

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

by Michele Pelino

March 17, 2021

Why Read This Report

A fragmented array of internet-of-things (IoT) solutions enhance enterprise operational efficiency across vertical markets. IoT use cases focus on generic functions across most enterprises but are also highly specialized for verticals. As we emerge from the pandemic in 2021, use cases addressing supply chain management and environmental monitoring will have renewed relevance.

Infrastructure and operations (I&O) executives must collaborate with their business partners to identify IoT use case priorities and deployment momentum across the organization.

This is an update of a previously published report; Forrester reviews and revises it periodically for continued relevance and accuracy.

Key Takeaways

I&O Execs Play A Key Role In Enabling Business-Led IoT Use Cases

IoT technology is varied and designed to address a wide range of business-led functional use cases that transform operational processes and enable employees to return to work. I&O leaders must support business stakeholders as trusted advisors to enable IoT use cases.

Ensure That Relevant Stakeholders Participate In The IoT Use Case Evaluation Process

I&O executives must collaborate with business, security, and operational stakeholders to identify IoT use case requirements and deployment timelines to facilitate seamless, secure, and scalable solution implementation.

Evaluate The Impact Of IoT Use Case Deployment On Processes And Skills

Implementing IoT use cases requires I&O execs to reassess technology solutions to help deploy, manage, and secure their firm's connected devices and processes. It also demands new employee skill sets to enable IoT applications and analyze the data that these connected assets and processes capture.

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations



by [Michele Pelino](#)

with [Glenn O'Donnell](#), [Paul Miller](#), [Renee Taylor](#), and [Diane Lynch](#)

March 17, 2021

Table Of Contents

- 2 **IoT Delivers Operational Enhancements**
Identifying The Business Urgency Of IoT Isn't One-Size-Fits-All
- 4 **Four Key Dimensions Shape IoT-Enabled Operations Use Cases**
- 6 **Our IoT Heat Maps Highlight IoT Use Cases By Industry And Function**

Horizontal IoT Use Cases Can Benefit Most Firms

Functional IoT Use Cases Create Value For Many Firms

Specialized IoT Use Cases Address Specific Situations At A Narrow Set Of Firms

Recommendations

- 13 **Use Our IoT Heat Maps To Focus Your Efforts**
- 15 **Supplemental Material**

Related Research Documents

- [How 5G And Edge Computing Advance IoT Value](#)
- [IoT Solutions Transform Smart Buildings Into Strategic Productivity Assets](#)
- [IoT Transforms Supply Chain Management](#)
- [Use Three IoT Scenarios To Untangle Your IoT Strategies](#)



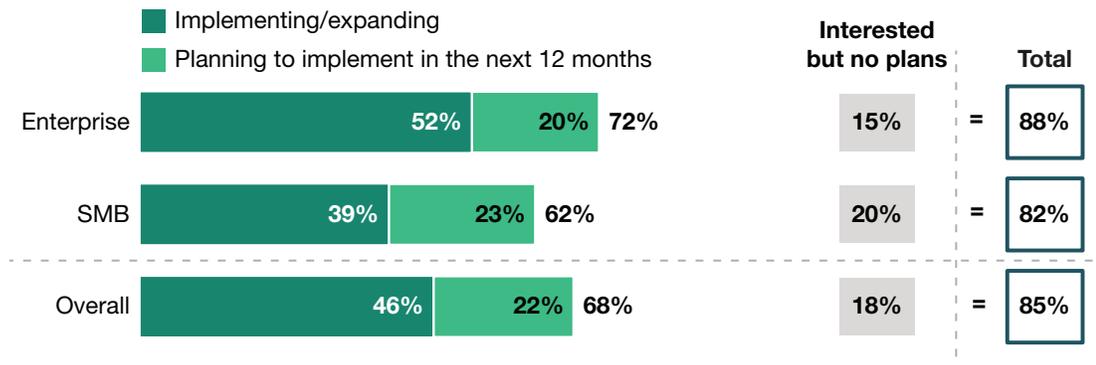
Share reports with colleagues.
Enhance your membership with Research Share.

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

IoT Delivers Operational Enhancements

Enterprise stakeholders have three scenarios at their disposal to incorporate IoT into their business strategy: 1) designers embed IoT sensors into products; 2) process owners use IoT-enabled assets to improve operations; and 3) business leaders incorporate data from IoT sensors and from their ecosystem to improve operations and offerings.¹ Over the past year, enterprise stakeholders have faced additional challenges in addressing the impact of the COVID-19 pandemic on their strategic initiatives, priorities, and operations. Some 72% of global telecommunications decision-makers at enterprises are implementing, expanding, or planning to implement IoT solutions across all major industry categories (see Figure 1).² This report focuses on process owners and their use of IoT to drive operational efficiency and flexibility.

FIGURE 1 Over 70% Of Global Telecom Decision-Makers Use Or Plan To Use IoT Solutions**“What are your organization’s plans for adopting internet-of-things (IoT) solutions or applications?”**

Note: Percentages may not total because of rounding. Not all response categories are shown.

Base: 3,424 global telecommunications decision-makers at firms of 20+ employees; 1,715 are at enterprises and 1,709 at small/midsize businesses (SMBs)

Source: Forrester Analytics Business Technographics® Networks And Telecom Survey, 2020

Identifying The Business Urgency Of IoT Isn't One-Size-Fits-All

There are significant differences in IoT deployment and implementation plans based on vertical market (see Figure 2). Line-of-business execs, with support from CIOs and chief data officers (CDOs), face the daunting task of evaluating and prioritizing the diverse array of opportunities to implement IoT-enabled processes that help them transform their day-to-day operations. The task of identifying which IoT use cases to prioritize for improving operations is difficult because:

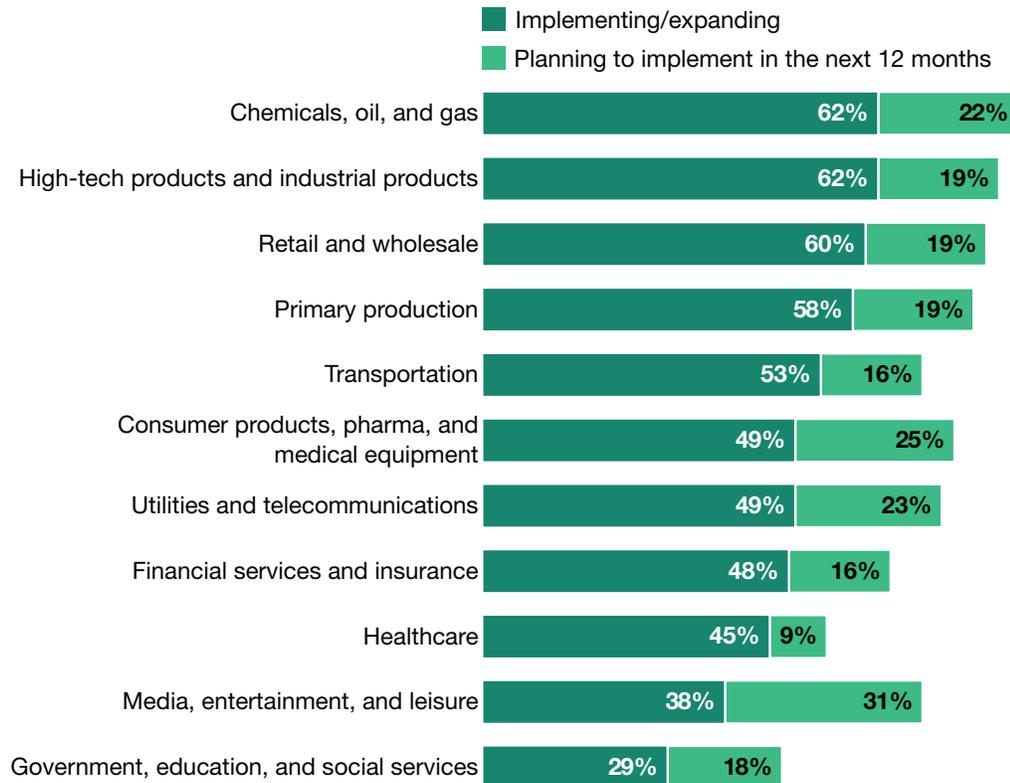
Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

- **The business value of IoT ranges from incremental to transformative.** IoT solutions help enterprises address a range of business benefits, such as enhancing operational processes, using resources more efficiently, or transforming customer relationships. IoT solution implementations such as John Deere's precision agricultural technology with Operations Center, the JDLink app, and AutoTrac provide farmers with real-time data to guide machinery settings and speed adjustments as well as the depth and location of seed placement.³ Customer benefits include improved harvesting, enhanced irrigation efficiency, increased equipment utilization, and proactive equipment maintenance.
- **Execs must assess widely applicable and very specialized IoT use cases to find value.** Firms use IoT technologies to extend digital business into their daily operations by capturing detailed visibility of the physical world. Industrial manufacturers use sensors to evaluate machine performance, detect issues, and inform field service personnel when they need to perform maintenance to prevent downtime. More-specialized IoT use cases focus on transforming operations and business processes in specific sectors, such as sensor-enabled remote patient monitoring in healthcare or self-optimizing production in manufacturing.
- **IoT solutions connect in very different ways.** A diverse array of sensors, networks, protocols, software technologies, and data formats enable IoT use cases. Even with hundreds or thousands of sensors in a processing plant, network hardware, wireless gateways, and access points must maintain performance. The growing range of networking options, including satellite, 3G, 4G, and emerging 5G cellular, as well as Bluetooth, Wi-Fi, Zigbee, and Z-Wave, create new IoT use cases across different environments and geographies.⁴ Security requirements, regulations, cost, or a lack of spectrum for licensed 5G networks may require IoT devices to connect using unlicensed wavelengths. Shared-use spectrum allocations, such as Citizens Broadband Radio Service (CBRS) in the US, can support some industrial use cases.⁵
- **Varied stakeholder spending and benefits integrate into IoT projects.** IoT use cases often involve many different business, technology, organization, and operational stakeholders. Each is responsible for identifying their own use case requirements, expected benefits, and budgets, but their priorities are often very different. For example, manufacturing factory managers, plant operations executives, and facilities managers can all benefit from IoT solutions to lower costs, prevent downtime, and improve asset utilization. Network infrastructure and security executives must also participate in the IoT solution decision-making process early on to prevent problems related to security, network scalability, and back-end solution integration.

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

FIGURE 2 Many Major Industry Verticals Are Using Or Planning To Use IoT Solutions**“What are your organization’s plans for adopting internet-of-things (IoT) solutions or applications?”**

Note: Not all categories are shown.

Base: 32 to 218 global telecommunications decision-makers at enterprises (1,000+ employees) (base sizes vary by vertical)

Source: Forrester Analytics Business Technographics® Networks And Telecom Survey, 2020

Four Key Dimensions Shape IoT-Enabled Operations Use Cases

As enterprise operations incorporate a growing set of IoT-enabled physical assets (e.g., machines, vehicles, lights, and buildings), firms must evaluate and prioritize the IoT use cases that have the potential to transform their operations. Enterprise stakeholders should consider these elements in their evaluation process:

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

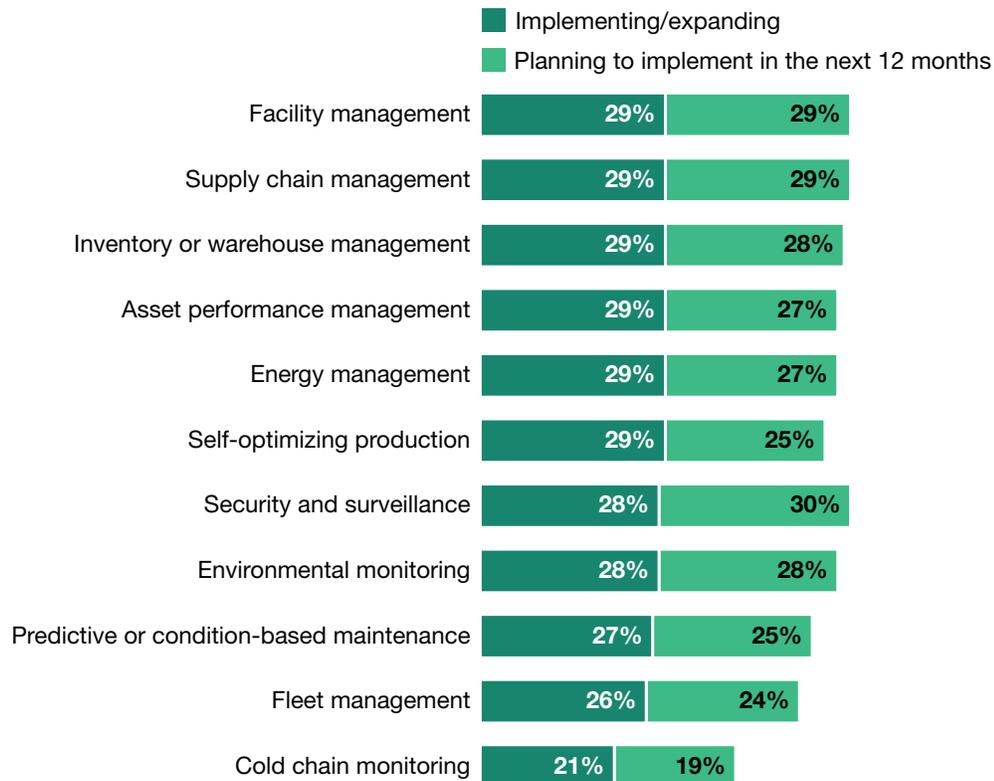
- **The physical-asset intensity of their industry.** Many firms use IoT technologies to extend digital business deeply into their daily operations by getting detailed visibility into the physical world. The success of asset-intensive manufacturing, utilities, telecom, and transportation organizations depends on how efficiently they leverage their physical assets. An important driver of IoT solution deployment is the number and value of physical assets (e.g., cars, equipment, machinery, or land) and physical structures (e.g., buildings) in use. As the cost of sensors, connectivity, and processing falls, IoT-based business models that once made sense only for the most expensive assets become viable for larger numbers of cheaper devices.
- **The relevant IoT use cases in their industry.** Enterprise stakeholders often initially focus on identifying relevant IoT opportunities within their specific industry or vertical market. For example, healthcare providers frequently use IoT solutions to maintain and manage the status and operational performance of medical equipment. Business stakeholders should also evaluate specific use cases that are relevant to their firm's strategic priorities and operational processes, including asset performance management, facility management, and fleet management (see Figure 3).
- **The maturity of available IoT solutions.** The enormous range of sensors, technologies, customer scenarios, and business cases supports an extremely fragmented and diverse array of IoT use cases, from programmable logic controllers (PLCs) on manufacturing lines to satellite-connected sensors on long-haul trucks. Evaluate the maturity and adoption for each IoT use case by using multiple sources of information, including data from the Forrester Analytics Business Technographics® Networks And Telecom Survey, 2020.
- **The business value to their company.** Base the decision to deploy each IoT use case on the value and benefits it contributes to your organization. Operational IoT use cases focus on enhancing critical operational processes (e.g., supply chain management or fleet management) or providing cost-efficient use of resources such as energy management or security and surveillance. To determine the appropriate mix of IoT use cases and applications to pursue, IoT decision-making stakeholders must evaluate alignment with corporate strategic priorities and initiatives. In addition, it's important to consider ways in which the COVID-19 pandemic may have altered your business priorities.

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

FIGURE 3 Global Enterprise Decision-Makers Embrace A Variety Of IoT Use Cases

“Which of the following internet-of-things (IoT) applications has your organization implemented/is your organization planning to implement?”



Note: Not all categories are shown.

Base: 1,243 global telecommunications decision-makers at enterprises that are planning to adopt or have adopted IoT solutions or applications (1,000+ employees)

Source: Forrester Analytics Business Technographics® Networks And Telecom Survey, 2020

Our IoT Heat Maps Highlight IoT Use Cases By Industry And Function

IoT applications transform operational processes across many different markets (see Figure 4). To help you evaluate IoT use cases relevant to your firm, we've developed a set of IoT use case heat maps. These are based on data from the Forrester Analytics Business Technographics Networks And Telecom Survey, 2020; analyst assessment of physical asset intensity in each industry; analyst assessment of the impact of the COVID-19 pandemic; and our analysts' judgement, drawing on many hundreds of

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

inquiry discussions with end user clients, vendors, and service providers across the IoT value chain. Use these heat maps as a starting point to help evaluate the applicability of each use case to your firm's unique strategic business priorities and operational initiatives.

FIGURE 4 Examples Of IoT Use Cases That Horizontally Span Many Operational Processes

Use case	Definition
Facility management	Monitoring the design, construction, and operation of structures and buildings, including lighting and HVAC systems
Energy management	Monitoring, managing, and reporting usage of water, electricity, and other energy resources
Security and surveillance	Managing surveillance and monitoring for security and public safety
Fleet management	Monitoring and managing the condition, location, and usage of vehicle fleets (e.g., airplanes, taxis, buses, and trucks)
Asset performance management	Monitoring and managing the location, condition, and usage of equipment and machinery, especially industrial equipment
Predictive or condition-based maintenance	Using sensor data to optimize maintenance downtime
Inventory or warehouse management	Tracking inventory levels and managing warehouse operations
Supply chain management	Managing supply chain relationships, including payment processing
Environmental monitoring	Monitoring indoor or outdoor air quality, carbon monoxide levels, and pollution levels
Cold chain monitoring	Monitoring and controlling the condition of perishable food, chemicals, pharmaceuticals, and other products
Remote diagnostics and monitoring of patient status	Providing the ability to monitor patients' vital signs and medical status (e.g., blood pressure, heart rate, or glucose level)
Hospital and clinic asset management	Tracking the location and status of medical devices, assets, and equipment
Self-optimizing production	Using sensor-enabled equipment to automatically monitor, manage, and automate operations to reduce cost and improve customer experience

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

Horizontal IoT Use Cases Can Benefit Most Firms

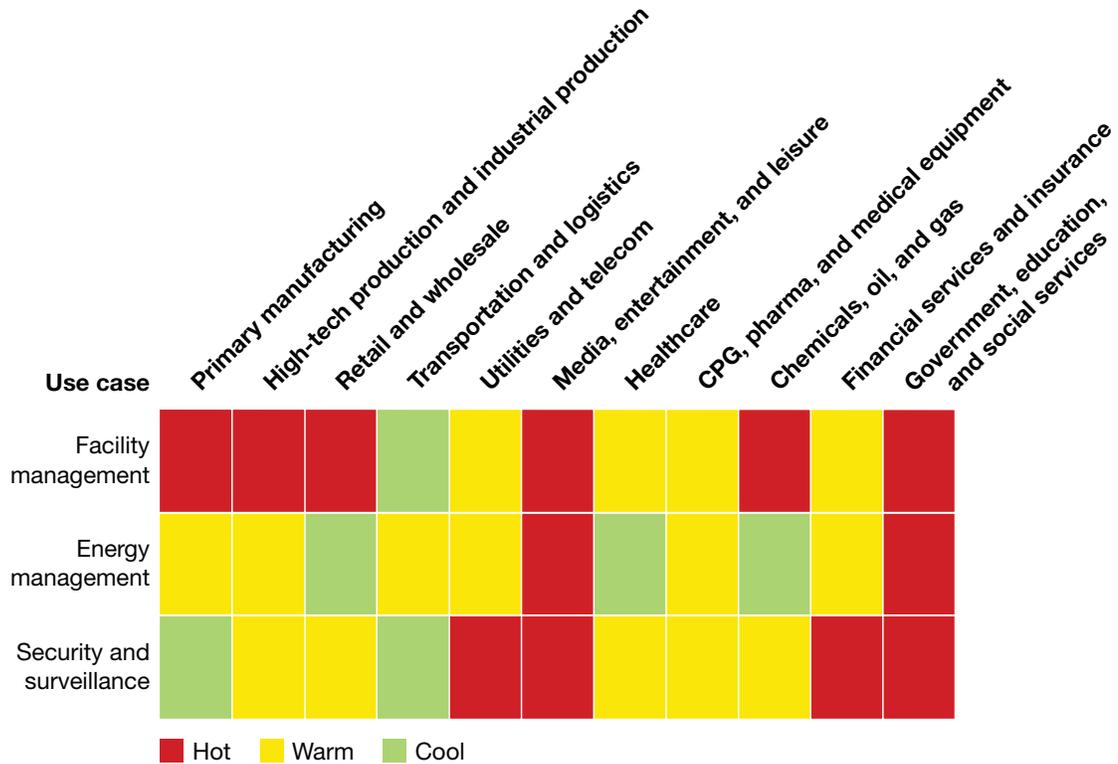
These use cases are broadly applicable and deliver incremental value but generally don't provide a strategic advantage (see Figure 5):

- **Facility management.** Property managers use building automation systems to manage and automate control of mechanical devices and building systems, including water management; security access control; fire systems; heating, ventilation, and air conditioning (HVAC); and air quality.⁶ Employee health has become a key focus of facility management. Proactive building managers are deploying IoT sensors and wearables to monitor social distancing and using sensor data to redesign office layouts to improve health and safety. These initiatives address the fact that Forrester's most recent PandemicEX survey reveals that 47% of US workers are afraid to go to work because of the risk of COVID-19 virus exposure.⁷ Facility management solutions are relevant in retail, manufacturing, healthcare, commercial office, and government and education facilities.
- **Energy management.** Energy management solutions monitor, manage, and optimize energy consumption; promote energy efficiency; support sustainability initiatives; and are often incorporated into building management systems (BMSes).⁸ In Michigan, McLaren Health Care installed Cree's SmartCast intelligent lighting solutions and 25,000 indoor and outdoor LED fixtures in parking garages, hallways, waiting rooms, lobbies, and staff centers throughout 11 hospital facilities spanning 5 million square feet.⁹ The comprehensive lighting solution reduced McLaren's energy costs by 66% and saved the healthcare network over \$1.6 million annually in energy and operating expenses. These solutions simplify energy management, help improve staff productivity and morale, and boost patient satisfaction. Energy management solutions are more strategic in multibuilding environments, including government and education facilities, healthcare campuses, commercial office parks, retail stores, and banks.
- **Security and surveillance.** Office managers are working with their security colleagues to identify security and crisis modification solutions for their office facilities. IoT physical security devices include card readers, door locks, and cameras as well as card personalization software and analytics.¹⁰ These devices use an array of operating systems and protocols optimized for specific IoT use cases. Physical security information management (PSIM) solutions collect and correlate events from multiple security devices and systems into a single view/dashboard rather than having to use multiple systems. Unified crisis alert systems inform employees of weather incidents, natural disasters, or other risks. IoT-enabled physical security and surveillance systems are relevant to government, retail, healthcare, and manufacturing firms as well as companies where employees work in physical office buildings.

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

FIGURE 5 Broadly Applicable IoT Use Cases Apply To Many Firms



Functional IoT Use Cases Create Value For Many Firms

Use cases for specific operational processes boost efficiency and sometimes provide significant value, although they don’t have universal appeal. IoT use cases often transform operational processes commonly used across multiple markets or environments. Examples of common processes include inventory and supply chain management, used in industrial and manufacturing, retail, and healthcare sectors (see Figure 6):

- Supply chain management.** Prior to the COVID-19 pandemic, many companies implemented a lean supply chain, which prioritized cost reduction and minimized global product inventory. The pandemic exposed vulnerabilities in the lean supply chain approach, forcing companies to increase local inventory levels and diversify their suppliers. Firms use IoT solutions to control supply chain events across various modes of transportation and multiple logistics hubs. South Korean distribution company Atomy works with SAP and Zen Consulting Services to ensure that it has the right products available for immediate delivery to customers who make online purchases.¹¹ These supply chain process enhancements improved Atomy’s supply chain operations efficiency by 30% and helped the company become one of the top two direct-selling companies in South Korea, with 4 million members.

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

- **Inventory or warehouse management.** Solutions to track inventory and warehouse management concentrate on tracking materials, forecasting availability, and managing the risks of inventory gluts and shortages. Companies with complex manufacturing processes use these IoT solutions to track raw materials, components, and finished products as well as warehouse items and products. These solutions are becoming more agile, flexible, and responsive and often integrate with supply chain management systems to deliver real-time insight into product availability. The retail, wholesale, manufacturing, and production sectors use them.¹²
- **Predictive maintenance and asset performance management.** The COVID-19 pandemic is exacerbating shortages of skilled labor in manufacturing, field service, and related industries.¹³ A modern train may include 3,500 sensors, measuring everything from vibration and energy consumption to wear on the brakes or the temperature in each passenger compartment.¹⁴ Sensors fitted to complex assets such as wind turbines, trains, or factory production lines provide insight into how an asset is performing in near-real time. Combine this with historical data and an understanding of the design, construction, and use of the asset, and operators and maintainers can calculate the timing and implication of parts failure with great precision. These solutions are particularly relevant in the manufacturing, production, chemical, and oil and gas sectors.
- **Fleet management.** IoT-enabled fleet management solutions help companies that depend on shipping and transportation to monitor fleets, optimize routes, improve fuel efficiency, and respond to business disruptions.¹⁵ Fleet managers use telematics solutions to monitor location and performance, including engine diagnostics, speed, acceleration, and brake wear. Acres Group, a landscaping company, uses NexTraq GPS fleet tracking in more than 300 trucks.¹⁶ The location tracking feature has enabled Acres to recover more than \$30,000 in stolen equipment and vehicles on multiple occasions. The COVID-19 pandemic has forced firms to optimize vehicle routes disrupted by border restrictions and improve delivery efficiency to local residential sites.
- **Environmental monitoring.** IoT-enabled environmental monitoring solutions identify the status of specific elements (e.g., temperature, water, or air) that can have detrimental impacts on human health or the natural environment. Perstorp, a manufacturer of paint additives, solvents, and bleach chemicals, evaluates 1.5 million variables and 500,000 constraints throughout the end-to-end manufacturing process to identify environmental impacts and inventory availability.¹⁷ Sustainability and compliance executives in corporate and government organizations use environmental monitoring solutions to demonstrate that they're acting within designated regulatory parameters. Firms in the pharmaceutical, manufacturing, chemical, utilities, and oil and gas industries are deploying IoT-enabled environmental monitoring solutions.

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

FIGURE 6 Functional IoT Use Cases Apply To Some Firms



Specialized IoT Use Cases Address Specific Situations At A Narrow Set Of Firms

These vertical-specific use cases solve problems that apply to only a few firms. The heterogeneity and diversity of the IoT use case landscape provides enterprise stakeholders in every vertical market with opportunities to differentiate operations, processes, and customer experience. The Forrester Analytics Business Technographics Networks And Telecom Survey, 2020, asked about global enterprise adoption of specialized IoT use cases that address requirements in specific sectors, including (see Figure 7):

Internet-Of-Things Heat Maps For Operational Excellence In 2021

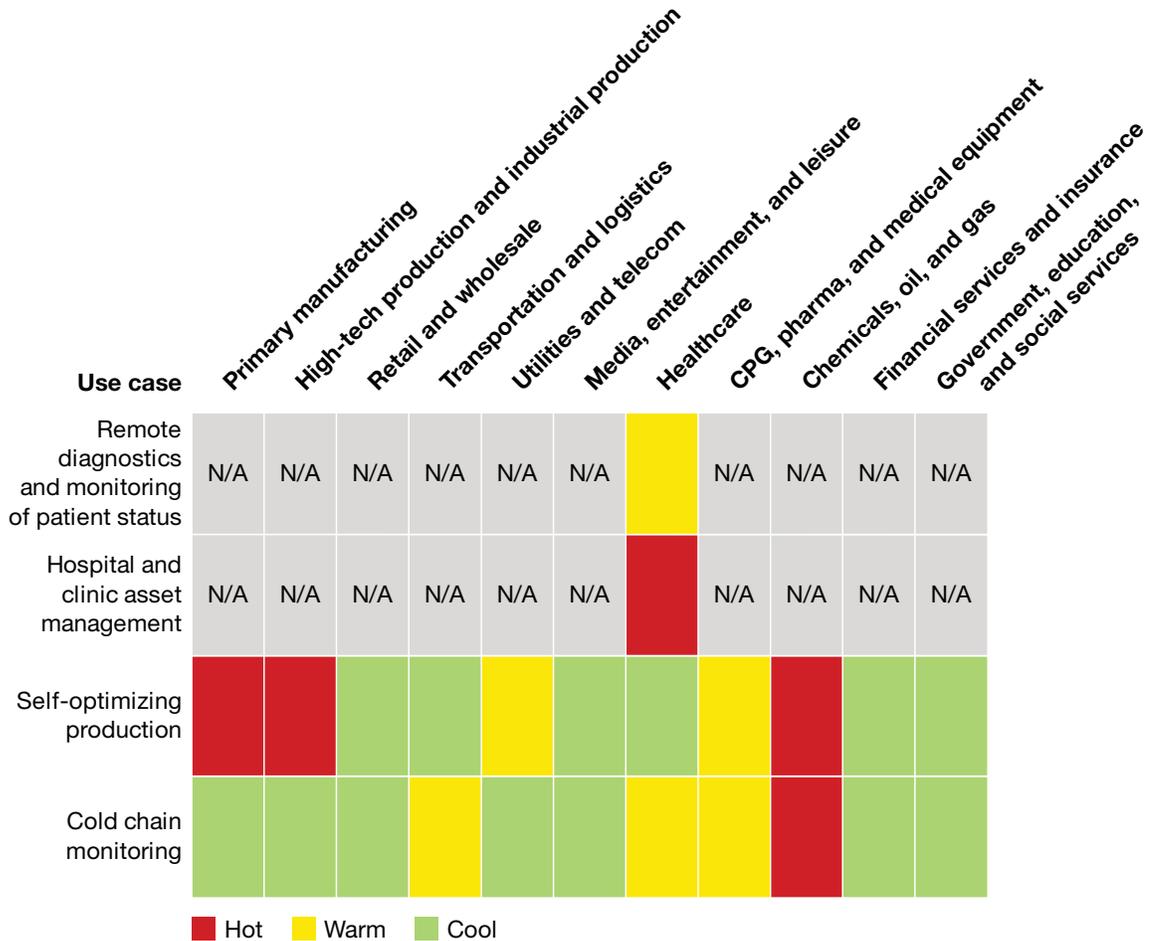
Deploy IoT Use Cases That Bring Value To Your Company Operations

- **Remote diagnostics and monitoring of patient status in healthcare.** Medical device and pharmaceutical companies are building IoT into their products to enable virtual compliance and provide differentiated patient care. BioIntelliSense's 5G-enabled BioHub gateway, combined with its BioSticker remote monitoring device and data services, captures a patient's coughing, sneezing, and vomiting frequency and vital signs (e.g., temperature, respiratory rate, and heart rate).¹⁸ The remote monitoring solution enables earlier detection, proactive clinical intervention, and remote patient monitoring. Clinicians use advanced analytics of biometric data, high-resolution patient trending, and reporting to enable medical-grade care in the home.
- **Hospital and clinic asset management in healthcare.** IoT solutions enable facilities to locate and monitor the status of patients, staff, and equipment, generating operational efficiencies and improving patient care. Healthcare-related asset management use cases include staff location, asset tracking and management, infant protection, and wander management. Wake Forest Baptist Medical Center has reported \$2 million per year in savings from its asset management solution, \$3.5 million in redundant systems cost avoidance, and more than \$2 million saved per year due to increased staff productivity.¹⁹ These solutions are powered by an ecosystem of badges, tags, and phones, located by infrastructure leveraging a variety of technologies, including infrared, ultrasound, active RFID, Wi-Fi, Bluetooth Low Energy (BLE), and low frequency (LF).
- **Self-optimizing production in manufacturing.** Executives who implement IoT use cases for manufacturing lines seek better visibility and control over production processes and operations. CIMC, a supplier of logistics and energy equipment, faced productivity issues from unplanned machine downtime and lack of operational visibility in its Qingdao and Ruijiang factories.²⁰ The firm leveraged Microsoft Azure and PTC ThingWorx to integrate IoT capabilities into its manufacturing execution system and visualize operational data throughout the manufacturing process. Real-time production performance and machine behavior insights enabled CIMC to reduce work in process by 16%, reduce unplanned downtime by 30%, and reduce manufacturing cycle time by 16% to 20% in the two factories.
- **Cold chain monitoring in pharmaceuticals and medical products.** According to the Air Transport Association, 25% of vaccines lose effectiveness due to incorrect shipping.²¹ But advances in miniaturizing IoT solutions mean that IoT can now play a key role in monitoring vaccine temperatures in transit to hospitals, pharmacies, and healthcare clinics. Red blood cells have a maximum shelf life of 42 days, blood platelets last only five days, and donated units must be kept refrigerated under specific conditions at all times to avoid premature expiration.²² Wireless IoT sensors connected to an automated management platform enable blood banks to track storage quantity, blood types, and other critical details. These cold chain monitoring solutions regularly assess storage temperature, detect fluctuations before they endanger the blood supply, and eliminate cumbersome and time-consuming manual processes.

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

FIGURE 7 Specialized IoT Use Cases Apply To A Few Firms



Recommendations

Use Our IoT Heat Maps To Focus Your Efforts

Business and digital decision-makers are deploying a fragmented array of IoT solutions to enhance operational efficiencies across all vertical markets. I&O professionals play a critical role in enabling these business-led IoT use cases. Successful IoT use case deployment requires you to:

- Prioritize IoT use cases that help your firm recover from COVID-19.** Do you need to prioritize IoT solutions to address social distancing or enable employee health monitoring? Examples of IoT use cases that are relevant to firms emerging from pandemic lockdowns in 2021 include air quality monitoring, environmental monitoring, wearables to ensure social distancing, and thermal sensor solutions to measure body temperature. Keep in mind that you need to address inconsistent

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

regional and statewide limits on the number of workers in building environments. Such policies will constrain your ability to depend on large numbers of employees in buildings or may limit access to employees with specific skill sets, such as field service technicians who are unable to perform their jobs due to travel restrictions.

- **Establish success metrics focused on meeting operational goals.** Common connected solution success metrics focus on showing value and addressing a measurable business goal. Examples of measurable metrics for IoT initiatives include overall equipment effectiveness and uptime end-user statistics (e.g., usage length and frequency). New success metrics related to the COVID-19 pandemic include addressing employee health and safety regulations, enhancing air quality in buildings, and enabling employees to abide by social distancing guidelines.
- **Plan beyond initial optimization benefits of operational IoT use cases.** Infrastructure and operations execs may fixate on achieving cost savings by deploying IoT-enabled operations processes. It's important to evolve your IoT initiatives beyond these primary benefits by assessing opportunities to deploy IoT hardware and software that easily integrates with enterprise applications and extends processing power at the edge. Use operational savings to fund flexible solutions now rather than buying limited point solutions that will require significant future investment to meet adjacent use cases. Prioritize IoT use cases that enhance revenues or enable new business models over incremental savings that your competitors can easily match.
- **Reassess the skill-set requirements of your team.** The fragmented IoT vendor landscape may require team members to have cross-functional skill sets. For example, I&O stakeholders may need some vendor management expertise to work with IoT-related third-party technology providers. It's also important to have some tech management employees with analytics skills to determine how employees and customers use connected assets to manage assets, optimize workforce scheduling, enhance business processes, and address compliance-reporting requirements. Making this analytics shift also requires working with business stakeholders who can provide input into predictive analytics data models and the resulting insights.
- **Become trusted advisors and enablers.** Business decision-makers (e.g., those in product development, field service, manufacturing operations, and marketing) have their own budgets and resources to pursue IoT solutions, often without requesting input from I&O execs. I&O pros have a reputation for taking a defensive "shut it down" approach to business-driven initiatives. This strategy encourages siloed, unregulated initiatives within individual business units and drives distrust between business and I&O staff. I&O execs must also collaborate with their security colleagues to ensure that connected devices, applications, and captured data align with industry and geographic regulatory and compliance requirements.

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

Engage With An Analyst

Gain greater confidence in your decisions by working with Forrester thought leaders to apply our research to your specific business and technology initiatives.

Analyst Inquiry

To help you put research into practice, connect with an analyst to discuss your questions in a 30-minute phone session — or opt for a response via email.

[Learn more.](#)

Analyst Advisory

Translate research into action by working with an analyst on a specific engagement in the form of custom strategy sessions, workshops, or speeches.

[Learn more.](#)

Webinar

Join our online sessions on the latest research affecting your business. Each call includes analyst Q&A and slides and is available on-demand.

[Learn more.](#)



Forrester's research apps for iOS and Android.

Stay ahead of your competition no matter where you are.

Supplemental Material

Survey Methodology

The Forrester Analytics Business Technographics Networks And Telecom Survey, 2020, was fielded in January and February 2020. This online survey included 3,835 respondents in Australia, Canada, China, France, Germany, India, the UK, and the US from companies with two or more employees. Forrester Analytics' Business Technographics ensures that the final survey population contains only those with significant involvement in the planning, funding, and purchasing of business and technology products and services. Dynata fielded this survey on behalf of Forrester. Survey respondent incentives included points redeemable for gift certificates. Please note that the brand questions included in this survey should not be used to measure market share. The purpose of Forrester Analytics' Business Technographics brand questions is to show usage of a brand by a specific target audience at one point in time.

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

Endnotes

- ¹ See the Forrester report "[Use Three IoT Scenarios To Untangle Your IoT Strategies.](#)"
- ² The Forrester Analytics Business Technographics Networks And Telecom Survey, 2020, was fielded early in the year, so the comprehensive impact of the COVID-19 pandemic throughout the year is not reflected in the survey results.
- ³ Source: "Precision AG Technology," John Deere (<https://www.deere.com/en/technology-products/precision-ag-technology/?panel=plant>).
- ⁴ See the Forrester report "[A Timeline Guide For Your 5G Strategy.](#)"
- ⁵ See the Forrester report "[IoT Connectivity: Align The Wide Array Of Options With Your Requirements.](#)"
- ⁶ See the Forrester report "[IoT Solutions Transform Smart Buildings Into Strategic Productivity Assets.](#)"
- ⁷ Source: Forrester's Q1 2020 US PandemicEX Survey 1 (March 3 to March 6, 2020); Forrester's Q1 2020 US PandemicEX Survey 2 (March 17 to March 19, 2020); and Forrester's Q2 2020 US PandemicEX Survey 1 (April 1 to April 3, 2020).

See the Forrester report "[Rethink Your Smart Office Strategy.](#)"
- ⁸ See the Forrester report "[The Forrester Tech Tide™: Environmental Sustainability, Q4 2020.](#)"
- ⁹ Source: "McLaren Health Care Selects Cree LED Lighting to Deliver Intelligent Light Across Its Statewide Hospital Network," Cree, February 21, 2017 (<https://www.cree.com/news-media/news/article/mclaren-health-care-selects-cree-led-lighting-to-deliver-intelligent-light-across-its-statewide-hospital-network>).
- ¹⁰ See the Forrester report "[Forrester Infographic: Differentiate Employee Experience In Smart Building Environments.](#)"
- ¹¹ Source: "How Did a Leading Direct-Selling Company Make Over Its Infrastructure?" Amazon S3, 2018 (https://s3-ap-southeast-1.amazonaws.com/s3.thinklogicmarketing.com/DigiconAsia/Casestudy/How+a+direct-selling+company+m+ake+over+its+infrastructure/SAP+Casestudy_Atomy+Co.+Ltd_KR_s4hana_supplychain.pdf).
- ¹² See the Forrester report "[IoT Transforms Supply Chain Management.](#)"
- ¹³ Source: Daniel Michaels and Paul Hannon, "Europe Is Hiring—But Its Workforce Isn't Ready," The Wall Street Journal, October 29, 2019 (<https://www.wsj.com/articles/europe-is-hiring-but-its-workforce-isnt-ready-11572343201>).
- ¹⁴ Source: "Connected Solutions Are Proving Their Worth In Today's Crisis; Make Them A Critical Part Of Your Near-Term Roadmap," Forrester (<https://www.forrester.com/fn/6lKE4wZ7hQgljgQXdhQon6>).
- ¹⁵ See the Forrester report "[The Forrester Tech Tide™: Environmental Sustainability, Q4 2020.](#)"
- ¹⁶ Source: "Acres Group Recovers More Than \$30,000 In Stolen Assets With NexTraq," NexTraq (<https://www.nextraq.com/resource/acres-group/>).
- ¹⁷ Source: "Perstorp Develops KPI Production Portal to Focus Organization on Meeting Plant Production Targets," AspenTech (<https://www.aspentech.com/en/resources/case-studies/perstorp-develops-kpi-production-portal-to-focus-on-meeting-plant-production-targets-mes>).
- ¹⁸ Source: "BioIntelliSense Expands Its Medical-Grade Data Services for Remote Care With First-of-Its-Kind Symptomatic Events and Biometric Monitoring," BioIntelliSense, March 3, 2020 (<https://biointellisense.com/assets/biointellisense-expands-its-medical-grade-data-services-for-remote-care.pdf>).
- ¹⁹ Source: "Wake Forest Baptist Medical Leverages Enterprise Location Services to Optimize Resources and Streamline Workflow," CenTrak, 2020 (https://content.centrak.com/hubfs/Case%20Studies/Wake%20Forest_Case%20Study_040320.pdf?utm_medium=email&_hsmsi=86122323&_hsenc=p2ANqtz-8eR81O_9eh0lRtp7FK11Cbd_TDQOOODB9-hFwMLNfNrsfahY3TaBxPx0jGJnvFimiiJR7oFhu6RUh2MUZny-x57FB6w&utm_content=86122323&utm_source=hs_automation/).

Internet-Of-Things Heat Maps For Operational Excellence In 2021

Deploy IoT Use Cases That Bring Value To Your Company Operations

²⁰ Source: “CIMC Reduces Unplanned Downtime by 30% with Greater Operational Insight from ThingWorx,” PTC (<https://www.ptc.com/en/case-studies/CIMC-improves-energy-efficiency>).

²¹ Source: Nigel Fenwick and Michele Pelino, “IoT Solutions Power Safe, Speedy, And Cold COVID-19 Vaccine Delivery,” Forrester Blogs, December 15, 2020 (<https://go.forrester.com/blogs/iot-solutions-power-safe-speedy-and-cold-covid-19-vaccine-delivery/>).

²² Source: “How IoT Helps Blood Banks Reduce Waste and Save Lives,” Aeris blog, January 16, 2021 (<https://www.aeris.com/news/post/how-iot-helps-blood-banks-reduce-waste-and-save-lives/>).

We help business and technology leaders use customer obsession to accelerate growth.

PRODUCTS AND SERVICES

- › Research and tools
- › Analyst engagement
- › Data and analytics
- › Peer collaboration
- › Consulting
- › Events
- › Certification programs

Forrester's research and insights are tailored to your role and critical business initiatives.

ROLES WE SERVE

Marketing & Strategy Professionals

CMO
B2B Marketing
B2C Marketing
Customer Experience
Customer Insights
eBusiness & Channel Strategy

Technology Management Professionals

CIO
Application Development & Delivery
Enterprise Architecture
• Infrastructure & Operations
Security & Risk
Sourcing & Vendor Management

Technology Industry Professionals

Analyst Relations

CLIENT SUPPORT

For information on hard-copy or electronic reprints, please contact Client Support at +1 866-367-7378, +1 617-613-5730, or clientsupport@forrester.com. We offer quantity discounts and special pricing for academic and nonprofit institutions.