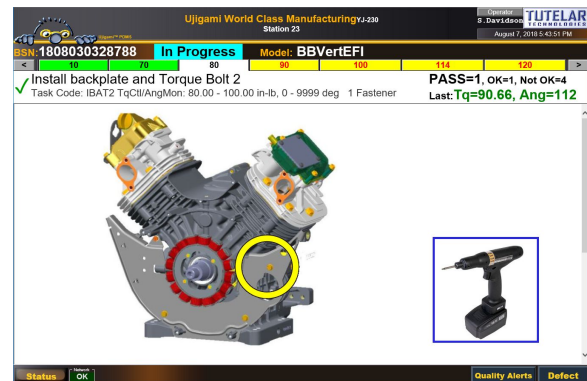# Strategies to Achieve Maximum MES Benefits in Your Plant

Manufacturers of all sizes have realized the benefits of adding technology to their plant floor and are exploring the new functionalities that MES (Manufacturing Execution Systems) provide to their operations. However, the world of MES has grown exponentially and many companies are struggling to take advantage of these new capabilities. Understanding what functionality is available and how MES can impact *your* manufacturing can be complicated. Tutelar Technologies, a leading provider of plant floor software solutions, has seen a lot of growth both inside and outside the traditional large OEM/Tier 1 markets and have worked with our customers to implement strategies to add advanced MES capabilities to their plant floor that deliver big impacts with lower investment.

MES includes a wide range of functionality, from intimate process control (scanning, sequencing, tool and equipment control), to behavioral control (work instructions, quality alerts, check lists), reporting (traceability Birth Certificates, production reports, OEE/ downtime), MRP/ERP integration (scheduling, 'backflush', BOM import), and more. Many companies specialize in one or two of these areas and can provide effective solutions. However, this approach often leads to 'islands of automation' where customers must integrate multiple solution providers to achieve a cohesive plant floor system. Our customers appreciate that Tutelar's Ujigami software suite has the complete range of dock-to-dock functionality which allows them to grow their scale and functionality over time within one cohesive system.
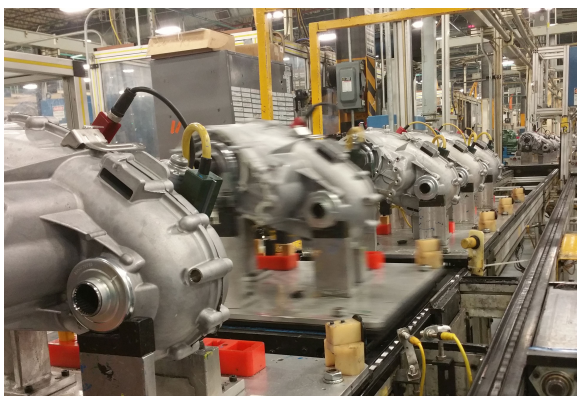
The key to a successful MES strategy is to find the right starting point that has the potential for the biggest impact on your business. At Tutelar, we work with our customers to first solve their biggest manufacturing challenges – demonstrate a rapid ROI and achieve the satisfaction of eliminating a problem area that they have been fighting for months or years. The following strategies are examples of how our customers have found the right starting point for their MES

implementations, and have since grown to include Ujigami software in all areas of their manufacturing.

The Core Process Strategy

This strategy has been very successful as a method of low initial investment, while having a substantial impact on improving performance. It involves identifying a core manufacturing process and implementing MES functionality to control and mistake-proof that process to drive out waste, scrap, non-productive elements, and downtime. For example, one of Tutelar's mid-size engine manufacturers was experiencing issues involving their core torque processes. They were under pressure from their OEM customers to reduce warranty costs. Their initial solution was to upgrade their tool software, but after consideration of their options they realized this would only be a patch and would not also address other issues. With Tutelar's consultation, they chose six key stations of their main assembly line to add Ujigami MES - work instructions, torque control, process sequencing, component mistake-proofing, and operator certification. After a few months their warranty claims were dramatically reduced, and the decision was made to invest further in Ujigami to scale the functionality across the rest of the line.

Less than two years later, the customer has added Ujigami completely across all of their assembly lines and processes including sub-assembly and testing, and are currently adding additional reporting and component kitting functionality. Ujigami has become such an essential part of their manufacturing that they now use Ujigami MES to train new hires on a mini production line in the training room. The visual quality improvements highlight their advanced capabilities to visitors and have led to significant new business opportunities.

The Core Process implementation strategy drives results by delivering improvements to the key manufacturing process that impacts daily plant performance. The following implementation strategies are equally effective in improving productivity and quality, while reducing cost.

The New Project Strategy

One of the most common strategies our customers use to implement MES is to include MES on a new project, such as a new sub-assembly area, a new model launch, or a new assembly line. This strategy has several advantages. First, by including MES as part of advanced planning, our customers are able to devote more time and thought into the manufacturing requirements and what functionality will ensure the new project's success. This manufacturing plan aids in the decision-making process when choosing a vendor and helps establish effective timelines. Secondly, by including Tutelar early in the process our customers benefit from our industry-wide expertise, specifically in choosing the best tools and equipment for the project. We often help lower the capital investment required for the project because Ujigami software provides advanced mistake-proofing and intelligent controls for the line. Ujigami MES also manages key process gates that usually lack technical controls, such as how repairs and defects are handled, how production schedules are created and distributed, and managing final verification and pack-out.

A good example of this strategy is one of Tutelar's OEM customers who manufactures recreational vehicles. Three years ago, this customer was adding a new assembly line to manufacture a brand new model of off-road vehicle. While this customer was already an award-winning plant for their assembly practices, the high velocity capabilities of the new vehicle dictated that this assembly process be flawless; it required intimate MES process and quality control. After a lengthy decision-making endeavor, this OEM chose Ujigami for the extensive real-time technical control of all machines and devices, comprehensive traceability, and flexibility and ease-of-use of the system. While this project was not originally meant to be part of a larger corporate MES strategy, the line quickly demonstrated that Ujigami represents the next generation of manufacturing capability. The success of the line encouraged our customer to make Ujigami a part of all new
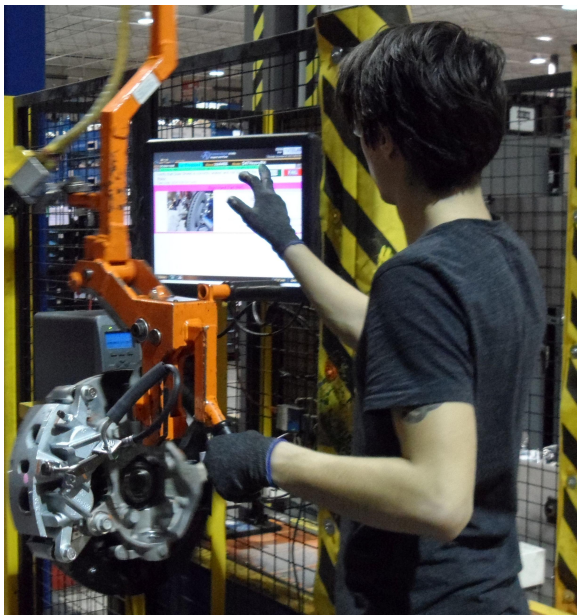
project and Continuous Improvement planning. They have scaled Ujigami functionality into their other legacy assembly lines and into sister facilities.

The Production Reporting Strategy

Another strategy that is successful for Tutelar's customers has been to add MES reporting functionality as a layer on top of current production to improve the transparency to their manufacturing. Some customers approach Tutelar with the understanding they need MES in a modern manufacturing environment, but either are very labor-centric with few tools to deploy MES control, or have simple processes where the control is not required. In these cases, our customers have benefited from choosing our Ujiboard World Class Manufacturing solution which provides detailed production OEE reporting and visibility of what is occurring on the plant floor in real-time. A typical implementation focuses on the 'pay-point' stations of a process or assembly line. Ujiboard tracks cycle time, production counts, and automatically records downtime events. This information is automatically delivered to operators, scoreboards and management reports that provide our customers the ultimate transparency into their manufacturing.

Shortly after Ujiboard was added to our software suite six years ago, we were selected by a manufacturer of metal stampings, weldments, and assemblies. This customer has a large

variety of pressing, casting, welding, and minor assembly processes. They were impressed by the visibility and production tracking capabilities of Ujiboard and decided to trial Ujiboard in one production area. Within the first six months of implementing Ujiboard, OEE increased by over 10%. This improvement was achieved by focusing improvement efforts on the critical few issues instead of wasting time sorting through the extraneous many. Operators and supervisors track their performance in real-time

using Ujiboard scoreboards, constantly striving to beat the targets. Issues are quickly identified as they occur and additional technical resources are immediately assigned as required. Since then they have made even more improvement by using Ujiboard results to improve process capability and have added Ujiboard to every production area in the plant.

MES Drives Results

Manufacturing Execution Systems are an important and vital part of modern manufacturing in every industry. Like any new project, successful implementation of an MES system involves planning and strategy. There are many effective strategies to achieve the benefits of a comprehensive MES. Tutelar prides ourselves on assisting potential customers in selecting the best approach, and helping implement and integrate Ujigami to make a significant difference in every manufacturing plant.