

**FLUKE®**

# **10 STEPS** for implementing IoT in your industrial space

**Connected Reliability ebook**

**Accelix™**  
Connected Reliability



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# Introduction

The year was 1999. Congress hadn't yet approved civilian GPS, Facebook and Twitter weren't even a twinkle in the eyes of inventors, and the entire world was preoccupied with the Y2K "problem" that never came to be. In these burgeoning times, a sole innovator uttered a term that would come to be a household phrase. At the turn of the millennium, Kevin Ashton believed the "Internet of Things" would become the senses for computers, and he still does.

“In the twentieth century, computers were brains without senses—they only knew what we told them,” Ashton said in a 2015 interview with Smithsonian Magazine<sup>1</sup>. “In the twenty-first century, because of the Internet of Things, computers can sense things for themselves. It's only been a few years, but we already take networked sensors for granted [such as civilian GPS]. In the imminent future, it will enable things like self-driving cars...”

In the 20 years since Ashton first spoke those now-iconic words, we couldn't imagine a world without connected devices. Internet-connected technologies have spread into much of our lives, from internet-enabled refrigerators, automated temperature controls for buildings, and more. By 2020, some 30 billion sensors and devices will be connected, according to estimates from IDC<sup>2</sup>.

One of the biggest beneficiaries of IoT has been industrial workspaces. Programmable logic controllers (invented in 1968) now speak to automation systems without direct wiring, sensors on equipment can upload measurements to databases, and RFID chips help route units to their final destination.

## **From the Industrial Internet of Things (IIoT) has come a new ideology: Connected Reliability.**

In these pages, you'll learn what Connected Reliability is and how it will enable maintenance and reliability (M&R) professionals to do more with less, along with 10 steps organizations can take to start implementing IIoT-enabled devices into their reliability programs, today.



# What is Connected Reliability?

**The idea that all people, data, and systems should be able to easily and effectively communicate with one another.**

Connected Reliability promotes the tenet that all people, data, and systems should be able to easily and effectively communicate with one another. Under a Connected Reliability system, gaps are bridged between people and databases or assets, providing M&R teams with actionable data and equipment insights. “For automation, control, and process management, the industry has been collecting data and using it to inform actions for years,” said Kevin Clark, Vice President of Fluke Accelix. “The ‘newness’ of the IIoT is where the data can be stored (such as in the cloud), how it is analyzed, and then the capacity to do something about it.”

In order for data to be stored in a single location, data silos must be eliminated. Transferring and aggregating large amounts of data can be a daunting task but ensuring that no data gets left behind allows teams to find new insights about assets and facilities. Having the data at hand and a strong connected reliability program in place will support

quicker adoption of emerging services, such as Edge Computing, Machine Learning, and Artificial Intelligence.

Aggregated data on its own does nothing. A connected system with no data does nothing. People, without either, might not know what they’re supposed to do with the system or data. It’s only when you support all three legs that you can leverage the IIoT to its fullest.

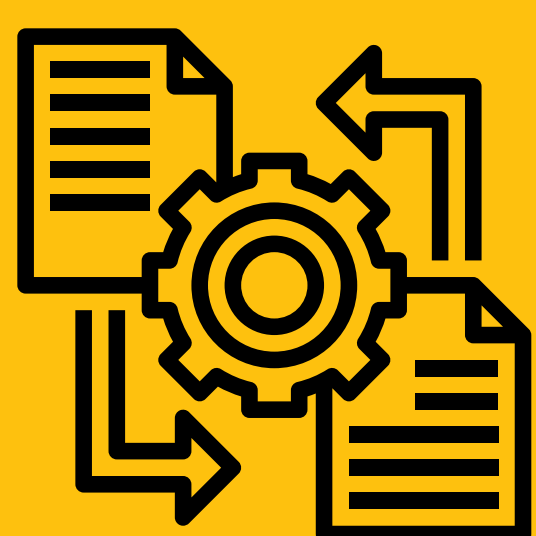
**To that end, three ingredients are needed for connected reliability:**





# Why implement a connected reliability program?

There are many reasons for improving the efficiency and reliability of your industrial organization, but let's start with Industry 4.0, which is imminent. Just as steam irreversibly changed the face of factories in the 1700s, and assembly lines and mass production transformed industry in the 1900s, the emergence of IIoT devices will significantly affect the way people interact with their day-to-day jobs.



## Don't get left behind

Companies late to adopt technologies of these previous revolutions were left behind. Today, more so than ever, companies not able to navigate the challenges of changing technology almost always fall behind faster-moving, more agile competitors in the marketplace.



## Worker mobility is key

Worker mobility is key to sustaining your business. Connected Reliability enables workers to be as mobile as possible while still providing them with the information they need. After IIoT-enhanced devices upload data to the cloud, Connected Reliability software allows access to data and systems via smart devices (such as PC or Mac computers, smart phones, or tablets).



## Asset information

Receiving information from assets is just as important. Many software systems that automatically aggregate measurements from sensors can also send notifications directly to users. When measurements exceed user-set thresholds, alarms are sent to maintenance teams' mobile devices. Whether teams are on the shop floor or at home, they'll have instant notification of asset problems.



# Top Connected Reliability Steps

Organizations may be tempted to throw IIoT-enhanced devices and software at the wall to see what sticks. This may be an option, but it's not conducive to a successful maintenance program rollout. In this section, we'll discuss the steps one should take to ensure that transitioning to a new maintenance program succeeds and expands. These steps can be utilized in order or wherever you are in your reliability journey

**1**

## Complete an Asset Criticality Assessment

Maintenance teams may think a piece of equipment is critical when it's just a bad actor. The asset may use a lot of resources, but that does not mean it's of critical importance to the organization. An Asset Criticality Assessment will determine which machinery is production/operational necessary and which are not. By ranking each asset by its impact on business, maintenance workers can decide which equipment should be sensed (if not already) and better prioritize maintenance tasks.

**2**

## Audit existing networks to ensure internet availability

Another key step to implementing a Connected Reliability Framework is to make sure that internet connectivity is available everywhere devices will be installed. Finding "cold spots" in network availability allows teams to deploy WiFi range extenders or HotSpot access.





## Ensure your people understand practices currently in place

As an organization changes corporate and maintenance culture to move toward a connected workplace, there will invariably be training. Before you start training your people on new devices and practices, ensure they have a firm grasp of current best practices. Ensuring teams have a stable base on which to grow their knowledge will improve operational efficiency and make the transition smoother.



## Determine the best type of technology for the needed information

Once you've determined the assets that should be monitored, the next step is to figure out what kind of information you'll want from those assets. Does the motor need vibration screening, thermal imaging, power monitoring, ultrasound? All of these different methods will inform maintenance teams about problems at different stages of a potential breakdown, and all can provide teams with useful information. Vibration and power monitoring provides actionable insights to teams with plenty of time to do something about it; a good "not too hot or too cold" balance that is just right.



## Start a pilot program

Many organizations want full-scale implementation. This doesn't usually succeed for many different reasons, some of which are tied to our steps (such as assessments or education). One of the best ways to ensure success is to start small. A pilot program will help you gather data to prove your case to leadership while also providing hands-on experience with new software and devices in a way that won't overload users.



**6**


## Train employees on new software and devices

Speaking of those users, providing ample ways for maintenance teams to train in new technologies is imperative. The best platforms will offer multiple ways to learn, such as online training, on-site boot camps, Subject Matter Expert advice, and more. Education is one of the best ways to garner support for impending changes within the workplace.

**7**


## Gain feedback from users on improvements

Including M&R teams in the entire process will help them buy-in to the changes. Furthermore, gaining their advice and feedback helps teams feel like their opinions and challenges matter to leadership. This will also lessen the “what’s in it for me” factor—where teams are reluctant to adopt changes to existing workflows.

**8**


## Gather data to prove pilot program

During the entire pilot program, you’ll be gathering data about asset health, work order completion rates, downtime reductions, and more. While it might seem like information overload, software programs can help users dig down to the most important data. Some software, such as Fluke Connect and eMaint, allows users to create reports and dashboards that automatically update data displayed. Do more with your data by trending and reporting on successes.





## Take proof of concept to leadership

Document successes and failures, as both are learning experiences. Even if an effort didn't work out, the insights gained from the lack of success can be used to inform future actions. software's reporting feature will help with this, but also include feedback from users. While leadership works by numbers, providing direct commentary from the shop floor may help them with their data-backed decisions.



## Expand Connected Reliability program to other locations

Now that your people, processes, and data are developed and connected, you're ready to expand the program. While it's tempting to do it all at once, rolling out the new program in stages can help leaders and managers smoothly and successfully transition within the pilot program or to other departments.

M&R leaders could extend the initial pilot program to include more solutions—such as new technologies or increase the number of assets with sensors—better leveraging of existing IIoT infrastructure. This includes adding devices to equipment that, in times past, could not be included in preventive maintenance programs due to cost or affordability.

Since not all locations are the same, or have the same assets and potential snags, keeping things small when adding locations makes the transitions manageable.



# The future of maintenance programs today

A 2017 SAP study<sup>3</sup> indicates that IoT innovators are “more likely to be world-class manufacturers,” and “more likely to be an IoT leader in their industry,” and “far more likely to have increased profits in the past year from IoT” than those that did not take advantage of IoT devices. The sooner organizations successfully implement, the quicker the return on investment and the more likely they are to be leaders in their spaces.

Furthermore, maintenance isn’t just something that has to be done. It can be a business value engine. As such, a strategic program such as Connected Reliability can be a financial driver. Equipment that is better maintained keeps companies in regulatory compliance, keeps them producing efficiently, keep workers happier, and improves the bottom line.

By connecting your industrial plant to the future, you also improve the work lives and workflows of maintenance engineers and technicians — those on the shop floor and in remote locations — by providing them the information they need to succeed. When workers succeed, the organizations employing them generally succeed and grow.



# Conclusion

The Fluke Corp., a 70-year veteran of reliable test and measurement devices, is ready to help you face the coming challenges of IIoT-enhanced technologies via the Accelix Connected Reliability Framework of software, sensors, and tools.

Both Fluke Connect, part of the Accelix framework, and connectable CMMS/EAM software, such as eMaint, collect and organize data from industrial sources, integrating it seamlessly into existing databases and delivering information to workers in real time.

With a fully connected and implemented enterprise asset management (EAM) or computerized maintenance management system (CMMS), work orders, alarms, and other processes are automated, and failures minimized. Technicians and engineers work proactively — not reactively repairing issues and stressing out over downtime. M&R teams are empowered to realize practical progression from reactive strategies to predictive and reliability-based maintenance using IIoT technologies.

In short, the Accelix framework is “the working man’s IIoT” — a practical roadmap for leveraging the IIoT. It has been developed through years of research and customer feedback. The Lego-like structure can be tailor-fit to each organization’s unique needs, and new devices and software are routinely being added to help improve user efficiency.

**For more information or to speak with a Fluke representative about Connected Reliability and the Accelix framework, please visit [www.Fluke.com](http://www.Fluke.com).**

## Bibliography

1. Gabbai, Arik. “Kevin Ashton Describes ‘the Internet of Things.’” Smithsonian.com, Smithsonian Institution, 1 Jan. 2015, [www.smithsonianmag.com/innovation/kevin-ashton-describes-the-internet-of-things-180953749/#hQ1KdUjEz-ISdTTwE.99](http://www.smithsonianmag.com/innovation/kevin-ashton-describes-the-internet-of-things-180953749/#hQ1KdUjEz-ISdTTwE.99).
2. “IoT market to reach \$3 trillion; 30 billion connected devices by 2020: IDC, July 25, 2018, <https://www.expresscomputer.in/news/iot-mkt-to-reach-3-tn-30-bn-connected-devices-by-2020-idc/5406/>,
3. “Catch up with IoT Leaders,” SAP, [https://www.sap.com/cmp/dg/crm-xm17-g-tm-1sc-pgm161/index.html?url\\_id=c-tabutton-Leverage\\_IoT\\_Now\\_TR-blog-Digitalist-2018\\_IoT\\_MPI-Report1](https://www.sap.com/cmp/dg/crm-xm17-g-tm-1sc-pgm161/index.html?url_id=c-tabutton-Leverage_IoT_Now_TR-blog-Digitalist-2018_IoT_MPI-Report1).

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