THE CONNECTED-HOME REPORT: Forecasts And Growth Trends For The Leading 'Internet Of Things' Market

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Source: ABI Research, TechNavio, Pike Research, BI Intelligence Estimates
Key Points

- **Connected-home device shipments will grow at a compound annual rate of 67% over the next five years and hit 1.8 billion units in 2019, according to BI Intelligence estimates.** We include consumer-targeted smart appliances, smart security and safety systems, and internet-connected home-energy equipment in our definition for connected-home devices.

- **The connected-home category will make up about a quarter of shipments within the broader Internet of Things category this year, but that share will increase gradually to roughly 27% in 2019 based on our forecast, as growth picks up.**

- **Connected-home device sales will drive over $61 billion in revenue this year.** That number will climb at a 52% compound annual growth rate to reach $490 billion in 2019.

- **Home-energy equipment and safety and security systems, including devices like connected thermostats and smoke detectors, will become popular first, leading the way to broader consumer adoption.** Those two categories will account for about 72% of connected-home device shipments this year.

- **Consumer awareness and interest in connected-home devices is growing significantly.** In the US, nearly two-thirds of broadband-equipped households are interested in a connected-home device bundle from their wireless service providers, according to survey data from Parks Associates.

- **Millennials and people who have been in their home for between three and four years are the most inclined to buy connected-home devices.** In each of these demographic groups, 10% of US residents already owns a smart home device.
• There are several barriers on both the consumer and vendor side that will have to be overcome, particularly price and security concerns. Roughly 58% of consumers who do not own a connected-home device say they are put off by price, according to a Bloomberg West survey. A significant number also have concerns about privacy and security. The market is also fragmented. Vendors and developers must adopt a standard so that multiple devices can sync and communicate with one another.

• The industry is ripe for consolidation. Larger tech companies have already acquired upstart device-makers like Nest and SmartThings. Legacy consumer-electronics firms are also looking to enter the space.

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Shipments Forecast And Market Size

Homes around the world are going to become smarter and more connected over the next five years.

• We forecast that global shipments of connected-home devices will hit 142 million units this year and rise to 1.8 billion units shipped annually in 2019. Compound shipments growth will top 67% annually over the next five years to 2019.

• In dollar volume, we estimate that shipments of connected-home products will drive over $61 billion in revenue this year. That number will climb at a 52% compound annual growth rate to reach $490 billion in annual revenue in 2019.

For the purposes of this forecast, our definition of connected-home devices includes all smart appliances (washers, dryers, refrigerators, etc.), smart home
safety and security systems (sensors, monitors, cameras, and alarm systems), and smart home energy equipment like smart thermostats and smart lighting.

Overall, a fair number of mainstream consumers still don’t fully understand what connected-home devices are and how they work, and so demand for the devices hasn’t reached its full potential. However, adoption and awareness is still high for such a new category. We expect the devices to become more prevalent in homes in the next two years, when growth will peak.

But, there are numerous sub-categories within the connected-home device segment, and some will catch on much faster than others and help pave the way for the broader Internet of Things (IoT) market.
Most connected-home devices shipped during the forecast period will be smart home energy equipment and smart home safety and security systems, which can be easily self-installed. Devices like smart thermostats, smart smoke detectors, and smart temperature sensors are fairly cheap and easy to install, making them accessible to the average homeowner. Devices like the thermostat from Nest fall into the home-energy equipment category, while the smart camera from Dropcam (now owned by Nest) falls into the smart home security systems category.

Smart home energy-equipment shipments will grow at a compound annual rate of 74% between 2014 and 2019. These devices are expected to
account for roughly 43% of the connected-home market by year's end, and its share will grow to 53% in 2019.

- **Smart home safety and security systems will grow at a pace of roughly 77% per year on average over the same period**, with growth picking up especially next year. The share of the connected-home market occupied by home security systems will hit 29% in 2014 and reach 38% in 2019.

- **Smart home appliances will be the slowest-growing category, averaging 28% compound annual growth between 2014 and 2019.** This category includes products like smart refrigerators, smart washers and dryers, and smart dishwashers. Current prices will tamp down consumer demand for smart refrigerators and smart washer/dryer systems in the near term.

As prices decline over the long run and consumers become more familiar with connected-home devices overall, expect smart-appliance growth to accelerate. That said, smart appliances will remain the smallest piece of the connected-home device market throughout the forecast period.

One important factor that will make connected-home devices ubiquitous in the near term is the growth in the number of households worldwide with broadband internet connections.

We estimate that in 2019, roughly 1.2 billion households globally will have Wi-Fi in the home. That is up from roughly 600 million households this year, according to data from Strategy Analytics.
Between 2014 and 2019, the number of total global households equipped with a Wi-Fi connection will grow at a compound average rate of 15%.

On average, households within these 1.2 billion broadband-equipped homes will have 1.5 connected-home devices by the forecast period’s end. This does not imply that every broadband-ready household will actually have connected devices. Some households will over-index with multiple connected-home devices, while many others will not have a single smart device.

**Connected Home In The Broader IoT Market**

In the context of the broader, burgeoning Internet of Things (IoT) market, we estimate that connected-home devices right now make up about a quarter of IoT shipments, or a 23% share this year. That share will grow over the next five
years, but only gradually as other segments gain steam simultaneously. In 2019, connected-home device shipments will account for roughly 27% of the total IoT market.

We divide the entire IoT market into three main categories: Home, Enterprise, and Government/Infrastructure. The enterprise and government IoT markets will combine to make up a significant majority of the market once adoption of the IoT becomes more widespread in factories, office buildings, hospitals, and even among transportation and logistics firms around the world.

That's because enterprise entities like buildings, hospitals, offices, and other infrastructure like parking structures and toll roads are much larger physically than a typical household. These businesses will need far more connected devices than the average connected home.

Moreover, the benefits of the IoT — large-scale energy savings, better security, and lowered personnel costs — will accrue to enterprise outfits in greater
proportions than in individual homes. This will also keep the enterprise and government IoT categories well ahead of the connected-home category in market share.

But connected-home devices will also play an important role in making the IoT understandable to the mainstream consumer and help devices from all segments of the market gain momentum.

How Consumers Are Already Taking To These New Devices

For such a relatively nascent market, uptake and general consumer interest is already surprisingly significant.

There are a couple of reasons for this:

- **Familiarity:** The devices are simply updated versions of common household devices that many households use on a daily basis, like a security monitor or oven. At this point, almost any piece of home equipment can be updated with a connected version. There is even a connected outlet made by Zuli so that any electronic device, old or new, can be plugged into the wall and controlled via a smartphone or tablet.

- **Cost-savings:** Two of the biggest selling points across the connected-home category are efficiency and cost-savings, and there is massive appeal in both. Connected-home device makers are effectively helping consumers update their homes while also making their lives easier and less costly.

So, it is no wonder that there is already huge interest in the market. In the US, nearly two-thirds of households that use broadband internet are interested in a connected-home device bundle from their wireless service providers, according to fourth quarter 2013 survey data from Parks Associates.
That amounts to roughly 60 million households in the US alone among 91 million total US households with broadband.

An example of a carrier-provided bundle is Digital Life from AT&T. The wireless provider will help you set up a series of smart home devices in your house, including devices like smart security cameras, smart door locks and sensors, and even a smart remote water leak detector, then provide an app for people to manage those devices and troubleshooting help.

Already, a good number of consumers have implemented connected devices in their homes, and they may now be looking at managing multiple connected-home devices, hence their interest in wireless bundles.

Of the particular devices that have been most successful, smart energy devices, like thermostats, have led.
Roughly 7% of all US broadband households own at least one smart energy product, according to Parks Associates.

These devices are even more popular among households headed up by consumers between the ages of 25 to 34 as well as among consumers who have lived in their home for between three to four years. Roughly 10% of US households in each of these demographic groups already owns some sort of smart energy device.

In the US, both consumer interest and early adoption of connected-home devices is already well underway. The next big opportunity for connected-home devices would be in other highly developed mobile markets like the UK, Australia, and the rest of Western Europe. Mobile is key to the connected-home device market taking off because smart home devices are often managed from a smartphone, allowing people to control their home from wherever they are.
Potential Barriers

While this market is set to explode, there are still barriers that device makers will have to overcome for connected-home devices to truly become mainstream.

- Consumer concerns include the price of devices, which ranks especially high, followed by a general lack of tech savvy that may make some consumers reluctant to install and manage new kinds of electronics. A relatively small contingent of consumers has also expressed anxiety over how secure and protected users’ data will be with these devices.
- In addition, there is not yet a common programming language or set of standards/protocols for connected-home device hardware and software. It’s difficult if not impossible for multiple devices from various vendors and platforms to sync and communicate with one another harmoniously.

- Roughly 58% of consumers who do not own a connected-home device say that they are hesitant to invest in one primarily
because of the price, according to a survey from Bloomberg West at the 2014 Consumer Electronics Show conference. (See chart, above.)

As the market grows, the price of this technology will most likely decline. Small sensors and monitors, once they become popular, will be far less expensive than larger connected refrigerators or washers and dryers. However, in the short term, the high price points on big-ticket items may deter some people from buying smart home devices until 2015 and 2016, when prices begin to come down.

- In addition, another 31% of consumers are hesitant to purchase connected-home devices because they believe they are not knowledgeable enough to properly manage them.
- The remaining 16% have security concerns, and device makers will have to ensure the safety and reliability of these devices to allay this concern and spread greater awareness of the devices’ benefits to consumers.

Vendors will also have to address the issue of software development and inter-device communication. Because it is still a relatively nascent market compared with other mobile computing technologies, APIs, standards, and protocols will have to be developed so that, for example, a smart security system from ADT will be able to sync and communicate over the same network with a smart thermostat from Nest.

Some work has already been done to move toward this goal.

In July, Nest and Samsung joined forces with five other companies to form a coalition called Thread, which provides a new standard for in-home connected devices to communicate with one another. The protocol is low-powered and uses mesh networking, which is a distributed network architecture that allows devices to not only communicate with one another but route traffic. This means that there’s no centralized device, like a router, to act as a communications hub
between devices. Instead, each Thread-enabled device aids in the communication process for all devices involved.

A move toward a standardized system will help propel this market forward and give less tech-savvy consumers an easier way to operate their connected home. However, its success is also contingent upon widespread adoption of standards from a large number of vendors.

Ripe For Consolidation

The connected-home market is currently made up of a wide variety of players. Primarily, the market is split between legacy consumer-electronics makers looking to modernize their existing product lines and startups with niche audiences who have pioneered the movement toward widespread connected-home device adoption.

M&A activity in the sector has been growing over the past year, with interest from larger consumer-electronics companies like Samsung and large tech companies like Google at an all-time high.

A few of the smaller companies have had success targeting specific areas and devices within the connected-home market:

- **Nest Labs** — Nest Labs arguably kick-started the growing home-automation trend with its accessible and popular Nest thermostat. The company now also makes a smart smoke detector. [Google purchased Nest back in January 2014](https://www.google.com/).

- **SmartThings** — SmartThings is different from Nest in that it is primarily a back-end IoT connected-home software provider. Its main product is a "hub" that consumers can connect various devices to via an iOS or Android app. [Samsung acquired SmartThings last month](https://www.samsung.com/).
• **Withings** — Withings is a consumer-electronics company that makes a variety of connected-home products including smart scales, smart in-home cameras, smart baby and sleep monitors, and associated apps.

• **Dropcam** — Dropcam is an electronics company that makes a Wi-Fi video-streaming camera that consumers can use to monitor various parts of their home. [Google-owned Nest acquired Dropcam back in June.](#)

• In addition, several high-profile consumer-electronics companies, including **Samsung, Belkin, and General Electric**, are beginning to update existing products to include IoT capabilities.

Google's acquisition of Nest was particularly significant and cemented the importance of the connected home and the greater IoT market.

Google paid a massive $3.2 billion for a company with just two products in the market. However, Google received far more than just the devices with this acquisition.

With so much digital data poised to flow through nonphone and nontablet connected devices via the IoT, Google will now get a foothold in this burgeoning category instead of losing control of the web's data fire hose. Google has said that data acquired by Nest will remain cordoned off from the rest of Google's services, but Nest itself is already planning to [open up its platform and share data with third-party developers](#), which would include Google. For example, Google developers are working to better integrate Google Now functionality that would allow Google Now users to control Nest hardware.

(Google Now is a digital assistant that tries to learn from past queries and predict what information its users will need or what actions they might want to perform at a given time or context.)

The devices will be valuable as products in their own right, but tech companies like Google and consumer-electronics companies like Samsung will be looking to these devices as bridges to provide more services and access more consumer data.
We estimate that in the first quarter of 2014, Nest shipped close to a quarter-million of its Nest thermostats. According to our estimates, Nest thermostat shipments have grown 50% between the first quarter of 2013 and 2014.

Going forward, expect other smaller, successful connected-home companies that have yet to be acquired, like Withings, Canary, and Iris, to garner the attention of the existing consumer-electronics players.

And it's not simply about making the next smart appliance or other smart hardware. There is also a huge opportunity on the back-end of the IoT in being the piping that connects devices. Automated-task service If This Then That (IFTTT), for example, is looking to expand its automation services beyond its smartphone and desktop functions, to allow users to trigger commands for their smart home devices. "The way we see the Internet of Things playing out, there’s going to be a need for an operating system that’s detached from any specific device. What we’re doing now is the foundation for that," said IFTTT
founder Linden Tibbets to The New York Times. Ideally, IFTTT will create an open IoT platform for all hardware.

So, whether it’s in the business of making new smart ovens or smart door locks, or whether it’s in developing the back-end software to power and connect all of these devices, the opportunity in the connected-home space for these companies is massive.

THE BOTTOM LINE

- Connected-home device shipments will grow at a compound rate of 67% over the next five years to hit 1.8 billion units shipped annually in 2019.
- This category will make up roughly 27% of the broader Internet Of Things device category at the end of the forecast period, up slightly from 23% of shipments this year.
- Within the connected-home category, smart home energy and smart home security systems will lead the way. Interest in larger smart home appliances like refrigerators will be tamped down by price in the near term.
- Consumers are already taking to these new devices. Household penetration of connected-home devices is already fairly significant, and awareness and interest in the category among consumers is rising.
- There are, however, several barriers on both the consumer and vendor side that will have to be overcome, like price and coding standards.
- The industry is ripe for consolidation. Upstart device-makers like Nest and SmartThings have already been acquired by larger tech companies. And other legacy consumer-electronics firms are looking to enter the space.
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