

GENERAL MOTORS COMPANY – ENGINE QUALITY

ENGINE QUALITY IMPROVEMENT THROUGH HEIGHTENED VISIBILITY

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Headquartered in Detroit, Michigan, General Motors (GM) has been a world leader in automotive sales and a pioneer in innovative technologies for over 100 years. One such innovative technology that promises to revolutionize the automotive industry is the electrification of vehicles.

To prepare for the increased complexities of electric propulsion systems, GM set an aggressive quality certification for its eight North American gas engine plants to achieve by the end of 2017. One component of this certification is an ambitious reduction (75% lower than the North American average) in the percentage of engines shipped that experience problems when subsequently built into vehicles at GM's North American vehicle assembly plants.

To achieve this quality certification goal, GM partnered with the Tauber Institute in a 14-week project to analyze defect information in all eight North American engine plants for commonalities and contrasts, and to then leverage the subsequent findings to identify opportunities for quality improvement. The project team interviewed the GM parties responsible for defect identification, investigation, and correction to understand the respective business processes. The Tauber team then standardized historic defect information to analyze for cross-plant trends, and correlated defect information gaps with weaknesses in the underlying business process. Ultimately, the Tauber team discovered an absence of plant-to-plant visibility in the defect resolution process and determined that current information-sharing practices and infrastructure were incapable of facilitating such cross-plant analysis.

To address plant-to-plant defect visibility, the Tauber team developed a centralized tracking system that consolidates engine defect information from the eight North American engine plants and includes problem identification, root causes, and corrective actions. The tracking system operates both as a database of historic information and as a platform to streamline the engine defect business process.

The Tauber team successfully piloted the tracking system at three of GM's manufacturing facilities. Although the system was initially developed only for engine plants, its success led to an expansion to both transmission and battery production. The tracking system empowers GM to utilize the organization's collective learnings to significantly improve engine quality, thereby helping propulsion plants achieve the mandated quality certification and shifting GM to a more collaborative culture.