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# Accelerate Your Digital Transformation With IoT

Understanding IoT's Role In Digital  
Transformation And How To Capitalize On It



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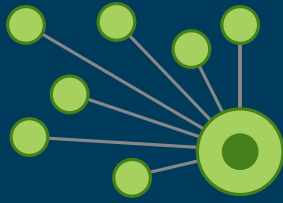
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Companies that embed IoT functionality into business processes and applications are better prepared for digital transformation success.

## Executive Summary

The internet of things (IoT) is transforming the way in which firms can capture operation data, manage business assets and facilities, and connect with consumers. Companies that embed IoT functionality into business processes and applications are better prepared for digital transformation success. However, enterprise stakeholders must identify relevant IoT use cases and establish a clear IoT strategy to successfully achieve desired outcomes.

In March 2019, SAP commissioned Forrester Consulting to examine how companies are leveraging IoT to support business outcomes and to understand where opportunities may exist to gain greater value from IoT. To explore this topic, Forrester conducted a global survey of 521 IoT decision makers in companies with 500 employees or more in the US, the UK, France, Germany, Japan, China, and Brazil. The survey found that the scope of IoT initiatives is limited for most, but a shift is underway as companies discover new use cases for IoT and push to improve its integration with business applications.

### KEY FINDINGS

- › Seventy-six percent of respondents said IoT solutions would provide greater benefits to their organizations if they were better integrated with existing business applications such as enterprise resource planning (ERP), supply chain, marketing, and human capital management systems.
- › The value of IoT-enabled solutions extends beyond enhanced inventory and supply chain management into transformed field service, fleet operations, production processes, and new business models.
- › On average, firms expect 54% of all their assets and products to be IoT connected by 2020.
- › More than 60% of respondents said the connection of IoT with other intelligent technologies (e.g., machine learning, robotic process automation) is either very important or absolutely necessary to optimize the value of their IoT solutions and data.

# IoT Capabilities Deliver Holistic Business Value To Enterprises

Adoption of IoT is a key component of digital transformation that has potential to improve operational efficiency, enhance customer experience, reduce operating costs, and optimize supply chains. Given the breadth of these transformational opportunities, it's not a surprise that 80% of firms surveyed agreed that IoT is central to their companies' future success.

The value of IoT is often associated with improving operations or delivering better experiences to customers; however, our survey results showed that the value for IoT extends beyond those categories. Over 75% of IoT decision makers indicated their firms would gain high value by embedding IoT capabilities into critical business systems like ERP, supply chain, marketing, and human capital management (see Figure 1).



Over 75% of IoT decision makers indicated their firms would receive high value by embedding IoT capabilities into critical business systems.

Figure 1

“What value do you believe your company could gain from embedding IoT capabilities into the following business applications/systems?”



Base: 521 IoT decision makers from companies in the US, EMEA, APAC, and Brazil  
Note: Percentage indicates “high value” responses.  
Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, March 2019

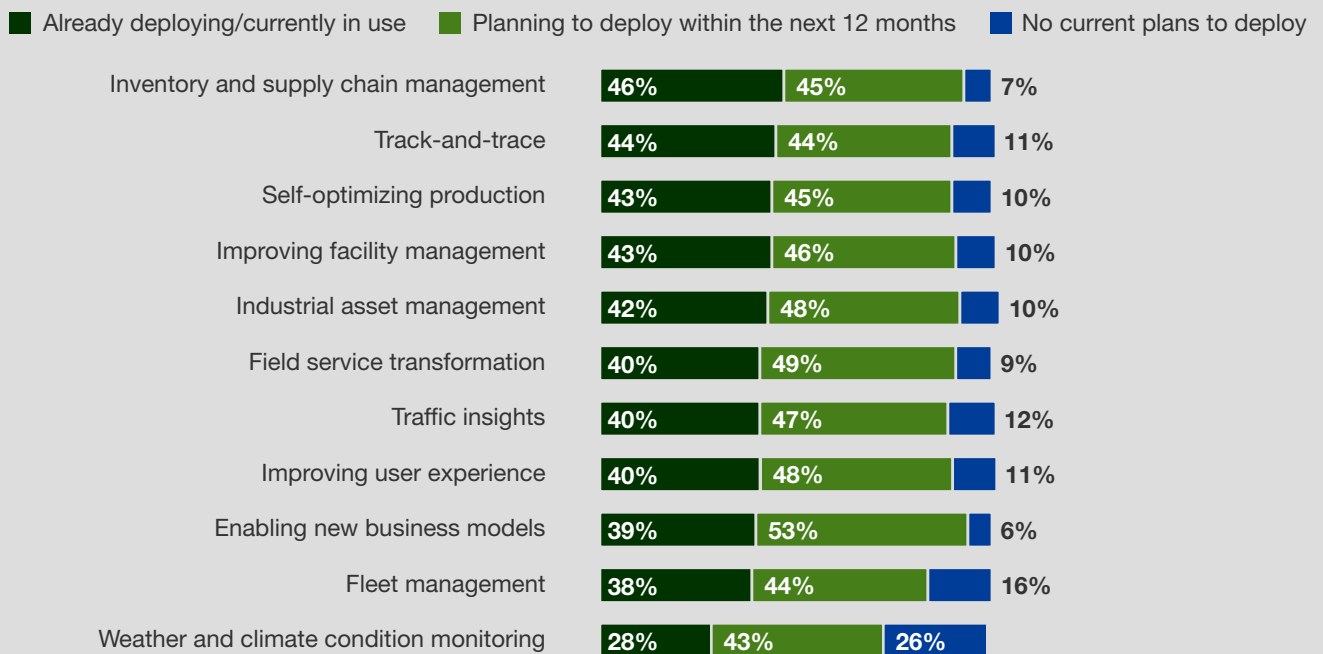
IoT-enabled digital transformation use cases are gaining traction: Most enterprises are deploying or planning to deploy a range of IoT use cases in the coming year to enhance inventory and supply chain management, transform field service, and optimize production processes (see Figure 2).

With the range of possibilities for applying IoT, decision makers are focusing attention on many initiatives, which include:

- › **Improving user experience.** Digital transformation efforts are often driven by a desire to improve customer interactions and personalize user experiences. Forty percent of respondents cited improving user experience as one of their companies' top three desired IoT use cases in the coming years.
- › **Enabling self-optimizing production.** Manufacturing firms use self-optimizing production solutions to enable faster production run changes, detect and prevent emerging problems, and automate production of customized products; 45% said this is something they plan to deploy in the next 12 months.
- › **Enabling new business models.** IoT has spurred a new range of smart products, which capture insight into how and when customers use those products and enable companies to use that insight to identify opportunities for new value-added services, generate new revenue streams, and capture additional data. Over 50% of companies are planning to leverage IoT to enable new business models over the next 12 months.

**Figure 2**

**“What are your company’s plans to deploy the following IoT-enabled digital transformation use cases?”**



Base: 521 IoT decision makers from companies in the US, EMEA, APAC, and Brazil  
 Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, March 2019

# Deploy IoT At Scale To Optimize Efficiency

Enterprise stakeholders certainly recognize the potential value of deploying IoT solutions to achieve a range of business, operational, and customer experience benefits. The next issue to consider is: How can they deliver their IoT initiatives at scale? Our survey found three key actions can help companies scale their IoT capabilities:

- › **Develop an enterprisewide IoT strategy.** Most companies are approaching IoT initiatives from the perspective of a single line of business, office/facility, or geographical region. Only 25% of surveyed enterprises are organizing their IoT priorities around a global, enterprisewide strategy. Without a strong overarching strategy, IoT implementation will likely be ad hoc, siloed, and less connected to key business and strategic outcomes.
- › **Manage data security and privacy concerns.** Every new technology introduces additional security considerations for the enterprise, and IoT is no exception. Forty percent of IoT leaders surveyed cited data security and privacy as a top concern with IoT. Companies recognize this challenge: 61% of respondents ranked improved security as a top business consideration to help them better support IoT capabilities (see Figure 3).
- › **Develop analytical skills.** Roughly one-third of surveyed respondents' firms struggle to transform IoT data into actionable insights. To address this concern, over half (54%) of respondents' companies are prioritizing analytics capabilities to extract greater value from IoT data. Currently, many firms are not using advanced analytics capabilities (i.e., embedded analytics, predictive analytics, machine learning, streaming analytics) due to lack of proper tools and/or analytics skills.

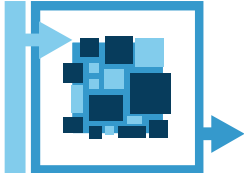
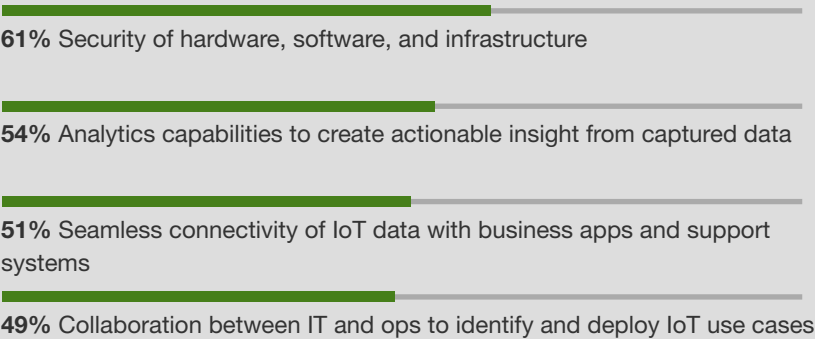


Figure 3

### Top IoT business priorities



Base: 521 IoT decision makers from companies in the US, EMEA, APAC, and Brazil  
Note: Percentages indicate total rank as top 5 priority  
Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, March 2019

61% of firms ranked security as a top business priority for better supporting IoT capabilities.

## CONNECT IOT DATA STREAMS WITH BUSINESS SYSTEMS FOR OPTIMAL BENEFITS

IoT solutions provide firms with rich, contextual data that can arm enterprise stakeholders with substantial business insights. However, to achieve business value and utilization benefits, firms must properly connect the data to relevant business systems including ERP, CRM, and marketing systems. Most respondents recognize the challenge of integrating IoT data: 76% believe IoT solutions would provide greater benefits to their organizations if they were better integrated with existing business applications. In the future, a majority of surveyed companies want IoT data streams to be mostly or completely connected to business systems (see Figure 4).

## Prepare For Dramatic Growth In IoT-Enabled Assets

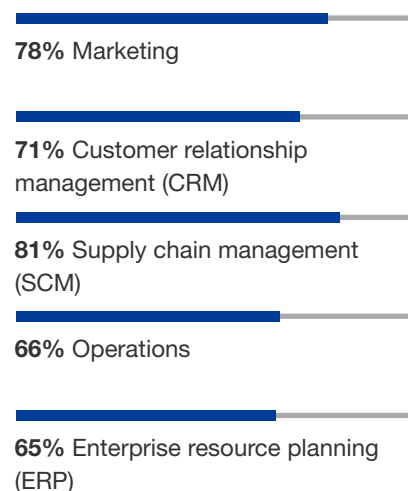
As the wave of digital transformation continues, more companies expect to see increased adoption of IoT solutions across many different types of assets, products, and processes. In fact, IoT decision makers in this study estimated that by 2020, approximately 54% of all their assets or products would be IoT connected. Data captured from these IoT-enabled connected assets will drive new requirements for hyperscale infrastructure solutions to store, manage, and retrieve captured IoT data. To match this growth, enterprises are taking specific steps, including:

- › **Investing in more IoT technology solutions and partnerships.** Strategic commitment to IoT solutions must be supported by the proper investments to be successful. However, 98% of surveyed respondents recognize their companies can't do it on their own and need better IoT training, integration support, and analytics capabilities from their external partners.
- › **Expanding to enterprisewide IoT deployments.** Our survey found that respondents expect IoT solutions to benefit all parts of their organizations. Therefore, IoT solutions must enhance a variety of tasks spanning a range of operational processes and customer experience initiatives. To this end, 46% of companies are taking steps to hire and train more staff to support IoT functions, and 41% are strengthening their IoT strategies by making top-down investments in IoT initiatives.

With this growth and continued investment in IoT, firms expect to see business benefits not only in operational efficiency and lower operating costs, but also in customer satisfaction and improved revenue (see Figure 5).

Figure 4

"How well connected would you like IoT data streams to be with the following business systems?"



Base: 521 IoT decision makers from companies in the US, EMEA, APAC, and Brazil

Note: Percentages indicate "mostly" or "completely connected" responses  
Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, March 2019

On average, firms expect 54% of all their assets and products to be IoT connected by 2020.

Figure 5

Top three desired outcomes from implementing IoT technology and solutions



Base: 521 IoT decision makers from companies in the US, EMEA, APAC, and Brazil  
Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, March 2019

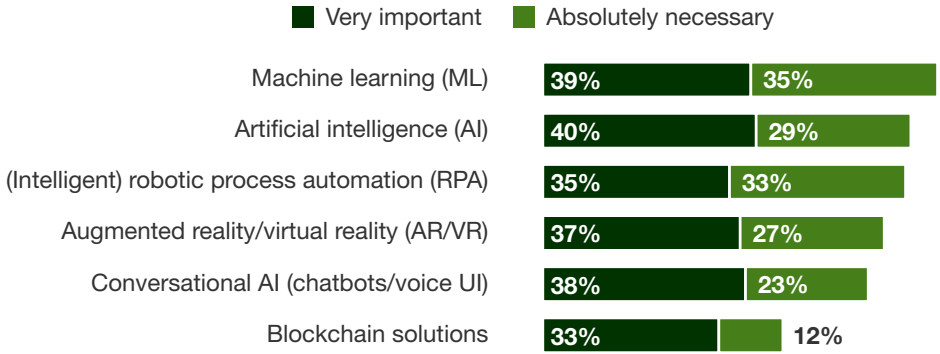
**CONNECT IOT WITH OTHER INTELLIGENT TECHNOLOGIES TO FURTHER ENHANCE VALUE**

Optimizing the value of IoT solutions requires firms to implement relevant, automated analytics tools and data management processes to transform captured IoT data valuable insight. Many enterprise stakeholders recognize that advanced analytics and intelligent technologies can drive additional IoT solution value and benefits (see Figure 6).

- › **Advanced analytics solutions transform IoT data.** Artificial intelligence and machine learning solutions enable firms to analyze and transform captured IoT data using trainable mathematical models. Examples of machine learning use cases include predictive maintenance and creating personalized user experiences and customer interactions.
- › **Leverage intelligent robotic process automation (RPA) and other intelligent technologies to drive additional IoT benefits.** RPA provisions software agents — bots — that mimic human interactions with software systems to automate manual and repeatable low-value tasks, thereby enabling resources to spend time on high-value jobs. Intelligent RPA combines the power of machine learning, RPA, and conversational AI to deliver out-of-the-box intelligent business process automation. When integrated with IoT solutions, enterprises can merge the physical and digital worlds to improve resource productivity, process optimization, and customer satisfaction.

Figure 6

“How important are the following innovation technologies in helping your company optimize the value of its IoT solutions and data?”



Base: 521 IoT decision makers from companies in the US, EMEA, APAC, and Brazil  
 Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, March 2019





# Key Recommendations

Enterprises in various industries are proactively deploying a variety of IoT use cases and embedding IoT functionality into key business applications as part of their digital transformation initiatives. These IoT solutions enable enterprises to achieve efficient operations, enhance processes, and differentiate customer relationships. Benefits from these IoT solutions are often enhanced with intelligent technologies such as advanced analytics, artificial intelligence, machine learning, and augmented or virtual reality solutions.

Forrester's in-depth survey of IoT decision makers in global enterprises yielded the following recommendations:



**Identify digital transformation initiatives to address your firm's strategic goals.** Stakeholders in each enterprise must evaluate relevant digital transformation initiatives relative to individual operational processes, industry-specific priorities, and strategic goals. Areas to consider include enabling new business models, delivering personalized customer experiences, generating new revenues, and enhancing operations.



**Align your IoT initiatives with identified digital transformation goals.** Consider opportunities to use combinations of IoT solutions and other intelligent technologies (e.g., machine learning, robotic process automation) to address critical use cases. As your IoT initiatives expand, so too will scalability and analytics requirements to extend deployments and transform captured information into actionable insight.



**Assess requirements for hybrid edge and cloud IoT use cases.** Most firms will deploy both edge and cloud-enabled IoT solutions. Mission-critical IoT applications (e.g., factory automation, self-optimized production) often have performance and reliability requirements demanding edge computing to process data closer to the data source. Enterprise stakeholders must evaluate their firms' requirements for both types of IoT use cases to ensure they have the necessary network architecture, security, and management capabilities.

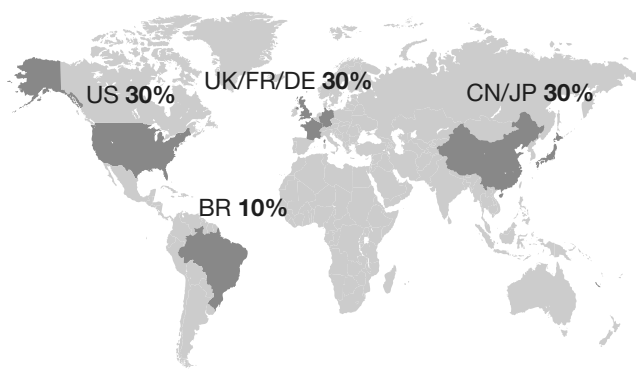


**Seek assistance from third-party partners to fill in IoT technology and skill set gaps.** Many enterprises that are deploying IoT solutions struggle with a variety of technical, analytic, and operational issues. These firms often proactively seek help from third-party partners to provide supplemental IoT operational process training, advanced analytics tools, and data insights solutions to transform captured data into actionable insight. Many firms also need assistance integrating IoT data streams with their ERP, CRM, and supply chain management systems.

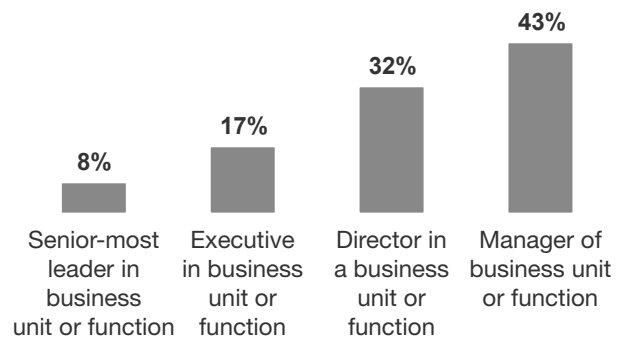
# Appendix A: Methodology

In this study, Forrester surveyed 521 IoT decision makers from companies in the US, EMEA, APAC, and Brazil. Companies surveyed had 500 employees or more and represented the following industries: life science; high tech; automotive; energy and utilities; manufacturing; CPG; and chemicals, oil, and gas manufacturing. Survey participants were from a mix of IT and operations roles with decision-making influence over IoT and digital transformation initiatives. Questions provided to the participants asked about how IoT was impacting their digital transformation efforts and explored future plans for IoT. Respondents were offered a small incentive as a thank you for time spent on the survey. The study was completed in March 2019.

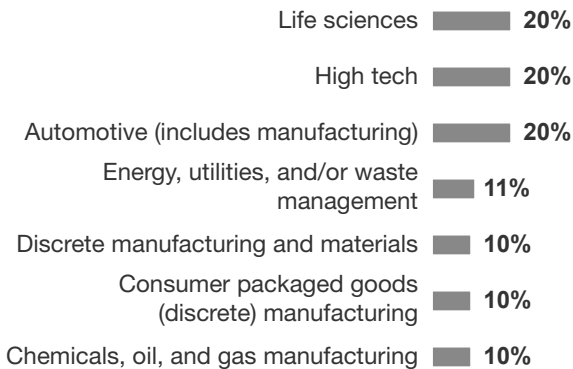
# Appendix B: Demographics/Data



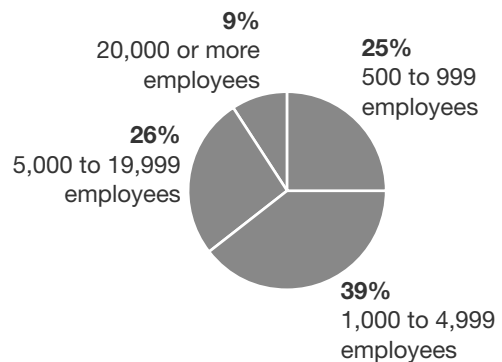
### RESPONDENT LEVEL



### INDUSTRY



### COMPANY SIZE



Base: 521 IoT decision makers from companies in the US, EMEA, APAC, and Brazil  
 Note: Percentages may not total 100 because of rounding.  
 Source: A commissioned study conducted by Forrester Consulting on behalf of SAP, March 2019