

1. Introduction

OMB Control #0693-0033
Expiration Date 07/31/2022

On July 12 2019, the Technology Partnerships Office (TPO) at the National Institute of Standards and Technology (NIST) announced a study entitled Economic Research and Analysis of the National Need for Technology Infrastructure to support the Internet of Things (IoT).

In support of this study, we are interested in your perspectives and opinions on current and future opportunities for IoT technologies for the USA economy.

Your name and your organization's name will not be disclosed. We do not wish to discuss specific products or strategies but rather your thoughts about industry needs and how investments in technology infrastructure to meet those needs would improve services.

Our research products will be an economic analysis, final report and presentation materials. All deliverables will be publicly available in 2021 and these will be shared with you as soon as they are released.

The survey should take less than 15 minutes to complete. If you have questions, please contact Christopher Reberger at christopher@strategyofthings.io

More information on the work can be found at <https://strategyofthings.io/nist>

Public Burden Statement

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995 unless the information collection has a currently valid OMB Control Number.

The approved OMB Control Number for this information collection is 0693-0033. Without this approval, we could not conduct this survey/information collection. Public reporting for this information collection is estimated to be approximately 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection.

All responses to this information collection are voluntary to obtain benefits. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the National Institute of Standards and Technology at 100 Bureau Dr., STOP 8962 Gaithersburg, MD 20899-896, Attn: Kathleen McTigue, kathleen.mctigue@nist.gov

1. Where is your principal market?

- | | | |
|--|--|---------------------------------|
| <input type="checkbox"/> North America | <input type="checkbox"/> South America | <input type="checkbox"/> Europe |
| <input type="checkbox"/> Africa | <input type="checkbox"/> Oceania | <input type="checkbox"/> Asia |

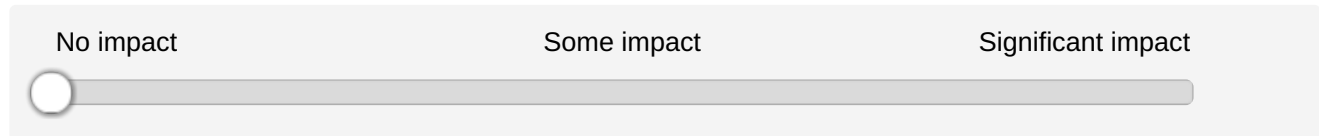
2. Which category best describes your organization?

- | | | |
|---|--|---|
| <input type="checkbox"/> Manufacturer | <input type="checkbox"/> Franchise | <input type="checkbox"/> Service delivery |
| <input type="checkbox"/> Wholesaler | <input type="checkbox"/> Import/Export | <input type="checkbox"/> Policy development |
| <input type="checkbox"/> Other (please specify) | | |

3. Which single area best describes your industry?

- | | | |
|---|--|--|
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Healthcare | <input type="checkbox"/> Telecommunications |
| <input type="checkbox"/> Construction | <input type="checkbox"/> Manufacturing | <input type="checkbox"/> Transport |
| <input type="checkbox"/> Energy/Utilities | <input type="checkbox"/> Retail | <input type="checkbox"/> Smart Cities |
| <input type="checkbox"/> Financial Services | <input type="checkbox"/> Public Sector | <input type="checkbox"/> Tech focused across multiple industries |
| <input type="checkbox"/> Other (please specify) | | |

4. Thinking broadly about IoT devices and machines, what do you feel will be the overall impact on your industry over the next 5 to 10 years?



The remainder of the survey looks at a number of use cases, the technology required to deliver them and their impact.

Use cases describe the practical benefits of a technology and their impact would be considered high if they would change day to day operations in your industry.

2. Use Cases: Smart Cities

We are interested in your opinion on the following IoT use cases that are likely to impact city operations and citizen experiences

1. Video based information

Connected IP video cameras installed in the city to improve the efficiency and effectiveness of the local policies.

2. Smart lighting

Sensors on each street light monitor for outages to speed repair minimizing crime and other concerns. Smart lighting will also adjust intensity based on vehicle/ pedestrian activity and ambient lighting

3. Smart buildings

Sensors monitor and control HVAC and electricity in all City owned buildings (eg. public schools, administration buildings) driving reduced energy costs and more effective management and maintenance

4. City WiFi

A city-wide Wi-Fi platform can be used as a common infrastructure to support the City's smart services. Also, additional capacity on the Wi-Fi can be made available for limited public access for tourist, healthcare & municipal use

5. Disaster Response

Integrate live data from fire, road and weather agencies with demographic population data to provide a statistical representation of the emergency situation to inform appropriate response.

5. How confident are you that vendors will deliver the services that city managers need from these technologies over the next 5-10 years?

	No opinion	Not confident	Slightly confident	Confident	Very confident
1. Video based	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Smart lighting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Smart buildings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. City WiFi	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Disaster response	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. In your view, what will be the impact of these uses cases on city operations and the citizen experience over the next 5-10 years?

	No opinion	No impact	Slight impact	Moderate impact	High impact
1. Video based	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Smart lighting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Smart buildings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. City WiFi	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Disaster response	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Use Cases: Retail

We are interested in your opinion on the following IoT use cases that are likely to impact retail operations:

1. Workforce experience

For example the use cases of In-store analytics, Checkout optimizer, Remote expert, Mobile advisor, Smart lockers, Interactive kiosks

2. Customer experience

For example the use cases of Remote expert, Self-serve channels, Endless aisles, Smart lockers, Checkout optimizer

3. Business operations

For example the use cases of In-store analytics, Interactive kiosks, Assortment optimization, Out of stock reduction, In-store navigation, Theft reduction, Physical security

7. How confident are you that suppliers will deliver the services that retailers need from these technologies over the next 5-10 years?

	No opinion	Not confident	Slightly confident	Confident	Very confident
1. Workforce experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Customer experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Business operations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. In your view, what will be the impact of these uses cases on retail operations over the next 5-10 years?

	No opinion	No impact	Slight impact	Moderate impact	High impact
1. Workforce experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Customer experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Business operations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Use Cases: Energy/Utilities

We are interested in your opinion on the following IoT use cases that are likely to impact energy and utilities operations:

1. Asset performance management

Low-cost field sensors providing real-time information, predictive maintenance available by aggregating all asset data

2. Grid optimization

Distributed energy resources and ability to model the generation output profile of each of these resources

3. Consumer energy technologies

"Transactive Energy" with advanced metering, a dynamic balance of energy supply and demand

9. How confident are you that suppliers will deliver the services that operators need from these technologies over the next 5-10 years?

	No opinion	Not confident	Slightly confident	Confident	Very confident
1. Asset performance management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Grid optimization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Consumer energy technologies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. In your view, what will be the impact of these uses cases on utility operations over the next 5-10 years?

	No opinion	No impact	Slight impact	Moderate impact	High impact
1. Asset performance management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Grid optimization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Consumer energy technologies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Use Cases: Public Sector

We are interested in your opinion on the following IoT use cases that are likely to impact the delivery and effectiveness of services:

1. Remote workforce

The ability to work remotely without impacting efficiency or effectiveness

2. Connected citizen

The provision of detailed citizen based information to public sector authorities and improved communication from authorities.

3. Mobile collaboration

The ability to deliver public services where and when they are required

4. Open data

The provision of APIs to allow third party access to data with appropriate privacy constraints

11. How confident are you that suppliers will deliver the services that public sector managers need from these technologies over the next 5-10 years?

	No opinion	Not confident	Slightly confident	Confident	Very confident
1. Remote workforce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Connected citizen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Mobile collaboration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Open data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. In your view, what will be the impact of these uses cases on the public sector and citizen experience over the next 5-10 years?

	No opinion	No impact	Slight impact	Moderate impact	High impact
1. Remote workforce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Connected citizen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Mobile collaboration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Open data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. Use Cases: Telecommunications

We are interested in your opinion on the following IoT use cases that are likely to impact the delivery and effectiveness of services:

1. Asset utilization

Reduced energy use, fleet optimization

2. Employee productivity

Remote working and improved decision making

3. Supply chain

Efficiency improvements from real time and location information

4. Customer experience

Detailed information on the customer experience

13. How confident are you that suppliers will deliver the services that operators need from these technologies over the next 5-10 years?

	No opinion	Not confident	Slightly confident	Confident	Very confident
1. Asset utilization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Employee productivity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Supply chain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Customer experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. In your view, what will be the impact of these uses cases on service providers and their customers over the next 5-10 years?

	No opinion	No impact	Slight impact	Moderate impact	High impact
1. Asset utilization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Employee productivity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Supply chain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Customer experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Transport: Use Cases

We are interested in your opinion on the following IoT use cases that are likely to impact transport operations:

1. Safety

With the ability to communicate in real-time using data from various sources

2. Fleet management

Preventative vehicle maintenance and regulatory compliance

3. Geo fencing

Delineation of permitted areas. Turn location data into decisions

4. Inventory

Real time information on status and tracking information

5. Public transit

Improvements in the rider experience

15. How confident are you that suppliers will deliver the services that operators need from these technologies over the next 5-10 years?

	No opinion	Not confident	Slightly confident	Confident	Very confident
1. Safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Fleet management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Geo fencing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Inventory	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Public transit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. In your view, what will be the impact of these uses cases on transport and warehousing operations over the next 5-10 years?

	No opinion	No impact	Slight impact	Moderate impact	High impact
1. Safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Fleet management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Geo fencing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Inventory	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Public transit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Manufacturing: Use Cases

We are interested in your opinion on the following IoT use cases that are likely to impact manufacturing operations:

1. Predictive maintenance

Analyzing production data to identify patterns and predict issues before they happen

2. Digital signage

Production floor, displays easily communicate reliable and timely production metrics, such as quality control, up-to-the-minute production totals, inventory levels and assembly line alert

3. Energy management

IoT sensors to collect, analyze, and convert the energy data into information to make intelligent business decisions to improve energy efficiency.

4. Remote monitoring

Check the status of an object, pinpoint the location of an object and display the object's relevant information.

5. Wearables

On person tools designed to improve workplace productivity, safety, and efficiency

17. How confident are you that suppliers will deliver the services that manufacturers need from these technologies over the next 5-10 years?

	No opinion	Not confident	Slightly confident	Confident	Very confident
1. Predictive maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Digital signage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Energy management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Remote monitoring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Wearables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. In your view, what will be the impact of these uses cases on manufacturing over the next 5-10 years?

	No opinion	No impact	Slight impact	Moderate impact	High impact
1. Predictive maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Digital signage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Energy management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Remote monitoring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Wearables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Financial services: Use Cases

We are interested in your opinion on the following IoT use cases that are likely to impact financial services:

1. Sales transformation

Improve the sales process of existing products (e.g. identification of cross-sell opportunities, more personalized contextual messages) and the customer relationship (e.g. churn detection, more accurate customer segmentation)

2. Risk Management

Fine tuning of risk management algorithms. Credit risk, insurance risk and operational risk to managing internal and external fraud risk

3. Mobile payments

Identification and authentication, i.e. use IoT devices to identify and authenticate a person more accurately

4. Product innovation

Making products and services more personalized, i.e. products and services will be even more centered around the customer's needs and preferences.

19. How confident are you that suppliers will deliver the services that financial services need from these technologies over the next 5-10 years?

	No opinion	Not confident	Slightly confident	Confident	Very confident
1. Sales transformation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Risk management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Mobile payments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Product innovation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. In your view, what will be the impact of these uses cases on financial services over the next 5-10 years?

	No opinion	No impact	Slight impact	Moderate impact	High impact
1. Sales transformation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Risk management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Mobile payments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Product innovation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. Healthcare: Use Cases

We are interested in your opinion on the following IoT use cases that are likely to impact healthcare:

1. Decision support tools

Integrate and analyze diverse types of diagnostically relevant data and move it to clinical decision-support systems

2. Advanced Electronic Medical Records (EMR)

Real-time data from sensors being automatically added to patient records

3. Inventory management

Track expensive or vital equipment more effectively

4. Improved compliance

Improve patient and operator compliance such as knowing the temperatures of refrigerator, hand hygiene compliance, smart medicine containers

21. How confident are you that suppliers will deliver the services that healthcare services need from these technologies over the next 5-10 years?

	No opinion	Not confident	Slightly confident	Confident	Very confident
1. Decision support tools	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Advanced Electronic Medical Records (EMR)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Inventory management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Improved compliance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. In your view, what will be the impact of these uses cases on healthcare services over the next 5-10 years?

	No opinion	No impact	Slight impact	Moderate impact	High impact
1. Decision support tools:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Advanced Electronic Medical Records (EMR)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Inventory management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Improved compliance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Agriculture: Use Cases

We are interested in your opinion on the following IoT use cases that are likely to impact agricultural operations:

1. Drones

Detailed information from aerial services, analyzed w/ recommended actions

2. Weather

Advanced, local real time weather information and forecasts

3. Soil patterns

Information on soil chemistry and conditions

4. Animal health

Detailed real time information on animal welfare

5. Indoor farming

Indoor vertical high density farming

6. Irrigation

Targeted irrigation integrating local soil and weather conditions

7. Supply chain

Detailed real time information on supplier status, availability and timing

23. How confident are you that suppliers will deliver the services that operators need from these technologies over the next 5-10 years?

	No opinion	Not confident	Slightly confident	Confident	Very confident
1. Drones	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Weather	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Soil patterns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Animal health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Indoor farming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Irrigation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Supply chain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. In your view, what will be the impact of these uses cases on agriculture over the next 5-10 years?

	No opinion	No impact	Slight impact	Moderate impact	High impact
1. Drones	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Weather	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Soil patterns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Animal health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Indoor farming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. irrigation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Supply chain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. Construction Use Cases

We are interested in your opinion on the following IoT use cases that are likely to impact operations and management in the construction industry

1. Site safety:

Wearable technologies that monitor environmental conditions and staff locations

2. Inventory tracking:

Placement of RFID tags, barcodes or QR codes for inventory

3. Utility monitoring:

The management of fuel, water and electrical power use

4. Building information monitoring (BIM):

Providing coordination and simulation of a project covering planning, design, construction and maintenance

5. Equipment management and servicing:

The management of construction tools and remote monitoring of operations

25. How confident are you that vendors will deliver the services that the construction industry needs from these technologies over the next 5-10 years?

	No opinion	Not confident	Slightly confident	Confident	Very confident
1. Site safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Inventory tracking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Utility monitoring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. BIM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. In your view, what will be the impact of these uses cases on building operations and other stakeholders over the next 5-10 years?

	No opinion	No impact	Slight impact	Moderate impact	High Impact
1. Site safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Inventory tracking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Utility monitoring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. BIM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Technology

27. Thinking about the technology required to deliver IoT services in your industry, choose up to five that you feel are the most important.

- | | | |
|--|--|--|
| <input type="checkbox"/> Hardware: IoT Sensors | <input type="checkbox"/> Network: Gateways | <input type="checkbox"/> Systems: Middleware |
| <input type="checkbox"/> Hardware: Actuators | <input type="checkbox"/> Network: Connectivity | <input type="checkbox"/> Systems: Alerts |
| <input type="checkbox"/> Hardware: Processing | <input type="checkbox"/> Apps: Device Management | <input type="checkbox"/> Systems: Security |
| <input type="checkbox"/> Hardware: Edge devices | <input type="checkbox"/> Apps: Network Mngt | <input type="checkbox"/> Systems: AI |
| <input type="checkbox"/> Software: Sensor F/ware | <input type="checkbox"/> Apps: Data manage | <input type="checkbox"/> Systems: Resiliency |
| <input type="checkbox"/> Software: Edge F/ware | <input type="checkbox"/> Apps: Data analytics | <input type="checkbox"/> Standards: Security |
| <input type="checkbox"/> Software: Data collect | <input type="checkbox"/> Apps: Visualization | <input type="checkbox"/> Standards: Data |
| <input type="checkbox"/> Software: Data store | <input type="checkbox"/> Apps: Usability | <input type="checkbox"/> Standards: Privacy |
| <input type="checkbox"/> Other (please specify) | | |

28. In your view, what is the most important IoT technology gap in your industry?

29. In your view, is research and development in the most important areas mainly undertaken by the private sector or by either the state and federal public sectors?

Mainly private R&D	Equal contribution	Mainly public R&D
<input type="range"/>		

30. Can you suggest one broad issue that would slow the adoption of IoT technologies in your industry?

31. Can you suggest one broad issue that would accelerate the adoption of IoT technologies in your area?

32. How many employees are in your organization?

less than 5

100-1000

5-99

More than 1000

33. Feel free to add any comments on IoT issues or any other use cases that would significantly affect your industry.

As we are interested in a wide range of views, feel free to send the link to this survey to any colleagues who are knowledgeable in IoT in your area. And if you'd like to be considered for a 30 minute interview just contact us.