



Case Study

Manufacturer Digitally Transforms Operations in only 3 Months, During Pandemic Restrictions

In only three months and during the COVID-19 Pandemic, 42Q digitally transformed a customer's manufacturing operation from a paper based system to a cloud-based manufacturing execution system (MES). The customer experienced improvements in key performance metrics within a quarter of the go-live date.

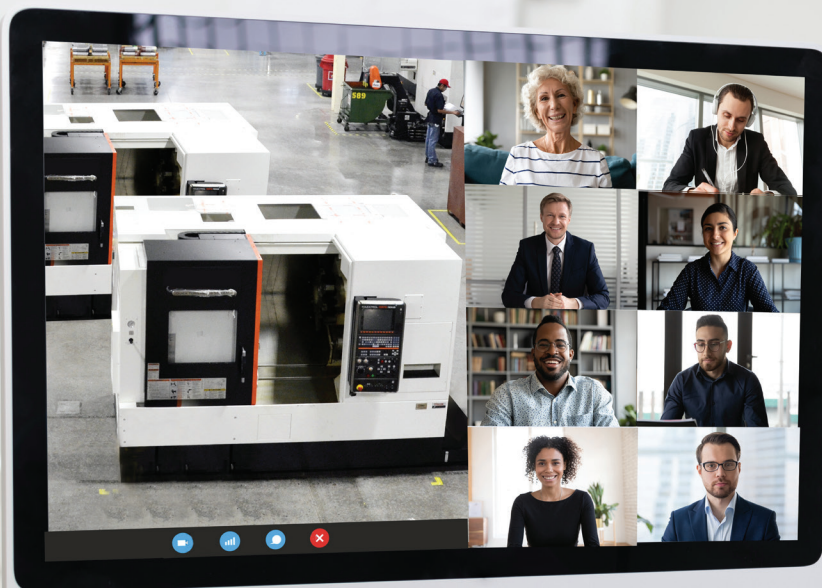
The Goal

A well-known engineering company that manufactures mission critical equipment needed to implement a manufacturing execution system (MES). Their existing paper based approach for managing operations did not facilitate tracking, real time data visibility or effective process and quality management. The new system needed to be fully integrated with their existing Enterprise Resource Planning (ERP) system, SAP.

The Challenge

The manufacturer's product had 50 base models and 400 feature options that were assembled 'to order' using a unique method. Over 100,000 part numbers had to be controlled in a manufacturing process that required between three to twenty machining, assembly and test steps. Seventy pieces of machining equipment were required to make the product, including computer numerical control (CNC) lathes and milling machines. Many of the machining steps could be processed on any one of multiple machines. Over 7,000 combinations of machine routings, base models and feature options were possible. This resulted in complex route determination. Uniquely, the assemble-to-order process required an exclusive part number assigned to each work order.

Due to restrictions resulting from the COVID-19 pandemic, the MES system had to be deployed remotely without anyone physically visiting the factory.



Why 42Q

The 42Q MES platform was selected because of its ability to digitally transform the management of manufacturing operations and its variable cost model. It's cloud-based architecture enabled remote deployment and meant that an on-premise installation was not required, allowing for a rapid implementation cycle, while lowering the total cost of ownership (TCO). Additionally, 42Q could seamlessly integrate with the existing SAP ERP system.

Approach

42Q selected a team that had already successfully implemented the system remotely at another customer site. A cross-functional team was formed in the customer organization to partner with the 42Q team. The 42Q implementation framework was used to manage the project in an efficient and streamlined manner.

Remote Deployment

42Q's cloud-based architecture facilitated remote deployment because the system can be securely accessed from anywhere in the world. Video technology was used to conduct meetings for planning, training and testing. Virtual tours of the of the manufacturing facility allowed the 42Q team to understand the operation, develop a requirements document and design the implementation plan. Customer specific training was delivered by video conference. Testing was conducted remotely without impacting scope or quality. Issues arising from testing were addressed in real time using video conferencing.

Process Mapping

42Q has a proven framework that facilitates process mapping and includes value stream mapping, users, locations and processes as well as defect and repair codes. The collation of information leads to a thorough analysis of the current process state versus the future state. At the end of the exercise, process improvement recommendations were made available to the customer. 42Q's disciplined approach increased adherence to the defined manufacturing processes.

Flexible Customized Solution

The complex nature of the manufacturing process route determination and the requirement for an exclusive part number to be associated with each work order were unique to the customer's manufacturing operation. The 42Q solution was able to adapt to these non-standard elements and minimized the changes that the customer needed to make.

Results

- 42Q was fully deployed and integrated with the customer's ERP system in only 3 months during the pandemic, without any interruption to production.
- The manufacturing operation was transformed from a paper based system to a digital MES, without incurring any fixed cost.
- The customer gained real time access to full traceability, work-in-process, yield and traceability data and reported improvement in key metrics with a quarter of the go-live date.