



Quick Start Guide: Monitoring Equipment with IoT

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Tech-Clarity

Jump-Start your IoT Initiative

Manufacturers are making major business improvements using the Internet of Things (IoT). They're delivering value to customers in new ways and exploring new business models like selling outcomes versus products or shifting to a predictive service model. Some companies are well on their way to this strategic value, while for others it may seem out of reach.

How can your company jump-start your IoT initiative? One proven way to get started with IoT is by remotely monitoring machines, either in your own plants or in your customers' facilities. This gives you the real-time information you need to quickly identify failures and fix equipment more efficiently, improving service while reducing cost. **Remote equipment monitoring provides value in the short term and helps develop a strong analytics foundation for your broader IoT strategy.**

This Quick Start Guide shares suggestions on what companies can do to get equipment connected, start gathering data, and put the data to use. Let's get started!



Digitalization will fundamentally change the competitive landscape in service and manufacturing.

We believe that companies that transition to the digital enterprise using the IoT will take market share away from competitors and achieve highly profitable growth.

Practical First Step: Remote Monitoring

The Business Value of IoT Remote Monitoring

Enhanced Service

Better Uptime

Customer Loyalty

Improving First Time Fix Rates

Lower Service Cost

Faster Time to Repair

The first step in many manufacturers' IoT journey is **gaining visibility to equipment they've produced or are running**. The goal for your first IoT project can be as simple as remotely monitoring equipment. From there, you can grow to get an understanding of whether an asset is operational and track basic performance metrics. This may seem simplistic, but companies that are starting their journey shouldn't underestimate the value.

Your company can leverage those basics to gain service intelligence. Better information leads to better service performance, for example by knowing there's a problem before the customer or operator does. Remote monitoring also provides the information needed to diagnose and correct issues the first time. This translates to real business value.

Whether your company is looking to get ahead of the competition or prevent competitors from monitoring your equipment before you do, with remote monitoring you can put yourself in a good position to be a preferred vendor for service, supplies, or even eventual replacement business. Let's take a look at what it takes to get started.

Connect Equipment and Access Data

The first step in the remote monitoring journey is connecting equipment and getting access to its data. To start, it's important to think through what data will be valuable. Then, you have to determine if the data is measured and where it's stored.

Once data needs are identified, it's time to connect to the sensors, devices, or equipment that contains it. How to connect to a machine can vary based on whether it's designed with the IoT in mind or an older piece of equipment. For some “brownfield” devices, you may have to add sensors, controllers, and/or communications devices. Your IoT software provider can help point you in

the right direction in their partner network.

It's important to be flexible and efficient in the ways your software accesses data. **Your IoT platform must have multiple ways to securely connect to machines,** including:

- Out-of-the-box connectivity
- Support for industrial automation protocols and standards
- Connection through onboard or companion computers
- Tapping into existing control systems using APIs



Establish Equipment Communication

Once equipment is connected, it's time to get the data flowing. You may need to use a wired approach, Wi-Fi or another wireless protocol, or a cellular connection depending on the equipment and where it's located. Some equipment may need a gateway device to consolidate data and communicate outside of the facility. Then, data may be transmitted directly or through the cloud.

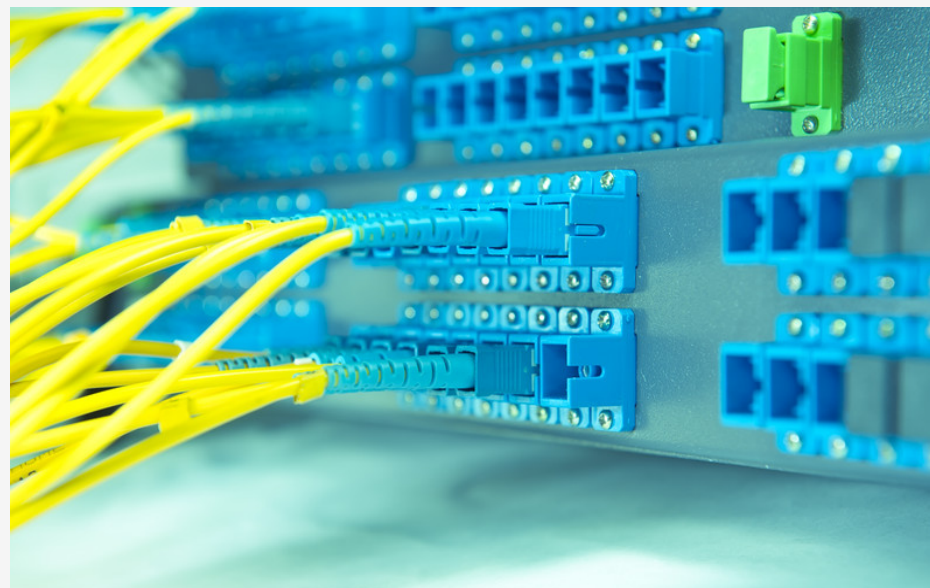
It's often hard to know what data will provide the most value. You can start simply by receiving machine status and grow from there as your company gains more experience and uncovers new business opportunities.

To get started with communication, the IoT platform should provide:

- Out-of-the-box connectivity
- Support for a variety of protocols
- Secure data transmission

Some information that companies find valuable for service intelligence includes:

- Energy usage
- Machine settings
- Hours of operation
- Temperatures
- Error codes or alerts
- Log files, software versions, and configuration



Put Equipment Data to Work

Data by itself doesn't add much value. It's important for your company to visualize the data in a meaningful context, for example shown as key performance indicators (KPIs) and alerts. Dashboards with color-coding are an effective way to communicate status, issues, and priorities. Companies may also need to pull in and “mash up” information from other sources to get the whole picture. And, when you're ready, you can provide higher value insights to real-time equipment data.

An IoT platform should be able to launch workflows or take other actions when issues are identified. For example, the solution could send text messages or create a work order in a service management system when a piece of equipment breaks down.

Common data sources that add value when combined with equipment data include enterprise systems like CRM, service records, weather data, product configurations, customer data, geospatial information, and more.



Your company shouldn't have to start from scratch to make information actionable. You should expect your IoT solution to offer:

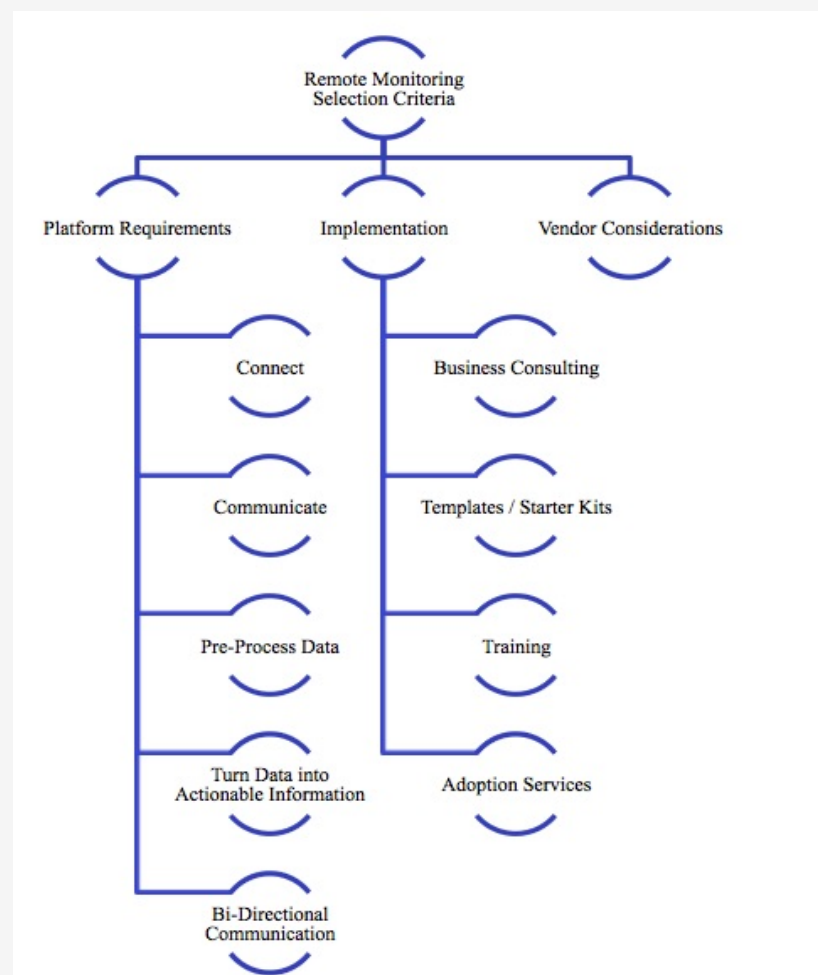
- Visually compelling dashboards
- Ability to aggregate, sort, filter, and color-code dashboard data
- Workflows and notifications
- Starter applications
- The ability to customize without the need to code
- Integration connectors and tools
- More advanced features as your needs grow

Next Steps

Remote monitoring using the IoT can provide rapid value by helping your company gain visibility to your equipment. The value is strategic, but getting started doesn't need to be intimidating. You can start small and grow value over time. Your investment can provide a valuable foundation to build on as you connect more equipment or implement more advanced features.

It's important to find an IoT platform that offers a variety of predefined connectivity and application options so you don't need to undertake a large integration project from scratch. Find a solution and IoT-savvy partner that can get you started with a simple project, but that offers the business knowledge and advanced tools needed to help you expand on your early success.

Remote equipment monitoring lets companies reduce service cost, increase service revenue, develop stronger relationships, and start the transition to proactive and predictive service. It's time to get started to improve value for your company and your customers.



IoT Remote Equipment Monitoring Buyer's Guide Framework



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About the Author

Jim Brown is the President of Tech-Clarity, an independent research and consulting firm that specializes in analyzing the business value of software technology and services. Jim has over 20 years of experience in software for the manufacturing industries. He has a broad background including roles in industry, management consulting, the software industry, and research.

Jim's experience spans enterprise applications including PLM, ERP, quality management, service lifecycle management, manufacturing, supply chain management, and more. Jim is passionate about improving product innovation, product development, and engineering performance through digitalization and the intelligent use of software technology.

Jim is an experienced researcher, author, and public speaker and enjoys the opportunity to speak at conferences or anywhere he can engage with people with a passion to improve business performance through software technology.

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