HULFT

Real-time production reporting that speeds time to market and saves money

Creating a product is labor, process, and resource intensive. The general rule seems to become: set up the manufacturing process, expend the resources, and once working, don't touch it. Later, when asked to optimize or innovate, simply scratch around the edges but don't actually touch the original process.

A successful product manufacturing line stopping can be cause for heavy losses. This risk becomes unacceptable, fast. However, rapid innovation is the only way a product survives the test of time and keeps winning against the competition. Whether you're on the manufacturing floor or in a design or manufacturing engineering role, everyone is engaged in this process and expects immediate feedback and results.

Unfortunately, you can't get immediate results if your manufacturing processes are heavily paper-laden and labor intensive. A major auto parts manufacturer found this out, and decided to take this challenge into its own hands.

Eliminating the paper bureaucracy

The company wanted real-time monitoring of the production of its products and performance of its robotics equipment on the production line. It was in the process of manufacturing products that used new materials, so from a company standpoint, it was very important that the equipment on the line was properly calibrated and performing to specification.

There was also other critical information about the robotics on the production line that manufacturing supervisors and engineers wanted to know:

- Was there a machine on the line that was free so work could be rerouted to maintain a rapid flow of manufacturing operations?
- What was the Weibull Analysis for each piece of production equipment?
- What operational differences existed in operator and technician standardized work instructions, and how was this understood?
- What were machine and gauge metrics, given that they were working with new materials, and might need to be adjusted?
- Were there machines on the line that were approaching regularly scheduled maintenance cycles? Or machines that were experiencing symptoms that could point to a near-time failure?

Digitalization and integration highlights:

- **Who:** Tier-1 major automotive parts manufacturing company
- **Goal:** Eliminate go-to-market delays in production line equipment, manufacturing process and products

Results:

- Eight hour or more report delays eliminated and converted into real-time reporting
- Reports accessible to authorized users through desktop, mobile, and wearable devices
- Backlogs in quality test results eliminated
- Hard dollar savings of $300,000 per facility annually, or a total of $27,000,000 for all 69 plants
- End to end implementation a new system in six months
- Real collaboration from plant floor to the carpet to top floor

None of these questions could readily be answered in the affirmative with the paper-based collection processes that the company was using. More importantly, for products using new materials, there was no way that plant floor technicians could collaborate in real time with engineers so engineers could obtain timely feedback.

Making a change to get to real-time information

Historically, the company had always monitored its machines on the line by equipping plant floor technicians with clipboards and sending them out to manually record machine status, such as the amount of torque being experienced by each machine. The technicians then entered the information manually into a system and would spend days, if not months, tabulating data. They then would coalesce the results, annotate findings, and provide observations within large reports. From that time-consuming effort, supervisors, engineers and others with a need to know would gain visibility of machine status on the line.

Unfortunately, the information was out of date by the time it reached these downstream recipients.

Managers and engineers wanted real-time information so they could keep production lines running and access real time information on how line equipment was processing products made with new materials, so this is what they did:

- They eliminated the clipboards that plant floor technicians were using, and instead equipped each technician with an iPAD that could record dynamically created reports and take photos of each machine on the line as they inspected it.
- Captured information included vital statistics such as pinion angle, lubricant status, sump temperature, total cycles, gear ratios, r.p.m., rotational force, and many more key machine metrics.

The outcomes?

- Work instructions were now distributed and filled out electronically.
- Job reports, product quality tests and calibrations could now be done electronically with data captured by taking pictures as well as electronic data entry.
- The information was thus instantaneously sent to systems and mobile devices in manufacturing, engineering, and to other employees within the company's functions with a need-to-know product manufacturing status. In an eyeshot, managers, supervisors, engineers and other employees could see what was going on, take action, and make decisions.

The technology behind the change

Easy to use user displays on mobile devices and integration between the devices and corporate systems provided the technology to move plant floor technician reports on equipment and manufacturing from clipboards to real time digitalized information.

Here's how the technology and integration worked:

On the front end of the process, each plant technician used an iPAD or a Samsung Galaxy Tablet to access a report template and fill it in. In real time, the completed report was then sent to any authorized user's desktop, mobile or wearable device. Everyone had immediate access to real time information as it was being reported. Pictures that previously could not accompany a report on paper

now traveled with the report, since everything was digitized. The system also automatically tagged each report with the location of the equipment or process being reported or equipment serial number.

The frontend of the process was done with software from Parsable, which provides user-friendly displays of information on mobile and wearable devices and also stores data regarding all machines, all parts and all job functions that the company initially had to create templates for within Parsable.

The second phase of information forwarding and integration was end-to-end communications with all of the internal corporate systems (and users) that also needed the information. These systems included the IBM Maximo Tools Lifecycle Management System, underlying systems software infrastructure such as IBM Tivoli, and systems such as Enterprise Resource Planning (ERP), Manufacturing Execution Systems (MES) and Warehouse Management Systems (WMS).

For this backend system integration process, the company used HULFT Integrate, which mapped data to and from all of the backend corporate systems, and ensured that the data being passed to these systems was in the proper format for each system. This entire data integration and forwarding process performed by HULFT Integrate was itself automated. It was facilitated by the product's ability to seamlessly interface with over 300 different types of databases, thousands of systems and tens of thousands of applications.

In total, the digital automation process for production machine logging and status took six months to complete with Parsable and HULFT Integrate. HULFT's data integration team performed all backend system interfaces and data integration.

Getting to the results

Today, manufacturing and engineering personnel at this major manufacturing company have anytime, anywhere access to real-time reports on production line equipment and product status. They can obtain this information and act on it at their desks, or on their mobile devices or on wearable devices.

What used to take a plant floor technician from eight hours to several months to report is now real time reporting. Quality test results that could be backlogged for as long as six weeks are up to date and in real time.

The company is also saving money.

With the old clipboard process, shrinkage cost on paper and supplies was running around $300,000 per facility annually. The company has 69 manufacturing facilities, so total savings on paper, supplies, printers, and toner ink, alone is $20,700,000 per year.

Waiting for new technology implementation was also not a problem. With the help of HULFT and its business partner Parsable, this major manufacturer was up and running with its new system in six months, and saving time and money.

Want to learn more?


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