



Intelligent Digital Transformation for Manufacturing

Digital transformation continues to reinvent manufacturing, from the shop floor to team collaboration and the boardroom.

Supply chain challenges, labor shortages, creating positive corporate cultures, and connecting workers for greater collaboration are today's key challenges for manufacturers. But how do you ensure success when technologies, processes, and the world changes faster than ever before?



Key Trends Driving Digital Transformation

The manufacturing industry is poised for a major transformation as digitization takes hold. With the advancement of technology and the rise of Artificial Intelligence (AI) coupled with the Internet of Things (IoT), manufacturers are becoming increasingly connected and automated. This shift towards digitization is not just a trend, but a necessary evolution that will make manufacturing plants more efficient, productive, and profitable.

The challenge for many manufacturing organizations is that digital transformation requires several key steps. It's impossible to leverage the benefits of advanced technology like AI, for example, without first digitizing documents and business processes. Digitized data is a prerequisite for normalizing data models and fully leveraging insights to make strategic decisions.

Digital transformation means that manufacturing plants and the people within them will become more connected. This includes not just connecting machines and equipment, but also people.

From the Plant Manager to the employee on the shop floor, digital transformation delivers innovations that dramatically improve processes to reduce costs and improve quality.

There are eight opportunity areas that are ripe for digitization initiatives in manufacturing. Manufacturers that want to capitalize on digitization trends should create projects that use Six Sigma, Lean, and other approaches to implement digital initiatives:



Sensors & Devices

The first area where we can expect to see more digitization in manufacturing plants is in the use of sensors and other devices. These sensors can be embedded in production equipment

and machines to collect data on their performance, energy consumption, and maintenance needs. This data can then be used to optimize the performance of the equipment and reduce downtime. Sensors can also be used to monitor the quality of products and the condition of raw materials, making it easier to detect and prevent defects.



Data & Analytics

The second area where we can expect to see more digitization in manufacturing plants is in the use of big data and analytics. With the increasing use of sensors and other devices, there will be an explosion of data that manufacturing plants will need to manage. This data can be analyzed using machine learning algorithms

to identify patterns and trends that can help improve efficiency and reduce waste. For example, data can be used to optimize production schedules, minimize energy consumption, and reduce waste.



Robotics & Automation

The third area where we can expect to see more digitization in manufacturing plants is in the use of robotics and automation. Robots can be used to perform repetitive and dangerous

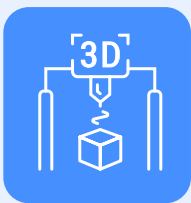
tasks, such as welding, painting, and assembly, freeing up human workers to perform more complex and creative tasks. Automation can also be used to improve efficiency and reduce waste by eliminating the need for manual intervention in the production process.



Augmented & Virtual Reality

The fourth area where we can expect to see more digitization in manufacturing plants is in the use of augmented and virtual reality. These technologies can be used to provide

workers with real-time information and guidance, making it easier to perform complex tasks. For example, augmented reality can be used to provide workers with information on the status of machines and equipment, while virtual reality can be used to simulate different production scenarios.



3D Printing

The fifth area where we can expect to see more digitization in manufacturing plants is in the use of additive manufacturing, also known as 3D printing. Additive

manufacturing can be used to create complex parts and prototypes quickly and at a low cost. This technology can also be used to reduce waste by producing only the required amount of parts, eliminating the need for excess inventory.



Artificial Intelligence (AI) & Machine Learning (ML)

The sixth area where we can expect to see more digitization in manufacturing plants is in the use of artificial intelligence and

machine learning. These technologies can be used to optimize the entire production process, from planning and scheduling to quality control and maintenance.

For example, machine learning algorithms can be used to predict equipment failures and schedule maintenance activities, reducing downtime and improving reliability.



Internet of Things (IoT)

The seventh area where we can expect to see more digitization in manufacturing plants is in the use of the Internet of Things (IoT). IoT devices can be used to collect

data on everything from the condition of equipment to the temperature and humidity of the production environment. This data can be used to optimize production processes and reduce waste. IoT devices can also be used to monitor the supply chain, making it easier to track the movement of raw materials and finished goods.



Cloud Computing

The eighth area where we can expect to see more digitization in manufacturing plants is in the use of cloud computing. Cloud computing can be used to store and process

data from sensors and other devices, making it easier to manage and analyze large amounts of data. Cloud computing can also be used to provide access to production data from anywhere, making it easier for managers and workers to make informed decisions.

Manufacturing leaders can capitalize on these trends by prioritizing their digitization projects and creating roadmaps that leverage digital software and technologies from the shop floor to the board room.

The Digital Transformation Journey

Digitization can transform results on the shop floor by reducing waste, cost, and optimizing output. Any organization investing in digital transformation should be sure to measure and track the progress of their activities and the tangible results of going digital.

Data is critical for making informed decisions and driving process improvements. From stand-up meetings with huddle boards, to building transparent six sigma processes tied to SQDC dashboards, Plant Managers and manufacturing leaders can use digitized data for decision-making, eliminating waste in the manufacturing process, and optimizing output.

The digital transformation journey includes three evolutionary steps:

1 Digitize Documents

Digitizing documents like Excel spreadsheets can add significant business value for manufacturing organizations. By moving from paper, white boards, and files spread across hard drives, it becomes possible to create simple online workflows. By digitizing documents, manufacturers can improve operational efficiency, reduce costs, and improve decision-making.

2 Digitize Processes

Digitizing processes creates opportunities for integrating data from multiple sources, from ERP, MES, and Quality software and tools. Digitizing processes creates the foundation for creating a common data model, which ultimately establishes a consistent way of representing data, regardless of its source.

3 Align Data Model

Aligning the manufacturing data model involves fully integrating all work processes, machine data,

and even team collaboration workflows into a single, overarching approach. This third step in the evolution of digital transformation empowers manufacturers to leverage strategic insights from the manufacturing shop floor into management dashboards can provide valuable insights that can be used to drive process improvements and achieve business goals. It also becomes the requisite foundation for leveraging other more advanced technologies like Artificial Intelligence.

Ultimately, digital transformation can lead to the development of new business models in the manufacturing industry. For example, manufacturers may shift towards a service-based model, where they sell the use of their equipment or the output of their production lines, rather than selling the equipment or products themselves. This can help manufacturers build new revenue streams and avoid the type of product commoditization that reduces margins. Threats may exist for slower-moving organizations, but big opportunities lie ahead for those forward-thinking manufacturers ready to fully embrace manufacturing digital transformation.



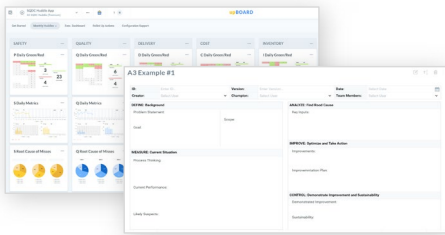
Praxie

Praxie's Digital Transformation Framework

Digital transformation can feel complex and overwhelming. It doesn't have to be. Praxie helps you prioritize your opportunities using our **Digital Transformation Framework** by connecting everything you do.

Digitize

Manual Processes, Existing Tools & Expert Best Practices



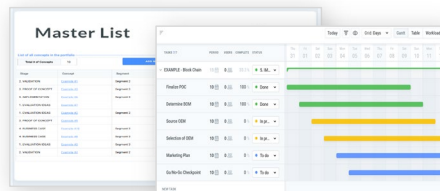
Measure

KPIs, Variances, Gaps, & Opportunities to Improve



Act

Act immediately with tasks & projects that drive results



Digitize

Prioritize key processes for digitization and build digital workflows that leverage existing approaches combined with expert best practices

Measure

Measure data and gain insights into patterns, variances, gaps, and opportunities

Act

Define strategies, tactics, and projects that drive actionable solutions that deliver results

For more information about how Praxie can support your manufacturing digital transformation, contact us at info@praxie.com.