



IHS Markit™

IoT Device Spotlight: Smart Speaker

Complete ecosystem
coverage and analysis





Introduction

As smart functionality makes its way progressively into homes and businesses, devices are working to gain a foothold into broader ecosystems to maximize growth and revenue opportunities.

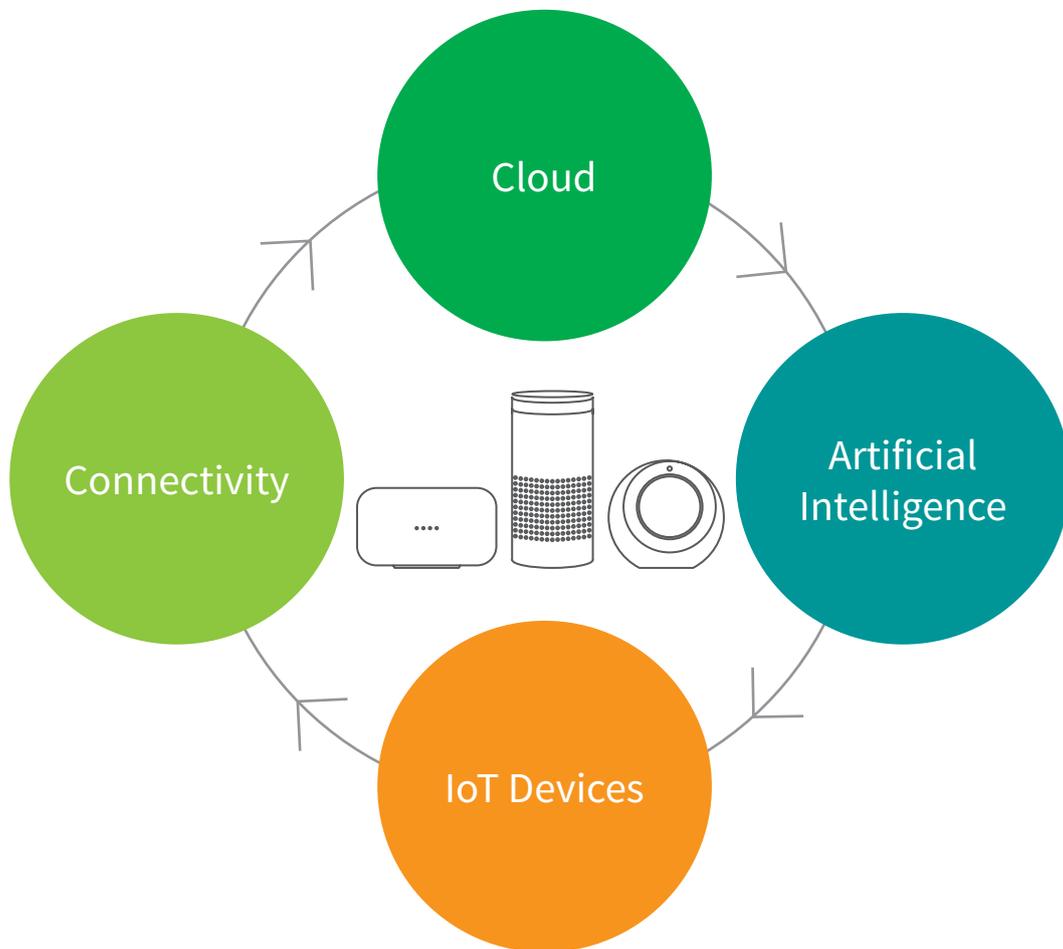
In this e-book, IHS Markit provides a comprehensive overview of the smart speaker, a pivotal device on the rise forecast to enjoy massive growth in the years ahead, even as it faces growing commoditization and narrowing margins. From the materials and components found in the smart speaker to the end user and consumers of the devices, all nodes of the value chain are examined.



The smart home centerpiece

While multiple ways into the home exist, smart speakers remain in a position of dominance.

Utilizing a range of connectivity options, smart speakers are able to leverage both AI and cloud capabilities to enable an ever-increasing range of IoT devices.



What do smart speakers offer, and what sets them apart?

Smart speakers function as interaction gateways and are pushing the boundaries of consumer AI

- Allow voice-based media playback, smart home control, telephony, messaging, e-commerce and informational queries
- Act as universal audio sources for the smart home to deliver doorbell chimes, notifications, alarms and more

The smart speakers' accessibility and convenience will remain sustainable demand drivers

- Smart speakers are now particularly affordable, with entry level models in impulse buy territory. Other voice-enabled devices such as TVs, set-top boxes, appliances, home security devices, are typically far more expensive for consumers
- Unlike mic-equipped TV or set-top box remotes, smart speakers allow hands-free interaction. The devices also occupy a small footprint, paired with an adequate speaker, and can be placed around a household

The smart speaker concept is **most powerful** when it leverages large, established ecosystems

- Takes advantage of broad app and development support across devices and platforms
- Accesses diverse information and e-commerce resources
- Receives support from smart home devices and platforms

What's ahead for the smart speaker market?

Growth, growth, growth.

The smart speaker market will grow to **85 million units shipped in 2021.**

We expect an **installed base of 328 million** units by the end of 2021.

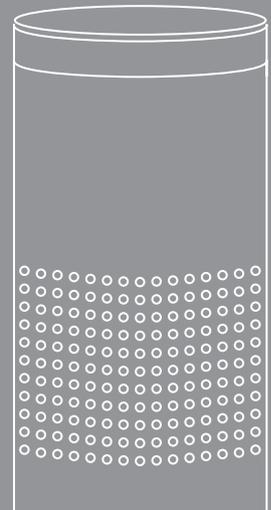
Revenue will grow to **\$11.2 billion** in 2021.

On one hand, smart speaker demand will eventually wane slightly as the product category becomes only one of many hands-free options within households.

On the other hand, smart speaker demand will continue to benefit from:

- Ease of **accessibility**
- A relatively **small footprint, paired with an adequate speaker**
- **Affordability** compared to other voice-enabled devices such as TVs, appliances, home security devices

Takeaway: while many options are available to enter the home ecosystem, the **cost and convenience advantages** of smart speakers will assure their importance and continued demand for years to come.



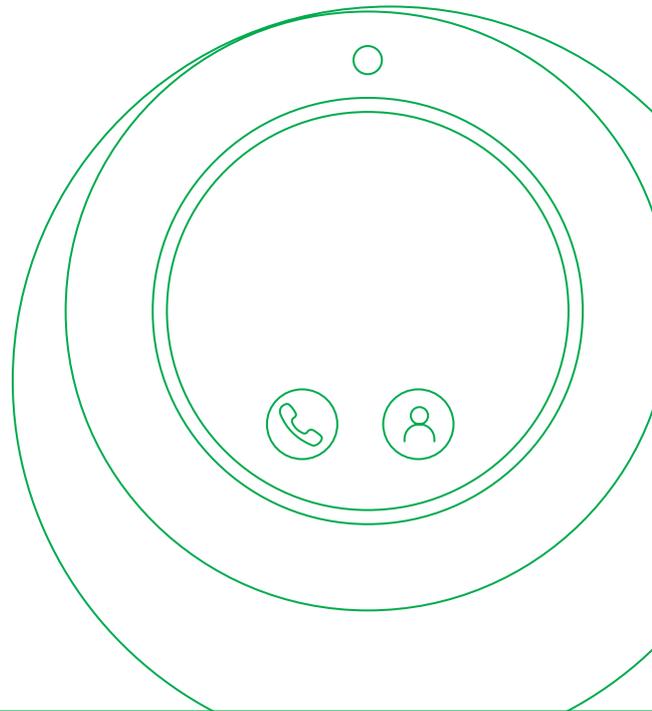
Revenue growth, but a market share play resulting in increasingly narrow margins

The importance of margin

- Smart speakers act as a gateway to OTT revenue and ecosystem loyalty
- Major players are pushing to compete based on cost in order to gain footholds into households and become central to smart home growth
- Hardware margins are getting squeezed tighter in this race to the home, with an interesting juxtaposition seen between Apple's reliance on hardware margins, and the alternate business model followed by Google and Amazon, which is focused more on ecosystem lock-in

Commoditization

- To counteract commoditization and narrowing margins, the portable smart speaker and portable Bluetooth speaker categories will need to merge
- Merging will be particularly important at the premium end of the market: smart functionality and connected speakers will eventually become synonymous in and out of the home



Investing in smart speaker opportunities now will position companies for future hands-free success

The long-term outlook

- Digital assistants and voice control will continue to penetrate throughout the home and other devices
- First movers in this space have built a large user base by pushing the devices into the home (even at low or no margin)
- This provides these core companies a perfect test bed for improving AI algorithms and accelerating AI capabilities
- Enterprise AI will benefit as awareness, context and use cases continue to grow
- AI systems are being continuously improved and refined as the consumer interactions increase

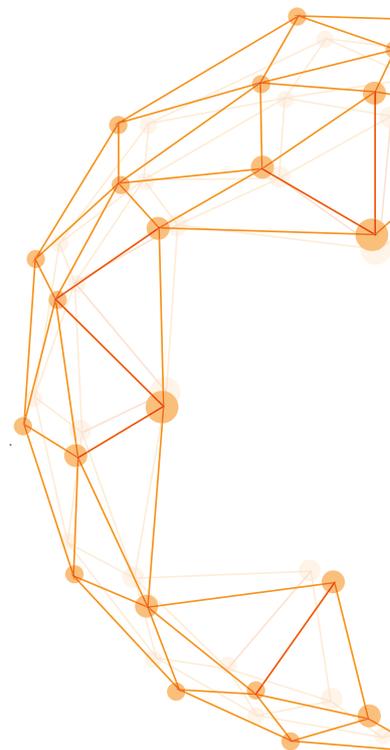
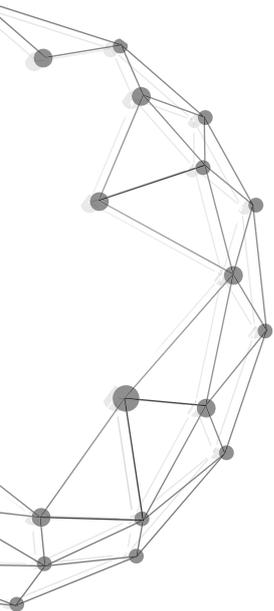
Takeaway: Now is the time to take advantage of current smart speaker opportunities and assure key positioning as hands-free interactions continue to grow.

What's needed? Silicon to subscriber information and insights that you can act on today and use to prepare for future developments.

Unsurpassed coverage from silicon to subscriber

IHS Markit offers trusted insights into all things tech- from raw materials, energy and equipment to media, networks and consumer trends – and everything in-between

[Click on the below for more information](#)



Materials & Components

Understanding new technologies, piece by piece

MEMS

- **IoT market for MEMS microphones: \$70 million expected to ship in 2021.** Smart speakers dominate the IoT market for MEMS microphones
- The MEMS **market tipped in 2016** when Amazon became the largest MEMS microphone buyer outside of the handset segment

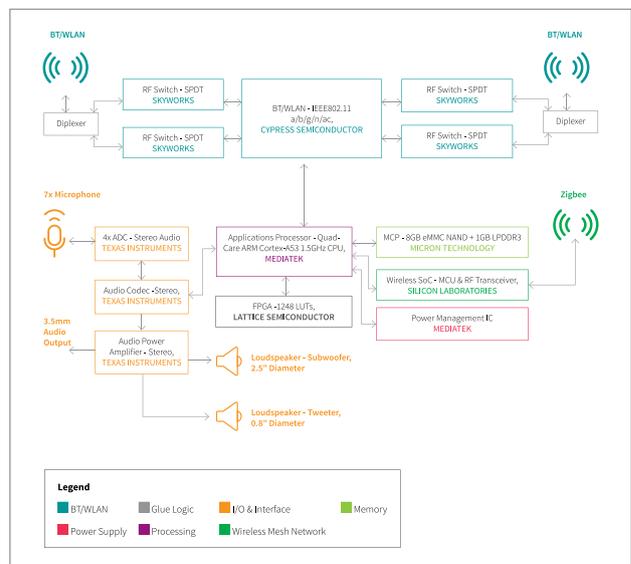
Display

- **Built-in touch display** is a new feature for smart speakers
- The **display-equipped smart speaker** segment is evolving quickly. Variants with digital LED displays for time and temperature are expected to increase

Connectivity

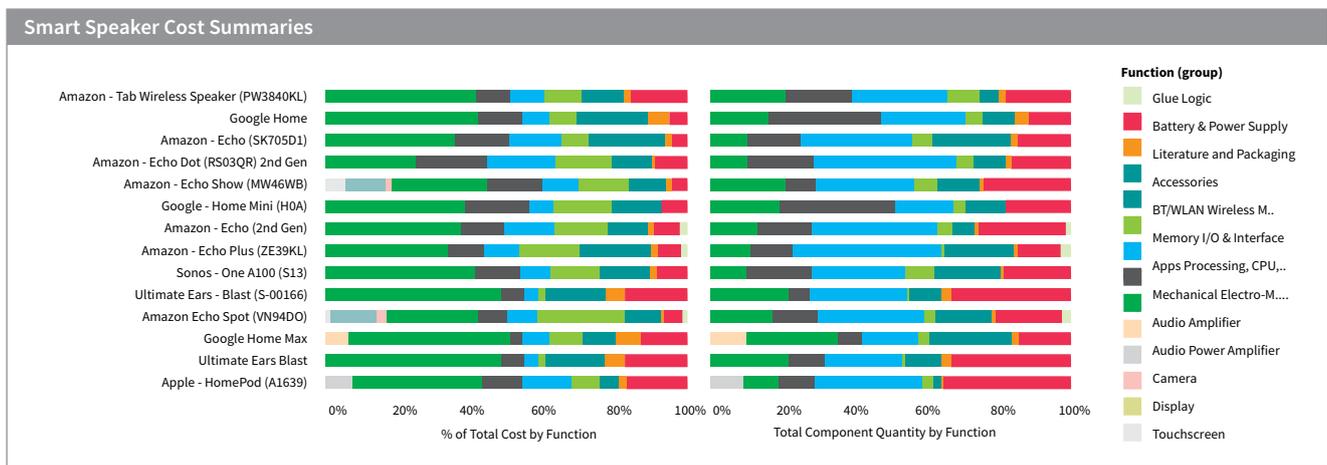
- All smart speakers employ relatively sophisticated **Wi-Fi/Bluetooth combo ICs** for connectivity
- Wi-Fi is the primary mode of connectivity, communicating data **to and from the cloud** and controlling devices across the home network
- **Bluetooth** is typically used for streaming audio from personal mobile devices
- **Mesh networking** functionality is expected to increase. Zigbee (already adopted in the Amazon Echo Plus) and Z-Wave (with its leading position in home automation as well security) stand to benefit

Amazon Echo Plus



Devices & Equipment

Detailed bill-of-materials to provide pricing insight



[Click here to learn more](#)

Component pricing analysis, with prices you can count on

Find detailed BOM pricing analysis of all components.

IHS Markit BOM typically includes 1,000 - 4,000 items priced per device.

Learn what it truly cost your supplier to make the product.

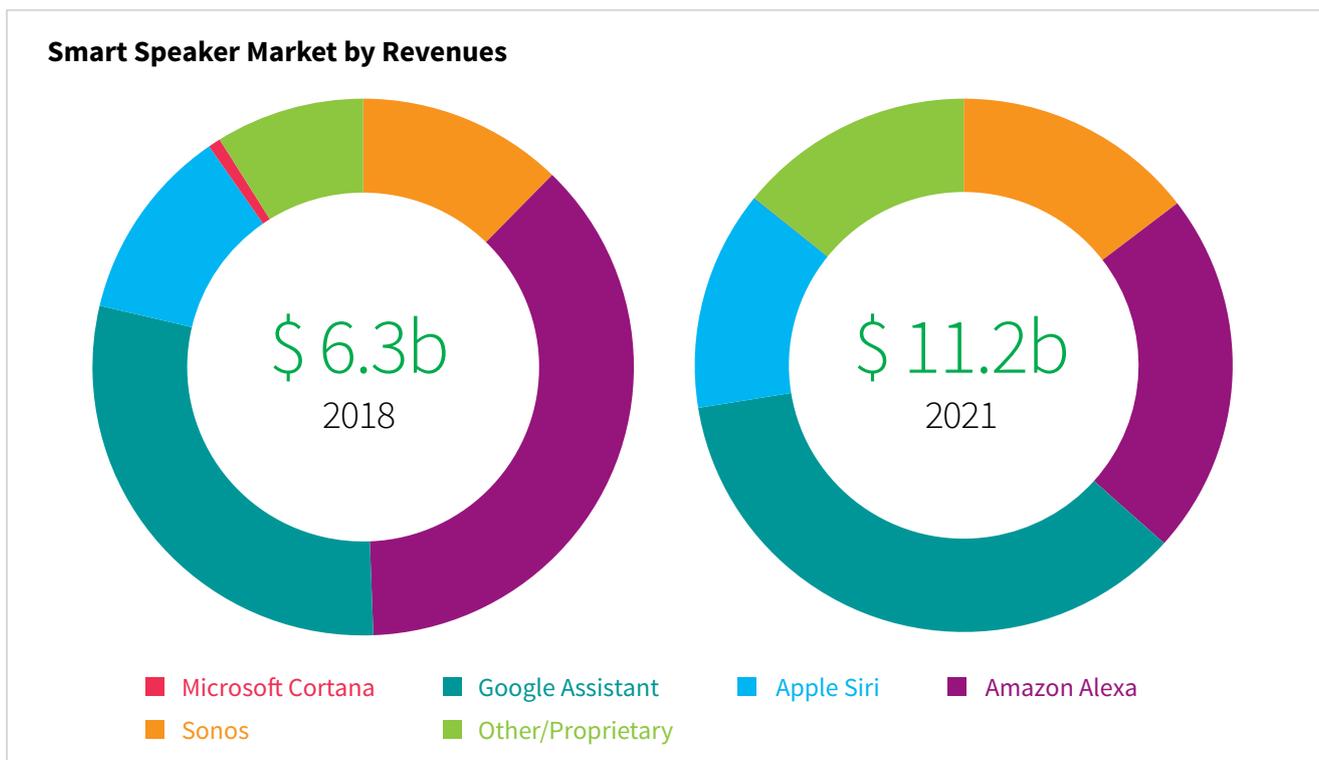
Methodology

- Yields the “true cost” of a device; our data helps you understand cost at the component, feature, function and device level
- Provides visibility into the true cost of upgrades
- Includes a complete list of all components including supplier, part number and cost per component

End-markets

B2B Market Intelligence with actionable insights

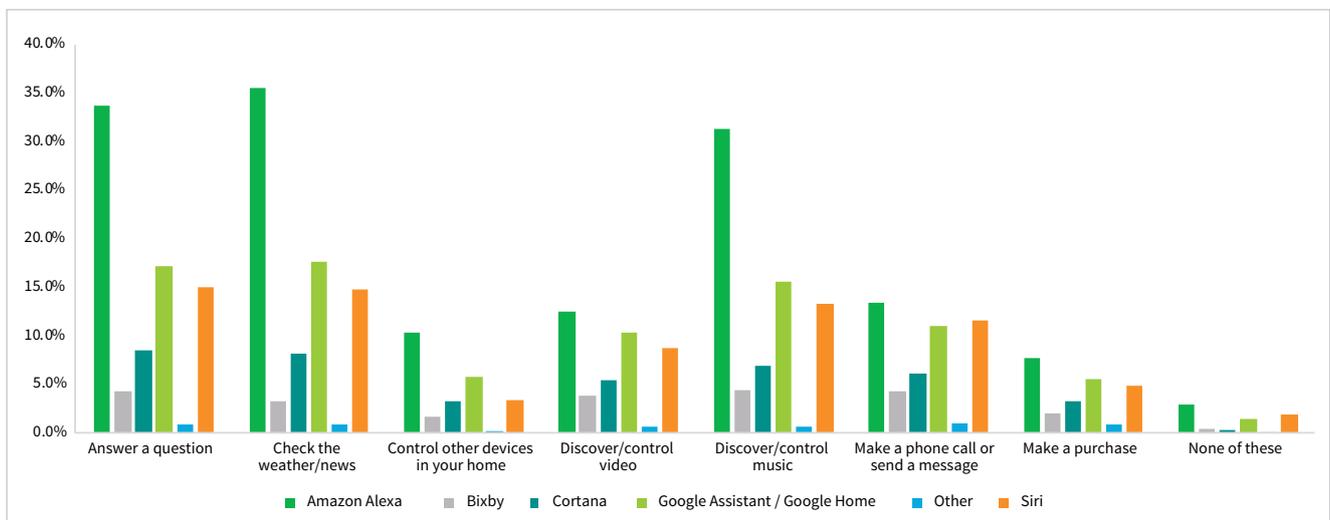
- With first-mover advantage and continued aggression and agility, **Amazon's Alexa will lead** the market for the next few years
- But, **Google is making a charge**. With advantages in ecosystem functionality, platform penetration, AI and language capabilities, Google Assistant will pull ahead of Alexa in total global sales and installed base
- **China's smart speaker market** will drive the majority of the remaining shipments through to 2021
- More than 900,000 smart speakers will be used in **healthcare facilities** in 2021, most frequently in patient rooms but also to support physicians and nurses



End-users & Consumers

Consumer perception & usage

- **Big three dominate:** Amazon, Google and Apple have the widest reach, owing to Apple’s and Google’s dominance of the smartphone operating system space and Amazon’s leadership in smart speakers
- **Simple use cases predominate:** The most common use cases involve getting basic information: over 80% of users asked questions, checked the news or weather or discovered or played music
- **Voice control of smart home devices in its infancy:** Amazon, Apple and Google are developing broad ecosystems of third-party smart home devices that can be controlled via voice. But despite extensive marketing, less than a quarter of users use voice to control these devices. Smartphone app-based control of smart home devices is not going away
- **Will voice be key channel for e-commerce?** Our survey showed that less than a quarter of users are using digital assistants to make a purchase
- **Driving video strategies:** But voice will be a useful tool for the big three as they continue to push into video: over 40% of those surveyed used their digital assistants to search and play video



Methodology: In April 2018, IHS Markit surveyed over 12,000 people in 5 European countries on their usage of digital assistant devices in the home. These encompass devices with integrated digital assistants i.e. smart speakers, smartphones, tablets, PCs.

Performance Benchmarking

Real-world results

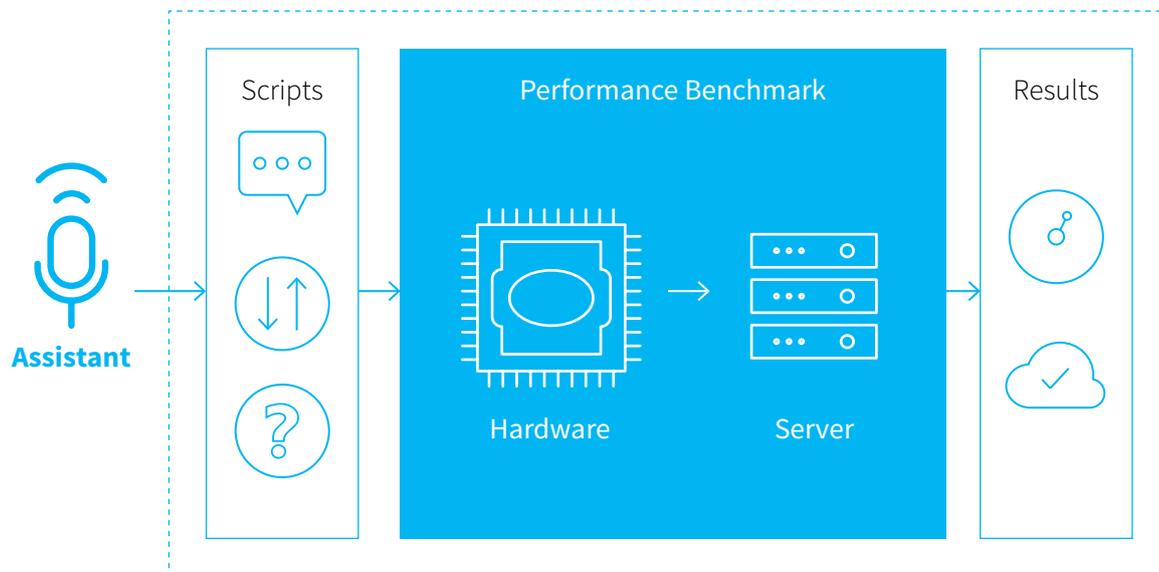
Real-world network performance data and meaningful metrics for accurate benchmarking

What we do:

Benchmark the hardware and server solutions of smart speaker voice assistants to determine their readiness for the marketplace

What we test:

- How effectively does each assistant hear the consumer?
- Are questions answered properly?
- Are tasks performed and successfully completed?
- Can conversations continue after the first query?
- How quickly does each network respond and is there lag with AI reaction from the cloud?



Find out more

IHS Markit provides timely insight and analysis for more than 30 connectivity technologies in 34 application segments used for the Internet of Things.

For more information on wired and wireless connectivity technologies and the opportunities offered by the IoT, please visit [Comprehensive IoT research](#)

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