



# Data-Driven Decision Making Drives The Need For IIoT/Remote Sensors

Leverage Remote Sensors To Extend Asset Life

Get started →

## Spend Smarter, Not Harder

Too often, manufacturing and Industry 4.0 are described only in terms of greenfield deployments. Unrealistic and expensive descriptions of shiny new factories outfitted with the latest industrial-internet-of-things (IIoT) technologies to deliver transformational insights are not the reality for most businesses. For most, the truth is rather different, with manufacturers keen to realize the same value in their existing facilities with existing equipment and retrofitted sensors. Our study found that by combining IIoT/remote sensors, machine learning, and analytics as part of a comprehensive maintenance strategy, manufacturers can extend and enhance the life of their expensive assets for years to come.

## Key Findings



Only about a third of firms are taking a data-driven approach to machine maintenance. Yet, use of IIoT sensors is expected to significantly increase in the next three years. Staffing challenges are a significant barrier. Companies struggle to recruit staff, find skilled staff, and hire enough staff.



Half of companies increased their budgets in 2020 for maintenance-related programs and technologies.

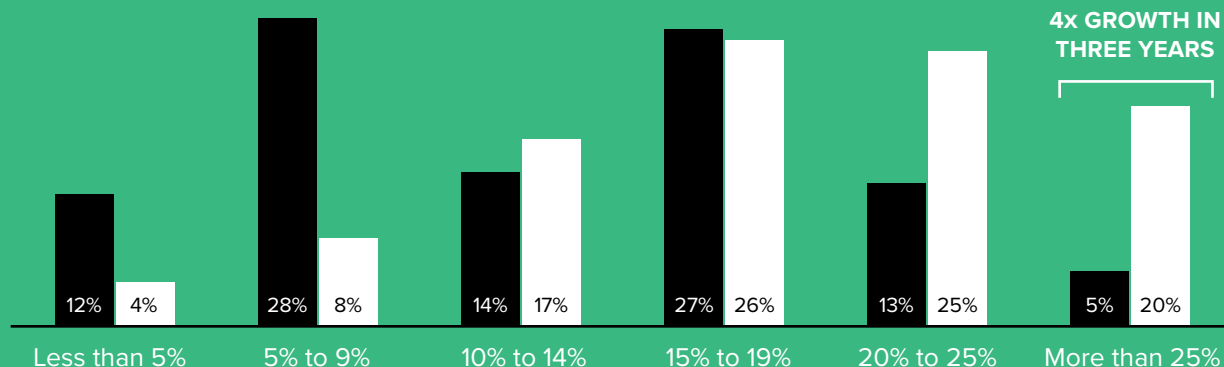
## Remote Sensor Usage Expected To Increase Significantly

Most manufacturers simply cannot afford to refresh all of their machines just because something new comes along. They need to work with the existing investments and are planning to add sensors to gain additional value from their machinery without the cost of replacing it.

Eighty-one percent of decision makers say extending the life of their equipment would save them money. The use of IIoT sensors is critical to meeting this goal, as these sensors provide data on the way in which machines are being used. The efficiency gained through proactive maintenance can help the near half (46%) of respondents' firms in our study that retire their equipment prematurely.

Percentage of machinery/equipment with remote/IIoT sensors today vs. in three years

- Now
- In three years



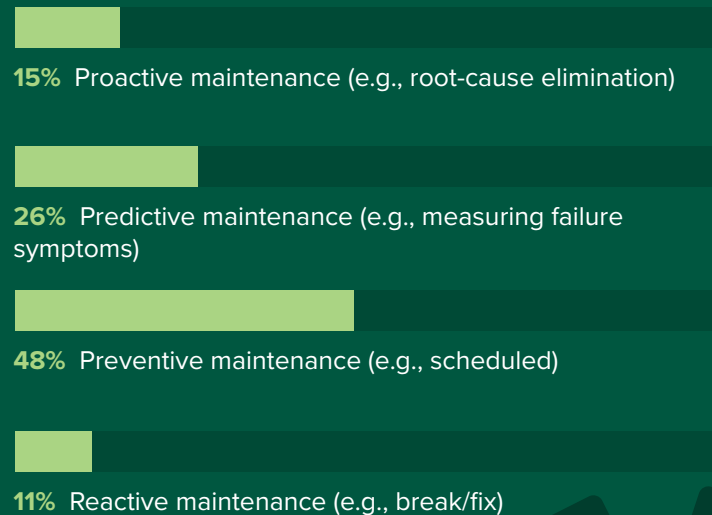
## A Data-Driven Approach To Machine Maintenance Is Becoming Mainstream

Currently, more than a quarter of decision makers say their organizations are using a data-driven approach to machine maintenance through predictive maintenance practices. Eighty-five percent of respondents agree that IIoT/remote sensors will be widely used in equipment service within five years. This shift to data-driven machine maintenance is critical to achieving better insights through data.

Decision makers must ask themselves if their firms have the technology and staff in place to gather and act on the insights from their data.

### Current approach to machine maintenance

(Mean answer)



## A Retiring Workforce Leaves Significant Gaps

Forty percent of the leaders in our study say recruiting people with the necessary technical skills is a top challenge. Additionally, firms struggle to replace a retiring workforce with skilled staff. As manufacturers drive toward becoming data-driven decision makers, they struggle to get their existing staff to believe data over instinct (35%). Even more concerning: 39% of decision makers' organizations struggle to find and hire staff with the right skills to gather actionable insights from data.

Nearly 40% of decision makers say their firms struggle to integrate IIoT sensors with legacy equipment, further exasperating the need for a staff with the proper technical skill set.

### Most challenging tasks



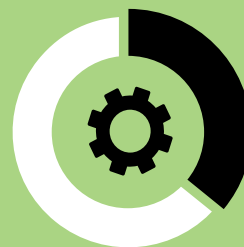
**40%** Recruiting staff with **necessary skills**



**39%** Integrating IIoT sensors with legacy equipment



**37%** Hiring staff with the skills to gather insights from data



**36%** Machinery breaking down



**35%** Persuading staff to believe **data over instinct**

## Firms Use A Lot Of Sensors But Struggle To Gather Actionable Insights

Half of the decision makers in our study report their firms are using at least seven types of sensors to maintain production equipment. Firms apply these sensors to a range of use cases depending on their industry. Decision makers need to think about the production cycle as a whole to gain the most actionable insights from their sensor data. The top objective cited by leaders for investing in IIoT technology is visibility into their asset equipment. Yet over half (55%) admit they are intimidated by the volume of data they are collecting, and they struggle to know where to start getting actionable insights. Additionally, 55% of decision makers agree that data volumes are a bigger challenge than they anticipated when implementing remote/IIoT technologies.

### The majority . . .

**50%**

are using at least seven different types of sensors.

**86%**

are using five or more different types of sensors.



### Yet . . .

**55%**

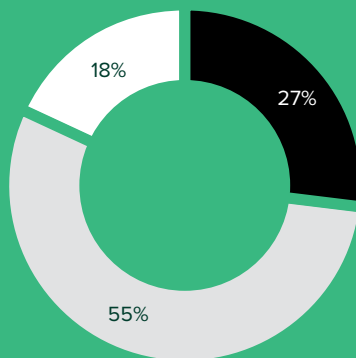
are intimidated by the volume or data they are collecting and struggle to know where to start getting insights.

## Partner Resources Can Bolster In-House Efforts

More than half of the respondents in our study expect to use a combination of external partners with in-house collection and analysis to gain insights from their data in the next one to three years. Selecting an expert partner for industrial maintenance that fills the gaps at the manufacturing facilities is critical to extend the life of machinery assets.

Partners can provide key benefits that directly address the challenges previously shared. They can reduce dependence on localized skill sets, drive improved machine reliability and control maintenance spending, offer increased visibility and value into maintenance costs, and offer centralized data analysis expertise and business intelligence to industry-specific equipment.

Which of the following best describes how you expect to manage your data and gathering of actionable insights in the next one to three years?



- We will outsource the data collection, analysis, and gathering of insights to a partner.
- We will use a combination of outsourcing to a partner and in-house collection and analysis to gain insights.
- We will collect, analyze, and build actionable insight with an in-house team of employees.

## Achieve Operational And Innovative Benefits With Sensors

In the next one to three years, nearly three-quarters of respondents anticipate that their firms will retrofit 20% or more of their equipment with remote or IIoT sensors. They expect these sensors to have significant benefits to their business, such as improving equipment effectiveness, innovating new digital products and services, providing strong data governance, and enabling predictive maintenance technologies to collect the insights needed to make data-driven decisions, thereby enabling predictable capacity.

### What benefits would you expect as a result of retrofitting or updating remote/IIoT sensors on equipment?

(Top five ranked)

Innovate new digital products and services

52%

Improve equipment effectiveness

50%

Provide strong data governance

48%

Enable predictive maintenance

46%

Enable predictable capacity

45%



## Maintenance-Related Programs/Technology Budgets Are Increasing

Manufacturers are getting serious about the importance of becoming data-driven and are willing to dedicate the time and money to do it, with half of leaders reporting an increase in maintenance-related programs/technology budgets in 2020. Seventy-seven percent of decision makers agree that using emerging technologies in combination with data insights maximizes the success of their digital initiatives, justifying the increase in funding. Even more compelling: 79% of respondents say using emerging technologies and data insights puts them ahead of the competition.

### Budget for maintenance-related programs and technologies

Our budget remained the same.

40%

We increased the budget by 1% to 5%.

28%

We increased the budget by 6% to 10%.

17%

We increased the budget by more than 10%.

5%

## Conclusion

Manufacturers are up against some big challenges and are in the process of navigating their way to becoming data-driven decision makers and are relying on sensors to extend the life of their existing investments. Firms are:

- Struggling to find and recruit staff with the necessary technical skill set but prioritizing it nonetheless.
- Increasing the number of sensors on their existing equipment to extend its lifecycle and get the most out their investments.
- Getting serious about the need for data to drive decision making, with half having increased their budgets for maintenance-related programs/technologies.

### Project Director:

Sarah Brinks, Market Impact  
Consultant

### Contributing Research:

Forrester's Infrastructure & Operations  
research group

## Methodology

This Opportunity Snapshot was commissioned by ATS. To create this profile, Forrester Consulting supplemented this research with custom survey questions asked of 172 project manager+ decision makers or influencers around IIoT, analytics, and/or ML strategy. The custom survey was completed in January 2020.

### ABOUT FORRESTER CONSULTING

Forrester Consulting provides independent and objective research-based consulting to help leaders succeed in their organizations. Ranging in scope from a short strategy session to custom projects, Forrester's Consulting services connect you directly with research analysts who apply expert insight to your specific business challenges. For more information, visit [forrester.com/consulting](https://forrester.com/consulting).

© 2020, Forrester Research, Inc. All rights reserved. Unauthorized reproduction is strictly prohibited. Information is based on best available resources. Opinions reflect judgment at the time and are subject to change. Forrester®, Technographics®, Forrester Wave, RoleView, TechRadar, and Total Economic Impact are trademarks of Forrester Research, Inc. All other trademarks are the property of their respective companies. For additional information, go to [forrester.com](https://forrester.com). [E-46791]

FORRESTER OPPORTUNITY SNAPSHOT: A CUSTOM STUDY COMMISSIONED BY ATS | MARCH 2020

## Demographics

### RESPONDENT LEVEL

Project manager: 15%

Manager: 30%

Director: 28%

Vice president: 16%

C-level executive: 11%

### TOP 4 INDUSTRIES

Industrial manufacturing and materials: 20%

Food/beverage: 20%

Packaging/process: 16%

CPG/manufacturing: 15%

### GEOGRAPHY

US: 100%

### COMPANY REVENUE

\$500M to \$999M: 10%

\$1B to \$5B: 76%

Greater than \$5B: 14%



FORRESTER®