying SRM to better manage the interactions between individuals and organizations involved in a service event. SRM is able to simultaneously improve cost, speed and quality in any service process by managing the service event interactions that drive asset availability, asset utilization and sigma values.

The Decisiv Maintenance Summit Survey found that across the average fleet size of 277 tractors, there were between 1 and 2.5 service events per asset per month with a range of 1 to 6 DOS per asset per event in the 22 operating days

6 Harry, & Schroeder. (2000). *Six Sigma: The breakthrough management strategy revolutionizing the world's top*

in a single month. This equates to a defect rate of 38.9%, or conversely, an average asset availability of 61.1%. The service network currently serving the fleets responding to the survey, a combination of both internal shops and outside service providers, is operating at an average level of 1.78σ.

Of note, there was wide variability in fleet performance. The best fleet reported an average of 1.02 DOS (3.18σ), while the poorest fleet had an average of 15.68 DOS (0.94σ) – about the same level as IRS Tax Advice. However, even the best fleet is just above the bare minimum considered as a service quality norm, around the same as the average bag handling system at airports – something rarely considered best practice.

Decisiv also analyzed three pilot implementations of its SRM technology platform. The time required to perform ten stages of a service cycle were analyzed, including:

1. Case creation
2. First notation
3. Vehicle arrival
4. Estimate provided
5. Estimate approval provided
6. Parts received
7. Work stoppage for tech support
8. Work completion
9. Notification for pickup
10. Pickup completed

The results showed that prior to SRM technology implementation the steps for performing the repair process (from estimate approval to work completion), also called “wrench time”, was on average 16.2% of the entire cycle time (also called dwell time), and ranged from 5.1% to 37.3%. The vast majority of the time – nearly 84% of the process – was needed for coordination and communication!

The implementation of SRM positively impacted this process. One of the three pilots was analyzed in detail over a seven-month period to determine actual reduction in process delays. Monthly measures of average downtime per service event case were taken beginning three

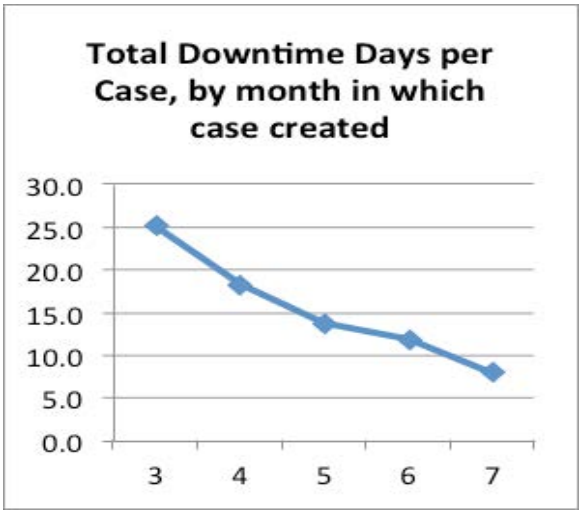


Figure 2

months after implementation. The longitudinal analysis permits an evaluation of the initial cycle time improvements associated with a SRM implementation.

The service cycle improved dramatically during the study period. Total downtime per case dropped from 25 days in the third month to just 8 days in the seventh month (Figure 2).

An analysis of repair type indicated that variability in the process was substantially reduced. At the time the first measurements were reported (month three), the downtime for transmission repair was averaging 33.1 days, engine repair averaged 20.7 days and other repairs averaged 6.4 days – a high degree of variability. These repairs generated a standard deviation of 13 days. By reducing communication and coordination delays, the improvements brought by the SRM system nearly eliminated this variance. By the 7th month all three forms of repair averaged below 10 days of downtime, a standard deviation of 1.25 days.

To summarize, within just four months, the fleet's service quality improved from 0.53σ to 2.12σ -- **reducing the variability by nearly 12 days**.

## Conclusion

Whether you use traditional measures of service quality such as Six Sigma or the non-productive downtime associated with service events in the North American truck market, service quality and reliability is in need of repair.

Implementing Service Relationship Management (SRM) can have a clear impact on the entire service supply chain, driving improvements in transaction, value and quality efficiency. By improving service collaboration, a fleet maintenance operation can dramatically increase service quality while decreasing total repair time. This improves revenue miles per truck and enhances a company's Return on Assets (ROA) by increasing asset utilization. Organizations have the ability to manage variability in service processes across the entire service network to drive uptime, while incrementally improving asset utilization.

Decisiv has also analyzed the financial and operational impacts that improve DOS, and studied the effects on revenue and net profitability of commercial trucking fleets across North America. To download any of these studies please visit Decisiv's web site at www.decisiv.com.

## About Decisiv

Founded in 2001 and based in Glen Allen, Virginia, Decisiv is the leading provider of Service Relationship Management (SRM) and business intelligence solutions for commercial assets. The Decisiv SRM platform incorporates customer preferences and workflow for more effective management of scheduled and unscheduled service events, as well as electronic inspections, while providing anytime, anywhere access to build and repair information, on-board diagnostics, service event documentation and multiparty electronic communications. The cloud-based platform integrates with and leverages IT and business systems within fleets, independent service providers, truck, trailer and component manufacturers and their dealers, third party information services, telematics solutions providers and payment processing services. For commercial assets owners, the Decisiv SRM platform improves uptime by minimizing days out of service and driving improved asset utilization. For service providers and OEMs, the Decisiv SRM platform improves operational efficiencies and customer satisfaction as well as bottom line financial results. Decisiv's SRM platform is already being used by over 750 medium- and heavy-duty transportation and bus fleets, across 900 service providers, managing more than 325,000 assets. For more information, visit www.decisiv.com.

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