

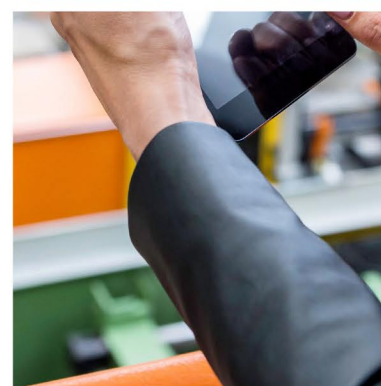
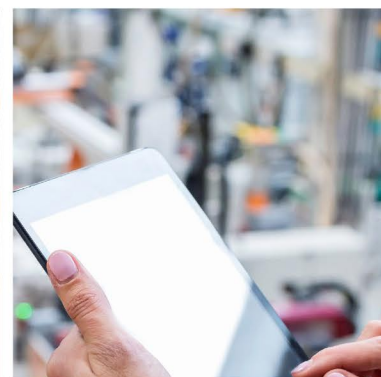


# The most critical nine steps in your digital journey

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Manufacturers eager to jumpstart growth opportunities are embracing digital strategies. New technologies offer exciting ways to leverage sensor data, engage with customers, and automate processes. New ways of looking at products, services and the complete value chain are transforming the way we think about manufacturing products and distributing them to the market. While the potential impact is promising, it can also be intimidating. Where do you start? How do you measure success? This checklist provides nine elements critical to a successful digital deployment, based on a timely report by R “Ray” Wang of [Constellation Research](#).

- Target these success milestones as your digital plans move into high gear.



## Here are 9 tactics to consider when launching a digital deployment project:

	Tactic	Benefits
✓	Define a clear mission	Your personnel, partners, and customers will be able to easily understand your goals
✓	Invest in innovative thinkers	Creative problem solvers will inspire innovation, and help set a vision for the future
✓	Focus on business models first, technology second	Your technology will closely align with the business needs, eliminating superfluous investment
✓	Move to data-driven decisions	Fact-based decisions are sound and reliable, invoking confidence, and generating logical results
✓	Focus on co-innovation and co-creation with partners	Partners will bring specialized expertise and fresh ideas, providing components and services cost effectively
✓	Create cross functional teams to execute ideas	A team approach will drive innovation and allow groups to concentrate on one singular aspect, for greater efficiency
✓	Expand service offerings and customer engagement	Broadening service offers will meet customer expectations, create differentiation, and help build customer loyalty
✓	Enhance the supply chain and connected networks	A fully connected supply chain optimizes the scheduling of resources, improving delivery times
✓	Keep equipment running	Data collected from equipment sensors helps identify early warning signs so preemptive measures can be taken to prevent downtime

## The details

1

### Define a clear mission

Your digital action plan must start with the key mission you hope to achieve. This should be related to the very core of why your organization exists. What experiences and products do you want to offer? You must be crystal clear on this point. Although product and service offerings are often blended today, you need to be able to clearly define your goal. If you can't articulate your mission, chances are your personnel, partners, and customers will be confused and unreceptive.

2

### Invest in innovative thinkers

Balancing the workforce between doers and thinkers is important. Every manufacturing operation has its line operators, technicians, and hands-on crews who keep the plant operating smoothly. These people are the backbone of operations. But you also need the creative problem solvers who can bring imagination and a vision for the future. "If an organization has many scientists, technologists, engineers, or mathematicians, it should add artists, ethnographers, anthropologists, design thinking experts, and story tellers," says Wang in the Constellation report.

Different perspectives can spark creative thoughts and fresh approach to solving business problems. Encourage these individuals from divergent disciplines to form teams and learn from each other. While recruiting and retaining a Millennial workforce is not easy, it is important for the future of your company. Working with educational institutions and trade organizations can help you position your company as an innovative, rewarding place to work.

3

### Focus on business models first

Conceptualize your business model first, then decide how to execute it. Keep in mind you can have more than one business model and multiple revenue streams. Start from a core objective then work out what technologies, people, and systems you need to support the model. Multiple layers of partner networks, suppliers, and contractors may be involved. Map these out early and in details as these contributors likely will impact the cost of doing business and margins.

4

### Move to data-driven decisions

Data is steam that makes the digital engine run. Collecting, understanding, and leveraging data in a meaningful way is the crux of the digital era. In order to take advantage of modern capabilities, you need the data foundation and systems for collecting, storing, and aggregating millions of random data points into logical patterns. Data must be accurate, real-time, accessible, and relevant. Smart sensors which can monitor and communicate condition and location are the driving force behind many digital initiatives. As the sensors can do more and cost less, expanded opportunities arise. With the vast amount of data, there comes a need to store and aggregate it. Cloud deployment is a necessity for practical, economical storage of vast data.

Data for the sake of data is counterproductive. Information flows should be devised in order to achieve insight that can guide processes and forge a competitive advantage. Always, as you collect and analyze data, look for ways the data can be used to make better decisions, serve a customer, or solve a business problem. Without a purpose, data is junk getting in the way.

## 5

### Focus on co-innovation and co-creation with partners

This is becoming more and more important in manufacturing as high tech components, product complexity, and ultra-thin margins force manufacturers to turn to specialists to contribute key elements or perform a step that requires specialized equipment or processes. Chrome accessories, brake assemblies, thermal insulation, hydraulics, circuit boards, solar panels, and LED displays are among the components that are often outsourced for speed, convenience, or cost savings.

This strategy becomes more important in a digital world where quality, value, and the ability to personalize products are important to aligning with customer demands. Letting contractors focus on specific components means they can have economies of scale and bring per unit costs down. Component or modular design also allows the manufacturer to configure multiple variations of a product, giving customers more options. In addition to bringing cost savings, these partners can bring fresh ideas. They can be co-innovators, helping to develop new features and processes. If you aren't exploring these possibilities yet, now is the time to consider doing so.



## 6

### Create cross functional teams to execute ideas

The IT team cannot plan and execute the complete digital agenda alone. The mandates must come from the top, and continue to have key executives highly engaged, especially in setting the company culture, pace of change, risk acceptance, and investment priorities. Teams can focus on specific aspects, such as creating new revenue streams, regulation compliance, commercializing data, and enhancing existing systems. Teams should involve personnel from multiple areas and diverse backgrounds in order to get a comprehensive perspective and a wide range of new ideas. As teams focus on their specific aspects, there must also be a method for teams to share ideas, ensure their ideas are compatible with other teams, and iron out any disagreements.



## How digital transformation will change manufacturing

Studies show that companies are embracing digital manufacturing in a big way:



**\$1.5 trillion**

Potential value to global economy



**43%**

Manufacturers reporting  
smart factory initiatives



**29%**

Manufacturers currently using IoT



**60%**

Respondents optimistic about  
digital manufacturing



**30%**

Expected improvement resulting  
from IoT



**30%**

Companies that plan at least  
5 years into the future

## 7

## Expand service offerings and customer engagement

One of the main benefits of a digital strategy is the opportunity it provides to align with customers. An enhanced customer experience is the key to differentiation today. Customers expect a highly personalized, positive experience when making a purchase, whether in business to consumer (B2C) or business to business (B2B) markets. Customers expect ecommerce, the ability to collaborate on designs, highly personalized products, and portals for such things as placing orders, requesting service, tracking service claims, monitoring warranties, and projecting the need for re-order of consumables, such as exhaust filters or cutting blades. All of these customer-centric features can be easily offered thanks to modern technology.

You can also enhance your alignment with customers by being scientific in the way you market to your customers and prospects, rather than haphazardly pelting them with generic offers. An advanced customer relationship management system (CRM) and digital marketing tactics can be used to make smart investments of resources, targeting potential buyers when they are ready to buy and sending a message that aligns with their business need.

## 8

## Enhance the supply chain and connected networks

Visibility to the extended supply chain is more critical now than ever. As manufacturers turn to inventory management as a strategy for controlling costs and minimizing waste, managing the just-in-time delivery of resources is critical. In this global economy, suppliers may be scattered across continents. Delivery methods can range from containers on cargo ships to 3D printing of one rarely needed part. Shipments can be delayed by weather, political unrest, or capacity constraints. Despite all of this, manufacturers must keep the operations running smoothly and fulfill customer orders as promised. This means an integrated choreography of decisions based on real-time data collected from suppliers.

The use of sensors and the Internet of Things (IoT) is dramatically changing the ability to monitor and manage the supply chain. Sensors can be used to monitor conditions within shipping containers, such as temperature and humidity. Data collected can automatically trigger adjustments, such as turning on fans or misters. This is extremely valuable in industries such as food and beverage, where temperature must be controlled for safety and freshness.

Sensors can also be used to track exact location, using GPS and satellites. This helps managers divert shipments around adverse weather conditions and helps to plan back-up options when needed. There's never a time when you have to guess at when a shipment will arrive.

## Keep equipment running

This is one of the most fundamental use cases of digital technologies, offering tremendous value. Manufacturers can install smart sensors in their internal machinery and equipment. The sensors can monitor and communicate a wide variety of conditions, such as speed, temperature, vibration, volume, weight, or mass. This data is collected and aggregated, looking for anomalies that may signal an imminent machine failure or need for calibration.

Early symptoms of malfunction, like overheating or excessive vibration, then trigger an automated response. This response can range from a notice sent to the head of maintenance, an alarm sounding, a technician being dispatched, maintenance being scheduled, a replacement part being pulled out of inventory, or in the case of a serious safety breach, the line shutting down. This preemptive ability to spot equipment issues before they cause an unplanned shut down is of tremendous value. It allows you to extend the lifecycle of mission critical equipment, protect your investment, and schedule maintenance when it will least impact fulfilling customer orders.

To learn more about entry points to digital transformation, download the report from Constellation Research



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