Clockwork was appointed to evaluate complex fleet operations for selection of the best life cycle sustainment strategy. Data Scientists reviewed the value and effectiveness of preventative maintenance performed across a large fleet of capital intensive assets. Each vehicle in the fleet currently undergoes a complex overhaul at the depot level. These overhauls are completed in sixty days or more. Fleet managers plan to retire 30% of the fleet in FY 2019. This large fleet consists of many variants each with unique reliability characteristics.

**The Challenge**

Clockwork focused on evaluating the value of preventative maintenance. The current plan calls for 4% of the fleet to undergo depot-level preventative maintenance each year. Clockwork evaluated both repair effectiveness and timing of preventative maintenance. By applying Clockwork’s high-resolution predictive analysis platform generates volumes of data that represent details about future operations such as the number of completed maintenance events in the graph to the right.
The Solution

Data scientists applied Clockwork predictive analytics platform to capture the detailed complexities of each asset across the fleet along with logistics, supply chain, maintenance concept, sustainment plans, and operational profiles. The expected outcomes were then evaluated for the various program strategies including reducing or halting scheduled preventative maintenance. Predictive models captured operational profiles, component cost, repair times, repair costs, shipment times, logistics network, and part reliability. Clockwork evaluated repair cycle times and costs and considered the time associated with maintenance tasks performed in the field: inspection, component tear-down, repairs, re-assembly and installation.

Predictive outcomes considered many possible future outcomes condensed from volumes of future Big Data generated by the Clockwork engine. Clockwork mined output data to produce optimal results based on performance and cost. The solution was evaluated for robustness by testing additional scenarios under extreme conditions in potential future operations. The figure above distills this analysis by demonstrating the performance of the optimal solution compared to the current baseline: Performance is improved slightly while cutting costs by $430M.

Value

- $430M in Savings Identified, equating to $25M annually across the 17 years remaining in the fleet’s lifecycle while operating within maintenance and operations constraints.
- Readiness increases 0.4% while reducing cost.
- Additional field level repairs increased by only 3%.

About Clockwork: Clockwork is a global leader of predictive analytics for Enterprise Asset Management (EAM) solutions that improve availability and reduce maintenance costs of capital intensive assets. With over 30 customers, the company provides cutting edge solutions that analyze asset data, provide performance visibility to each phase of an asset’s life cycle, resulting in increased availability, improved utilization, and billions worth of cost savings and profitability. For more information visit www.clockwork-solutions.com.

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