GENERAL MOTORS COMPANY – RFID
MANUFACTURING ASSET MANAGEMENT USING RFID

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General Motors (GM), a global automotive manufacturer committed to designing, building, and selling the world's greatest vehicles. The Manufacturing Engineering (ME) Department owns and manages assets located in GM plants.

Tracking critical manufacturing equipment and special tools is a major concern for General Motors. Poor asset management has led to unnecessary purchases, poor asset planning, difficulties in auditing inventory, unnecessary payment for taxes, warranties and insurance, and lower recoveries from asset disposals. Due to the vast number of equipment and tools, GM faced numerous challenges in integrating a technology that effectively tracks its assets. To address the problem, GM asked the Tauber team to assess the application of an integrate end-to-end strategy for Radio Frequency Identification (RFID), or a similar asset-tracking application, to enable an effective asset management tracking solution.

The team worked cross-functionally with people in Manufacturing Engineering, Manufacturing Operations, and Finance, along with technology suppliers to formulate the strategy to select, integrate, and apply RFID asset tracking. The team delivered the following:

1. A financial analysis that quantifies the incurred costs due to current inefficiencies and the proposed savings generated by implementing the RFID system
2. An analysis of current RFID technology and the best approach and applications for GM's needs
3. A decision-making framework for selecting RFID equipment (tags and antennae)
4. A framework for selecting RFID suppliers
5. A framework to connect IT systems and prototype applications using text analytics, asset mapping and work order creation using RFID

The team identified the reasons why assets are lost and the largest categories for losses. The trend of missing assets was negative. More than 12,000 assets were reported lost in 2015 and more than $640M adjusted gross book value was written off over a period of 8 years. While less than 0.05% of the total assets, the physical count is still significant. Considering all the ramifications of lost assets, the potential savings are estimated at $20M+ annually. The team also evaluated possible synergies with the container management and the mobile equipment department for use of RFID. If the synergies are tapped, the total potential savings are estimated at $42M+. Finally, the team evaluated technological solutions for the problem and identified the need for RFID for asset management. In order to determine RFID's application usefulness for GM's specific requirements, the team reviewed case studies for similar problems, recent innovations in the technology, and governmental standards for the technology. Three RFID applications were found suitable for asset management — active, passive, and Bluetooth. After conducting a proof of concept at Orion Assembly and the cost benefit analysis for each of the applications, the team concluded that using passive RFID tags with handheld readers is the most suitable solution for GM. The solution requires minimal investment in infrastructure, and GM will be able to conduct inventory 10 times more frequently at 30% of current costs. In addition, data accuracy is expected to rise to 90% from 60%.GM can use these frameworks to conduct a full-fledged pilot for the RFID asset management and they will also help in go-live and scaling up the solution at a global level. The visual tools-- an asset spread map on the CAD plant layout and a demo website app for asset management –will assist in clearly communicating the vision of the RFID strategy going forward to both the vendors and the GM leadership.