

Epicor White Paper

# The Internet of Things (IoT) and How It Applies to Manufacturing

By: Lauren Mauldin



# Introduction

You're probably hearing the term Internet of Things (IoT) more and more in the manufacturing space, but what does it actually mean? Should you be paying attention? If you want to gain information previously unavailable from the machines you interact with every day—the answer is yes. IoT provides extra data that offers unique insights into your business and allows you to make decisions and take actions to grow. It's a piece of a larger conversation around digital transformation and can increase efficiency in your business.



*IoT can lead to lower costs, higher margins, and increased growth.*

## What is IoT?

IoT is a method of enabling devices to “talk” to each other using technology. At its most basic level, it’s machine to machine data collection. Information can be collected by a device or sensor and passed over a network—including the Internet—to a computer for storage or processing. IoT also allows you to access data from places that have been inaccessible or too costly to get, thus providing a new set of data.

By itself, a sensor or piece of equipment is limited in its ability to process any kind of data that it collects. IoT supports bidirectional communication that allows for a necessary hand-off of data collected to make sense of it. This data drives action from anything to tripping an actuator to initiating a robot to pick and deliver stock from a bulk storage location.

## How Does it Apply to Manufacturing?

IoT can provide you with exciting new data about your business that wasn’t accessible before.

It allows you to use this data to make real-time decisions and even communicate back to your machine. But the real benefit does not come from the collection of data in and of itself, but the analysis of it and the actions taken after such analysis.

## Where Can I Apply This New Data?

IoT can be deployed anywhere there is a condition that can be measured. But it is important that you measure data that will make a difference to your organization.

For example, you can measure temperature, pressure, and vibration... but which has an impact on your business? Recording something like humidity might be important in the lumber or produce industry, but not as much for others.

## What Do I Need?

The requirements for using IoT from a component perspective are simple. You need three things:

### 1. A sensor or device for registering a measurement.

There are a variety of sensors, from RFID tags to temperature sensors or even GPS.

### 2. A connection to the Internet.

This can be anywhere from your internal network.

The sensor can connect to the Internet if the device can access the Internet.

Connections are either tethered, connected with a wire, or untethered with a wireless connection. How the sensor connects is dependent on your circumstances, the device support, and location.

If, for example, the device is collecting temperature readings from the top of Mount Everest, it is unlikely to connect to a wire and will in all probability use a wireless Internet connection to pass information to the processing point.

### 3. A computer system for processing the information.

Once the data collects and dispatches, it needs to be analyzed and acted upon. The heavy lifting of data analysis, trending, and actioning can be done by a processing system. This reduces the need for complex processing resources in each IoT sensor, significantly lowering costs.

The prerequisite for the computer system is the ability to integrate with the sensors and process the amounts of received data. As IoT systems become more prevalent, the system needs to be able to scale and stay current with the latest technologies.

Putting the computer system in the cloud is a great way to focus the business on using the tools—rather than maintaining the software.

Cloud hosting has connectivity, high availability, and scalability. That means the solution is going to be constantly available for connections and will not run out of resources for extra data and processing. Cloud provides for constant replication and backups of data, so in the event of interruption by a disaster, the risk of losing data is minimal.

### What Kind of ROI Can I Expect?

IoT has many benefits with increased productivity, improved business decisions, and customer experience. These all lead to lower costs, higher margins, and increased growth.

Being able to collect data without dedicating human labor to the effort is the obvious immediate benefit. This means that those resources can do something more productive.

But more importantly, aligning business resources based on circumstances is a powerful outcome. When you can track materials, it's easier to plan for receipt, picking, and shipment of outgoing orders. Tracking information on dispatch of a shipment to receipt by the client allows feedback to the client on request, in the event of issues.



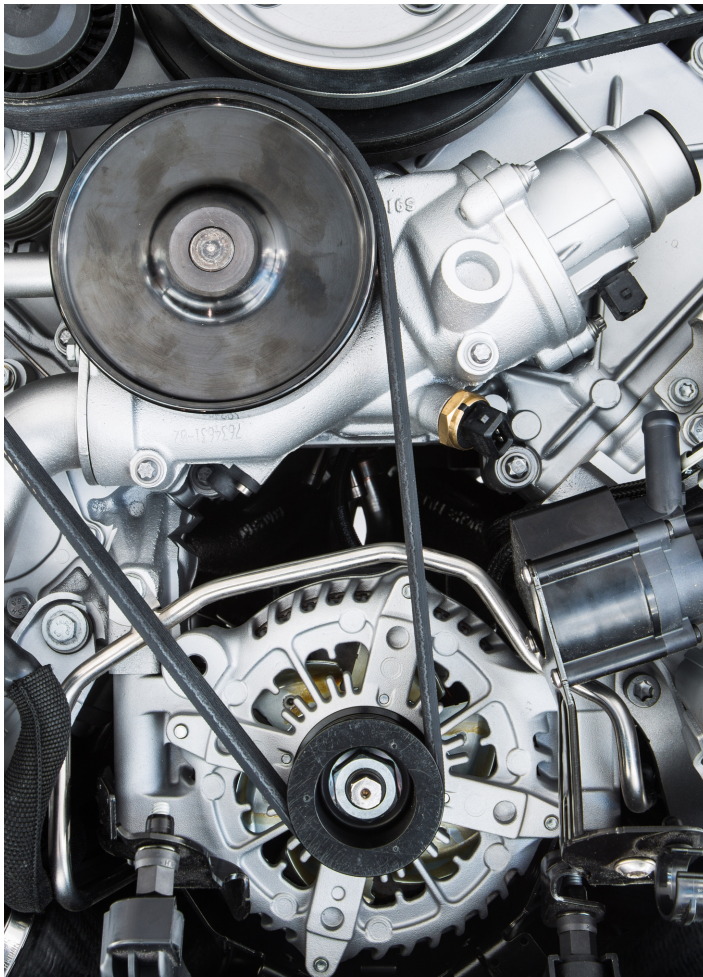
When you apply IoT to a modern ERP system, the returns are even more substantial. Modern ERP systems provide rules-based logic to apply to data and workflows. With them, the data received can trigger events and notifications. For example, a temperature drop or increase in humidity can trigger the generation of a service order to check equipment. Quick notifications of issues increase responsiveness and reduces the potential for damage.

Another example of how IoT can impact your business is determining inventory reductions. Using RFID notification, items passing a check point level trigger a replenishment order. This triggers customer demand without you having to interact with phone or email. That shortens the replenishment cycle, and helps you meet demand sooner while carrying less inventory.

### Potential Benefits of IoT Combined with Your ERP

- Know every measured condition in real-time
- Alerts and automation provide immediate notification of a condition, guide action and correct a condition without human intervention
- Align the supply chain from supplier to client through improved visibility
- Visibility and automation reduce inventory loss and wastage from measured negative conditions, such as damage or spoilage
- Less data errors mean fewer unfilled orders or excess stock





## A Key Component to Your Digital Strategy

IoT is just one part of a digital strategy that, when combined with a cloud ERP solution, can provide your manufacturing business the tools you need to compete in the digital age. While there is some up-front investment required to leverage IoT such as the deployment of sensors and systems, there can be significant returns. The improvements experienced in operational alignment, business process automation, and increases in customer experience can be differentiators that give you the advantage you need in this competitive business environment.

*To learn more about the specific data you can collect using IoT and how it can help your business, get our free eBook, [“Data & Analytics: The Next Frontier for Manufacturing.”](#)*

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