Transforming Manufacturing With Digital Workflows

Take a walk through any modern manufacturing plant, and you will see signs of a digital transformation. The Industrial Internet of Things (IIoT) has started to bring new levels of intelligence and visibility to every aspect of manufacturing operations—from process control and maintenance, to worker health and safety. At the same time, the digital transformation is far from complete. Even the most up-to-date plants will have their share of manual processes and inefficiencies that are beyond the reach of available IIoT systems.

This state of affairs—in which fully digital and manual processes coincide within a single manufacturing organization—is likely to persist for the foreseeable future despite the rapid growth of IIoT. Fortunately, you can manage this mixed environment by creating digital workflows.

Digital workflows bring order to chaotic, inefficient and disconnected manual processes. They also make it possible to collect, view and act upon the large volumes of data streaming from IIoT-enabled devices and systems. Best of all, digital workflows can bridge the gap between manual and digital operations—creating a truly panoramic view of a manufacturing operation.

Digital Workflow Areas of Application

When applied to manufacturing, digital workflows can bring much needed efficiency to any process that suffers from wasteful paper pushing, broken channels of communication or lack of actionable data. These processes can be found in every aspect of a manufacturing operation—within a single plant or globally across multiple plants.

Here are just a few examples of operational technology (OT) pain points targeted by digital workflow applications:

- **Making production data actionable.** Digital workflow applications provide a means for collecting, aggregating and analyzing process control and quality data. Even prior to the emergence of IIoT, manufacturers have had access to large amounts of statistical process control and quality data. All too often, this data pertained to individual manufacturing lines or a single plant. Digital workflow apps running in the cloud can break down these line- and plant-based data silos and make all of the manufacturing enterprise's process data visible and actionable in one place. And as IIoT becomes even more ingrained in production lines across many industries, the amount of process control data available to OT pros is growing exponentially—creating new opportunities for understanding processes but also new challenges in making that data actionable.
- **Improving maintenance operations.** There is a spectrum of sophistication in plant maintenance operations today, ranging from reactive to preventive to predictive. Manufacturing operations typically apply all three types of maintenance activities, and digital workflows can address the entire spectrum. In the case of reactive maintenance—that is, fixing machines when they break—digital workflows can eliminate much of the paper pushing and scheduling difficulties that arise when a technician has to be urgently dispatched to a broken machine. On the preventative level, digital workflows can help you dispatch the correct resources to the right machine according to a set schedule. The most exciting part of the maintenance spectrum relates to predictive maintenance methods, which combine condition monitoring of production machines with predictive algorithms to forecast equipment failures before they happen. Now that IIoT is making continuous

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Challenge

- Modern manufacturing plants still have their share of manual processes and inefficiencies beyond the reach of IIoT systems.

Results

- ServiceNow helps overcome OT pain points by making production data actionable, improving maintenance operations and enabling customer service and field support.
- Empower OT professionals to build digital workflows without writing code—removing the headaches and costs associated with deploying, maintaining and scaling custom applications.

condition monitoring a reality for an increasing number of manufacturers, there's a growing need for digital workflow applications to handle vast amounts of maintenance data and make it available to machine learning or predictive algorithms.

- **Customer service and field support.** Manufacturers have always been in the service business to some degree—offering replacement parts, warranties and repairs to support products post-delivery. But the "servitization" of manufacturing goods and capabilities has intensified in recent years as manufacturers look for ways to grow their service-based revenue streams. This push toward service models is made possible in part by the increase in connected devices, allowing manufacturers to offer value in operating, maintaining, optimizing and proactively replacing products long after the customer has taken delivery. Digital workflows can smooth the manufacturer's transformation from making products to providing services. ServiceNow's Now™ Platform, for example, has enabled workflow applications that give customers self-service options or automate their most common requests. Other workflow applications, including mobile apps, have connected customers with field service representatives. Applications such as these make customer operations more efficient and cost effective while improving customer satisfaction.
- **And more.** Manufacturers have many other processes that impinge on production and can be made more efficient with digital workflows. Scheduling shop floor employees, managing production assets and complying with health and safety regulations are just a few tasks digital workflows have automated.

Build Your Own Workflow Apps With the Now Platform

For many manufacturers, the idea of a digital workflow is either new or may conjure less than pleasant associations of expensive, hard-to-use custom software applications that bolt onto existing control (SCADA) and enterprise (ERP) systems.

The Now Platform is different. It provides prebuilt workflow components that put the power of app development into the hands of OT professionals who know their manufacturing processes inside and out—but may lack formal software development skills. The Now Platform also offers a full suite of developer tools, including support for familiar programming languages such as JavaScript. You are able to build workflow applications using a drag-and-drop interface and prebuilt components, entirely eliminating the need to write code. You can also create applications from custom code, or combine "no code" and "pro code" freely. The Now Platform is fully extensible, providing simple REST APIs and other connectors to communicate with external control and enterprise applications you are already running.

Regardless of how you create workflows, ServiceNow removes the headaches and costs associated with deploying, maintaining and scaling custom applications. Workflow applications run on a secure, scalable and highly available cloud platform—no dev ops specialist required.

Conclusion: Digital Workflows Bring Efficiency

There's a natural and valid tendency to think of manufacturing efficiency in the context of production lines. Want to produce more products per hour? Get a faster line. Want more uptime? Get newer machines.

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But not all inefficiencies are related to hardware; they also lurk in the business processes that impinge on production operations and reduce your yields, your uptime and your profits. Some of these inefficiencies will be painfully obvious as you shuffle papers or fire up Excel. Others will remain hidden in the data streaming from smart factories and connected devices. Fixing these inefficient processes, the ones that do not require big investments in new manufacturing hardware, is where digital workflow applications shine.

For more information on ServiceNow's Now Platform, visit www.servicenow.com

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