

# Getting Started With Industry 4.0 Means Taking Baby Steps

By: - August 31, 2022

While words like “Industry 4.0,” “smart factory” and “IIoT” have been tossed around for over a decade now, manufacturers are still struggling to get started with any sort of large-scale transformation.

It does sound large scale, doesn't it? Everyone is saying that we are in the midst of a new Industrial Revolution. Like other Industrial Revolutions, this one will separate innovators from laggards and change manufacturing forever. But does that mean that each and every player needs to make a huge change now, today?

Yes...and no. Consider the last four Industrial Revolutions that have brought us to today, the age of the smart factory:

1. The First Industrial Revolution replaced manual labor with machine tools like water- or steam-powered engines.
2. In the early 1900s, the Second Industrial Revolution made mass production possible by empowering factories with electricity, steel components and assembly lines.
3. Electronic technology, including computers, started finding its way into factories during the Third Industrial Revolution, which started in the late 1950s.

The Fourth Industrial Revolution is where we are today. It goes by those buzzword names, such as Industry 4.0, i4.0 and Manufacturing 4.0. The basis of it is the creation of integrated systems that can sense and control industrial processes, often automatically.

There is more to each of these Industrial Revolutions than we could hope to cover here, but the 30,000 foot view makes it easier to see trends. For example, every big leap in manufacturing builds upon the previous Industrial Revolution. You cannot integrate computer systems unless you already have the computers. You cannot introduce computers unless you have electronic technology. You cannot have electronics unless you have electricity, and so on.

When we reach the Fifth Industrial Revolution (whether in 20, 50 or 100 years), a smart factory might be considered a prerequisite for future growth. More immediately, Industry 4.0 technologies might help companies improve throughput, cut costs and gain competitive advantages. The Fourth Industrial Revolution might go down in history books as a massive leap forward, but that reality is more like a series of baby steps.

# Baby Steps Toward a Smart Factory

Rome did not rely on Industry 4.0 technologies like big data, the IIoT or cloud computing, and it still was not built in a day. Creating a smart factory in one day is just as implausible. Going all-in on i4.0 in one fell swoop might not be a good idea even if it were possible.

Instead, early adopters are taking an iterative approach to the shift toward smart manufacturing. They start with relatively small, manageable investments in technologies such as smart controllers and sensors. The first test is to demonstrate returns on such investments in pilot projects.

With a few successful pilot projects under their belts, engineering and operations teams can pursue their more ambitious smart manufacturing goals with confidence. Implementing huge, interconnected systems all at once requires a level of expertise few people possess. An Industry 4.0 pilot project is a way to ease into the world of smart manufacturing technologies (<https://www.watlow.com/blog/posts/wp-3stages-of-industry-40>).

## Use Cases for Industry 4.0 Technologies

The idea of a smart factory is exciting. However, businesses do not need exciting concepts—they need solutions to increase productivity and profitability. With that in mind, here are five applications of Industry 4.0 technologies (<https://www.watlow.com/blog/posts/wp-transformation-fo-industry-40>) that help companies achieve technical excellence and improve the bottom line:

1. Big data, real time
2. Visibility and analysis (without engineers)
3. Immediate QA data, skip the manual tasks
4. Effortless production tracking with RFID
5. Organization-wide data circulation, automated

These are five examples of things Watlow® itself did, in-house... but we did not do everything all at once. The application of Industry 4.0, like other transformations, happens one use case at a time. Some start by adding sensors to collect data for process improvement. Others might get straight to work automating a manual task.

When making incremental changes to an existing factory, or even building a smart factory from the ground up, the appropriate first step should be toward the most important goal. It often helps to list and prioritize the desired benefits.

## Benefits of Smart Manufacturing

The benefits most commonly associated with Manufacturing 4.0 include the following:

- Superior data insights (<https://www.watlow.com/blog/posts/wp-right-data-right-place-right-now>) from real-time analysis
- Better information sharing and collaboration
- Fast, proactive issue resolution
- Integrated operations
- More continuity and less downtime
- Increased efficiency
- Reduced dependence on manual tasks
- Fewer human errors
- Greater safety
- Improved quality control
- Boosted talent attraction because of an innovative work environment
- Mitigated turnover after eliminating manual work

While these are all valid benefits of Industry 4.0 technologies, companies often want to set more specific goals before they take steps toward a smarter factory. For example, a company may want to eliminate one manual reporting process with its first investments in the IIoT. Alternatively, a manufacturer may set out to equip operators with intuitive dashboards and eliminate the need to keep engineers on call.

Setting smaller, more specific goals makes i4.0 less intimidating. Actionable, outcome-based plans also keep all a company's smart factory efforts tied to measurable results. This type of goal setting prevents scope creep and sets expectations for success.

## **Getting Started With Industry 4.0**

Starting with a specific use case makes it easier to choose the Industry 4.0 technologies that will move you toward a smart factory. How can you leverage smart sensors, automation and integration to make processes more fluid? Which process steps can big data, edge computing and the IIoT expedite or eliminate?

There are three ways to find the first use case(s) and dive into Industry 4.0 and start developing a smart factory.

### **1) Choose From Existing Industry 4.0 Technologies**

The first option is to browse existing products (<https://www.watlow.com/products>). Existing Industry 4.0 technologies are generally only around because they helped a company become more productive or profitable. Adopting these technologies is a way to get in on Manufacturing 4.0 without reinventing the wheel.

## 2) Customize a Solution for Your Smart Factory

In some cases, however, unique problems require customized solutions. To create your own smart upgrades, you can configure a product (<https://www.watlow.com/design-a-product>). We offer this option to clients who need to satisfy their specific requirements. Watlow sales engineers and authorized Watlow distributors are available to help hone in on requirements or offer unlisted feature selections.

## 3) Do It the Easy Way

Creating a customized thermal solution is the best way to get a purpose-built component... if you are in the business of making thermal controllers. Otherwise, the path of least resistance might involve finding a specialized partner.

Our goal at Watlow is to solve the world's most important (and most difficult) thermal problems. If you are not already shopping for a specific part to plug in out of the box, our product specialists can guide you through the most efficient approach to thermal heating and sensing for i4.0.

Contact our team (<https://www.watlow.com/contact-us>) to learn more about our existing products or develop your own.

