As the manufacturing industry continues to evolve faster than ever, companies that break down silos and embrace modern technology such as a digital platform will thrive in this environment.

**The Benefits of a Digital Platform in Manufacturing**

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**Questions posed by:** ServiceNow  
**Answers by:** Reid Paquin, Research Director, Manufacturing IT Priorities and Strategies

**Q. Why do manufacturers still rely on manual processes, and what are the drawbacks?**

**A.** Manufacturing has been focused on its fourth revolution over the past decade. The incorporation of technology such as cyber-physical systems, the Internet of Things (IoT), and cloud/edge computing allows for new possibilities on the shop floor. While this initiative represents massive opportunity across the globe, manufacturers must ensure their existing processes, operations, and IT systems are optimized to truly take advantage of what these new technologies can offer.

Unfortunately, many organizations have overlooked the foundational elements of manufacturing and still possess manual or paper-based processes across the enterprise. These processes often result in errors, delays, and inefficiencies and are present across manufacturing organizations — maintenance, quality, engineering, or service departments. Manufacturers turned to these manual systems for reasons such as perceived capital savings, flexibility in process changes, and knowledge of existing solutions. However, as a manufacturer grows and innovates, these systems cannot scale with the business. Digitizing these processes with workflows results in many immediate business benefits, but more importantly, the digitized processes serve as the building blocks for digital transformation (DX).

**Q. Which operational areas are the best fits for workflow digitization?**

**A.** Determining and prioritizing the processes to start with can be daunting tasks, and there are many variables to consider (segment, company size, geography, etc.). The most common processes across manufacturing that are prime candidates for workflow digitization include:

» Quality management

» Environment, health, and safety (EH&S)

» Maintenance/field service
The speed and complexity of manufacturing operations are increasing faster than ever before, and manual processes are no longer acceptable for manufacturers. The ability to simplify and optimize processes through workflow digitization can become invaluable over time to DX initiatives. The key takeaway is that successful companies not only are digitizing at higher rates but also are utilizing digitization across a wider variety of operational processes. Successful manufacturers have realized this fact and, as a result, are reaping the benefits.

Q. How can a manufacturer properly manage and utilize all the data that is now available?

A. It is already a major challenge for most manufacturers to make use of the data that is available currently. Identifying and incorporating the plant, product, and IoT data that is critical to performance are daunting tasks but necessary to drive transformation. To examine these large and varied data sets, manufacturers use big data and analytics to uncover hidden patterns, unknown correlations, market trends, customer preferences, and other useful information that yield better-informed business decisions.

It is important to realize that having access to the data is not enough; being able to act upon the data is also essential. Transforming workflows is a proven method to improve all facets of your organization and increase its overall productivity. Combining connectivity, data analysis, and workflow automation is critical to the overall success of IoT projects and achieving business return on investment (ROI). For example, if a machine triggers an alert based upon operating conditions, that alert can be received by a command center and automatically set off a process for engineers to both investigate and give the operator information about how to proceed until the root cause of the issue can be found. Acting upon the data in real time limits the chance and impact of adverse events.

Q. What is the best way to effectively scale digital initiatives across the enterprise?

A. A huge volume of data is generated every day by manufacturers. For example, each GE jet engine produces 1TB of data per flight, and we know that processing this data is essential to generate insights and value. Scalability is also an important consideration when building out a DX road map. Most organizations are turning to cloud computing to accomplish this task. The primary benefits of cloud services are lowered total cost of ownership (TCO) and increased agility/flexibility for the business. While cloud computing has allowed manufacturers to reduce data management costs and scale, sending all this data to the cloud can be expensive. In addition, the real-time nature of most manufacturing
processes results in many workloads staying on-premises. Manufacturers will need to embrace some mix of cloud and edge computing to scale, stay agile, and react in real time. This mix does not have to be approached alone; network partners aligned with cloud service providers can help enable these business requirements.

Q. How do you keep an increasingly connected manufacturing environment secure?

A. As more manufacturers embrace digital transformation and the technology changes required (like industrial IoT), networks are becoming more exposed and vulnerable to security threats and attacks. Long gone are the days when an organization needed to protect only what was within the perimeter. Today, organizations are highly distributed, with applications and data being migrated to the cloud. In addition, IT and operational technology (OT) systems continue to converge on the plant floor, which brings its own security concerns that need to be addressed. While this increased connectivity provides manufacturers with new avenues to drive business value, it also clearly comes with added security risk. Manufacturers need to ensure that their assets, control systems, and networks are safe from vulnerabilities and constantly evolving security threats, all while ensuring reliability, network uptime, and real-time access to critical data.

In IDC’s recent Global IoT Decision Maker Survey, 24% of manufacturers indicated that their security processes are integrated into the whole IoT workflow, ensuring that malicious content cannot accompany valid IoT data. Another 15% take an even more holistic view — their security procedures cover end-to-end processes, delivered by and supported through extensive automation. This holistic approach is no easy task, and as a result, many manufacturers look outside their organizations for help with implementing and managing the right security approach. In fact, in the same survey, 54% of manufacturers said they expect to look to partners for managed services for ongoing security management of their IoT deployments.

About the Analyst

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Reid Paquin is Research Director for IDC Manufacturing Insights responsible for the IT Priorities and Strategies (ITP&S) practice. Mr. Paquin’s core research coverage includes IT investments made across the manufacturing industry and manufacturers’ progress with digital transformation. Based on his background covering the manufacturing space, Mr. Paquin’s research also includes an emphasis on the technology enablers that help manufacturing executives make better-informed operational decisions.
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