

A Forrester Consulting
Thought Leadership Spotlight
Commissioned By Cognizant
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Three Levers For Effectively Scaling IoT Programs: A Spotlight On The Industrial Sector

Results From The July 2020 Thought Leadership
Paper, “No More IoT IOUs: Start Scaling IoT With
Five Key Levers”



Introduction

To get ahead in the industrial space amid the prolonged pandemic, manufacturers must embrace agility and build much greater resilience while they democratize access to applications and data. This will eliminate operational silos at last and free data to more effectively inform everything — just-in-time build and logistics decisions, operational execution, customer experience, product engineering decisions, and everything in between — to drive timely, innovative product launches and much-needed cost reductions.

While industrial enterprises face many similar challenges as before the pandemic, the scale, nature, and pace of change have accelerated. These challenges and uncertainty have brought sharper focus to how companies can ensure business continuity across their operations and execute strategic plans with a highly engaged workforce using the internet of things (IoT). To succeed with IoT, industrial enterprises must extend their initiatives beyond pilot purgatory into successful deployments that can grow seamlessly with their businesses' needs for data and insight. However, the actual process for scaling IoT beyond pilot remains a challenge for many industrial companies.

In February 2020, Cognizant commissioned Forrester Consulting to evaluate challenges companies face when expanding IoT initiatives and to determine what makes some companies more successful in growing their IoT capabilities. To understand the specific IoT challenges in the industrial sector, including manufacturing, consumer packaged goods (CPG), utilities, energy, and automotive, Forrester conducted an online survey of 161 IoT strategy leaders and data and analytics decision makers from industrial companies in the US and EMEA.

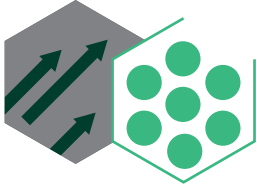
KEY FINDINGS

- › Nearly one in five industrial sector respondents reports their company struggles with moving IoT projects beyond proof of concept (PoC) in a consistent, effective way, and 38% have established a clear, proven process for implementing IoT but are failing to connect it with business outcomes.
- › The most prevalent drivers for IoT among industrial sector companies are reducing costs, improving the use of data and analytics in decision making, and improving productivity.
- › The IoT use cases for which industrial companies are seeing the highest success include building and facility management, supply chain management, and field service management.
- › Three key levers, or focus areas, are most effective in helping industrial companies move IoT programs beyond the pilot phase to delivering value at scale: integration with the enterprise; infrastructure and technology; and data and analytics.

IoT Is Critical For Modern Industrial Enterprises, But Execution Is Challenging

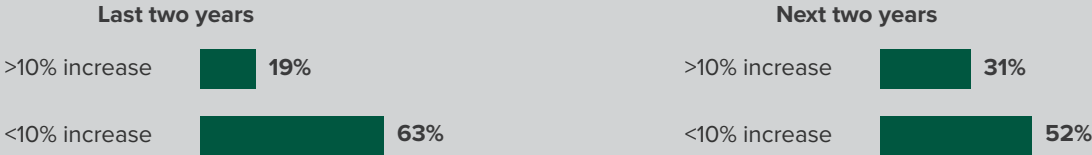
IoT initiatives are quickly becoming a critical component of modern industrial businesses. Investment in IoT initiatives over the past couple of years has increased according to 82% of decision makers whose companies use IoT. In addition, 31% of industrial leaders surveyed expect to see IoT investments increase by over 10% during the next one to two years. Decision makers are clearly seeing value in their IoT initiatives, as 61% want to apply a wider range of IoT use cases to business processes across their enterprises within the next two years (see Figure 1).

However, increasing investments and expanding the breadth of IoT use cases does not guarantee success; only 45% of industrial sector decision makers surveyed indicated they have a reliable and proven process for executing IoT projects and have delivered business value from the insights generated.



These findings highlight a huge opportunity for industrial companies to use IoT solutions to reduce costs, improve their use of data to support decision making, and improve operations and productivity (which were the top-three drivers for IoT investments among industrial leaders surveyed). The industrial sector IoT use cases where decision makers from the study are seeing the highest degree of success include: building and facility management (which use sensor data to optimize operations); supply chain management (to optimize inventory and warehouse management operations); and field service management. Many industrial manufacturing firms are also seeing success with designing IoT-enabled connected products. Stakeholders in the organization must assess and prioritize which IoT use cases are relevant to addressing their firms' strategic priorities.

Figure 1
Investment In IoT Is Growing



63% want to have a wider range of IoT use cases/business processes across their enterprises within the next two years

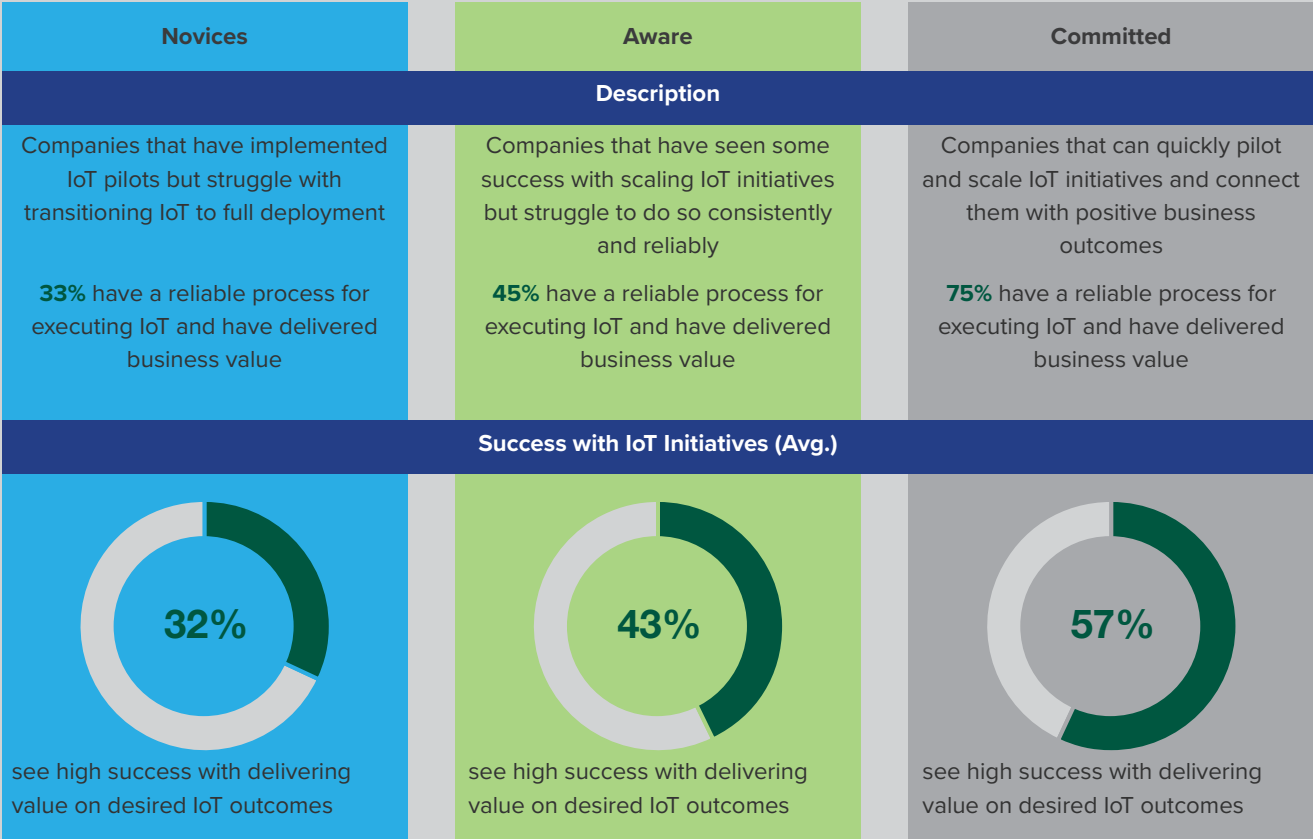
Base: 161 manager+ IoT strategy and IoT data and analytics decision makers in the US and EMEA from industrial companies
Source: A commissioned study conducted by Forrester Consulting on behalf of Cognizant, March 2020

Industrial Companies Must Focus on Three Key Levers To Scale IoT Quickly And Effectively

The 2020 study conducted by Forrester grouped surveyed decision makers into three profile segments, each reflecting how well companies have executed across five key levers to enable scalable and successful IoT programs: IoT novices, IoT-aware, and IoT-committed. This segmentation revealed that IoT-committed companies have more reliable processes for executing IoT and saw greater success in delivering business outcomes (see Figure 2).

Forty-six percent of our industrial sector respondents fall into the IoT novices segment, 30% are in the IoT-aware segment, and 24% are considered IoT-committed. The industrial sector has the highest percentage of firms in both the IoT-committed segment and in the novices segment. These findings showcase opportunities for industrial companies to improve their approaches to scaling IoT initiatives.

Figure 2
Maturity Profiles



Base: 524 manager+ IoT strategy and IoT data and analytics decision makers in the US and EMEA
 Source: A commissioned study conducted by Forrester Consulting on behalf of Cognizant, March 2020

UNDERSTANDING THE FIVE LEVERS FOR SCALING IOT MORE EFFICIENTLY AND SUCCESSFULLY

IoT success or failure is not determined by the breadth of IoT capabilities in an organization, but rather the degree to which a firm is organized and prepared to test and expand its IoT initiatives quickly and efficiently. Five key levers impact IoT project success:

- › **Strategy.** This lever encompasses a company's IoT vision and roadmap and reflects the degree to which a company has executive alignment and support for its IoT initiatives. A coherent digital strategy must be tied to concrete business outcomes with a clear path toward funding, execution, and measurement.
- › **Organizational enablement.** This lever refers to the degree to which a company has a clear business case for IoT and the proper skills, training, and tools to drive adoption of use cases forward.
- › **Integration with the enterprise.** This lever is focused on ensuring IoT initiatives are well integrated with, and supported by, operational technologies and processes and is designed to eliminate silos to unlock critical data that was previously inaccessible.
- › **Data/analytics.** Data and analytics address a company's ability to use data from assets, systems, or IoT-enabled products and processes to drive improvements in decision making, optimize actions, and generate new sources of revenue. This includes the ability to apply more advanced analytics capabilities, such as predictive analysis, and not just using descriptive analysis of IoT data.
- › **Infrastructure and technology.** This lever includes a company's architectural vision, building blocks, and technical capability to support and manage IoT deployments and corresponding data.

Statistical analysis to assess the importance of these levers in enabling industrial companies to quickly move IoT initiatives beyond the pilot phase revealed that only three levers have a significant impact: 1) integration with the enterprise; 2) infrastructure and technology; and 3) data and analytics (see Figure 3).

This finding does not mean that strategy and organizational enablement are not important to successful IoT deployment among industrial companies overall. It simply means that when industrial companies find themselves at the inflection point of wanting to quickly scale IoT initiatives, focusing on IoT strategy and organizational enablement will not have a significant impact compared to the other three levers.

Across all industries, companies that are most successful in addressing key levers see greater success in moving IoT initiatives beyond the pilot phase and have realized greater value from IoT programs.

Figure 3

Lever	Industrial Sector Relevance	Recommendation
Integration with the enterprise	The true value of IoT lies in integrating captured IoT data with existing operational processes and data streams to drive ongoing process monitoring and improvements. This can be a significant challenge, as 59% of industrial decision makers cite difficulty in unifying operations technologies (OT) and information technologies (IT) as a top integration challenge. Business and operational silos as well as lack of proper skill sets across team stakeholders further exacerbate these challenges.	Create a comprehensive view of how IoT impacts your business, operations, and customers. Evaluate these interactions as start-to-finish processes related to a specific business task or operational function, rather than isolated component silos. Key strategies to eliminate silos include creating new metrics and goals tied to business and operational incentives, enabling stakeholders to share responsibility for overall outcomes, and deploying role rotation and cross-pollination to widen stakeholder perspectives and deepen connections.
Infrastructure and technology	The right infrastructure is critical to deploying IoT at scale. One interviewee, a CIO from a utilities company, said that infrastructure was table stakes to beginning any IoT journey. The top infrastructure challenges among industrial companies include the lack of modernized infrastructure to support IoT and the challenges with ensuring the security of the software, hardware, and infrastructure that enables IoT technologies.	Assess your firm's technology infrastructure requirements related to deploying secure, scalable edge and cloud infrastructure to support current and planned IoT use cases. For industrial firms, key IoT use cases requiring infrastructure include: predictive maintenance solutions that use sensor data to optimize maintenance downtime; supply chain processes; and quality control solutions to ensure operational process and product specification compliance. Stakeholders must continually assess their firms' IoT initiatives to identify new technology, strategy, and process requirements for seamless deployment. Infrastructure executives must continually monitor these changes to identify required architectures, processes, and skills updates.
Data and analytics	Having the right data and analytics capabilities related to IoT will be critical for measuring the success of efforts regarding the other levers; therefore, this is integral to the IoT solution scaling process. Top challenges for industrial companies include identifying the best location (e.g., sensor level, device level, cloud environment, data center) to analyze data and subsequently ensuring the right people, with the right skill sets, have access to relevant data to provide them with actionable insight.	IoT solutions deliver business value by analyzing huge volumes of structured and unstructured data to identify trends, provide actionable insights, and predict events to unlock value. Enterprise stakeholders must understand the value of advanced analytics and be able to work with line-of-business executives who can provide feedback into the analytic models and algorithms to ensure actionable insight is identified and utilized.

Key Recommendations

Many industrial sector companies are engaged in IoT projects but are often challenged with expanding these projects into scalable production environments. Our study yielded the following important recommendations:



Assess the state of your firm's IoT maturity. As manufacturing firms undergo digital transformation and incorporate traditional IT technology components into OT stacks, IT professionals and their OT counterparts must work together to integrate IoT solutions and break down the data silos to access better data insights effectively and securely. OT is a complex legacy domain with protocols, and it takes OT knowledge to transform the data for maximum impact on operations. Additionally, navigating the organizational and process changes can drive higher success rates to deploy, maintain, and support these solutions. IoT maturity levels can shift over time. Initially, many firms focus on enhancing existing processes to gain operational efficiencies while more complex IoT solutions transform the business by enabling entirely new revenue and engagement models.



Reevaluate your IoT use case priorities to reset in these pandemic times. The COVID-19 pandemic requires many firms to refocus their IoT priorities to ensure employee health and safety, address rapidly changing production plans and limited availability of materials, and capture remote visibility into critical supply chain processes. Many industrial firms are prioritizing IoT use cases focused on predictive maintenance or condition-based maintenance to remotely monitor critical machinery or to enhance factory automation. In addition, industrial firms must consider the impact of COVID-19 on availability of workers with required technical, integration, and operational skill sets, as well as assess technology and back-end (e.g., ERP, CRM, MES) integration requirements.

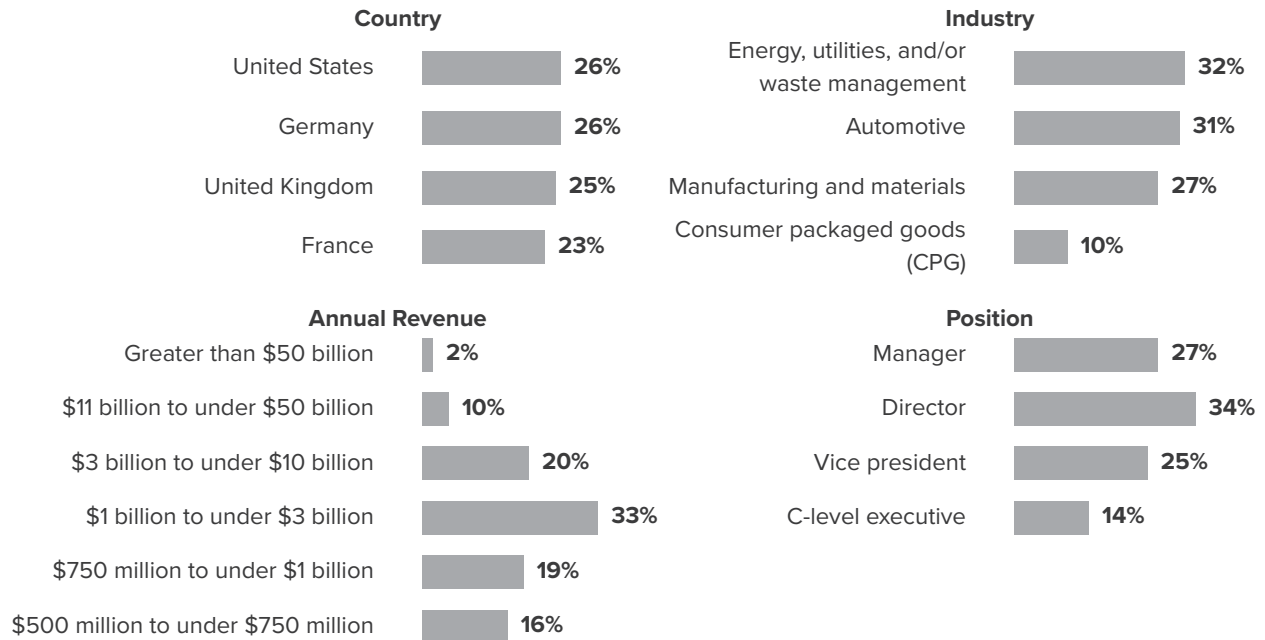


Accelerate relevant IoT projects by addressing capability gaps. Industrial firms will see more of a requirement to do more with less and must carefully identify strategically relevant IoT pilots and PoCs that can drive accelerated and sustainable outcomes into production at scale. Establish a clear deployment path with realistic timelines and expectations regarding extending beyond PoCs into scalable IoT solutions. This requires your firm to establish success metrics for your IoT solutions as well as to consider and address the three key levers to facilitate successful, scalable IoT use-case deployments.

Appendix A: Methodology

In this study, Forrester conducted an online survey of 161 IoT decision makers from industrial sector companies in the US and EMEA to evaluate why many IoT projects don't gain the investment or support to scale across the business and geographies, never making it past the pilot phase. Survey participants included decision makers in IT/network infrastructure, general management/regional/business unit management, business operations, manufacturing and operations, product development/R&D, and innovation. Questions provided to the participants asked about their companies' IoT implementation efforts and initiatives. The study began in February 2020 and was completed in March 2020.

Appendix B: Demographics/Data



Base: 161 IoT decision makers from industrial sector companies in the US and EMEA
Source: A commissioned study conducted by Forrester Consulting on behalf of Cognizant, September 2020

To read the full results of this study, please refer to the Thought Leadership Paper commissioned by Cognizant titled “No More IoT IOUs: Start Scaling IoT With Five Key Levers”

Project Director:
Chris Taylor,
Senior Market Impact Consultant

Contributing Research:
Forrester's Infrastructure & Operations research group

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