SELF-INSTALLED SMART HOME

OUTLINING THE MARKET, IDENTIFYING KEY PLAYERS AND THEIR MONETIZATION STRATEGIES, AND DISCUSSING BEST PRACTICES

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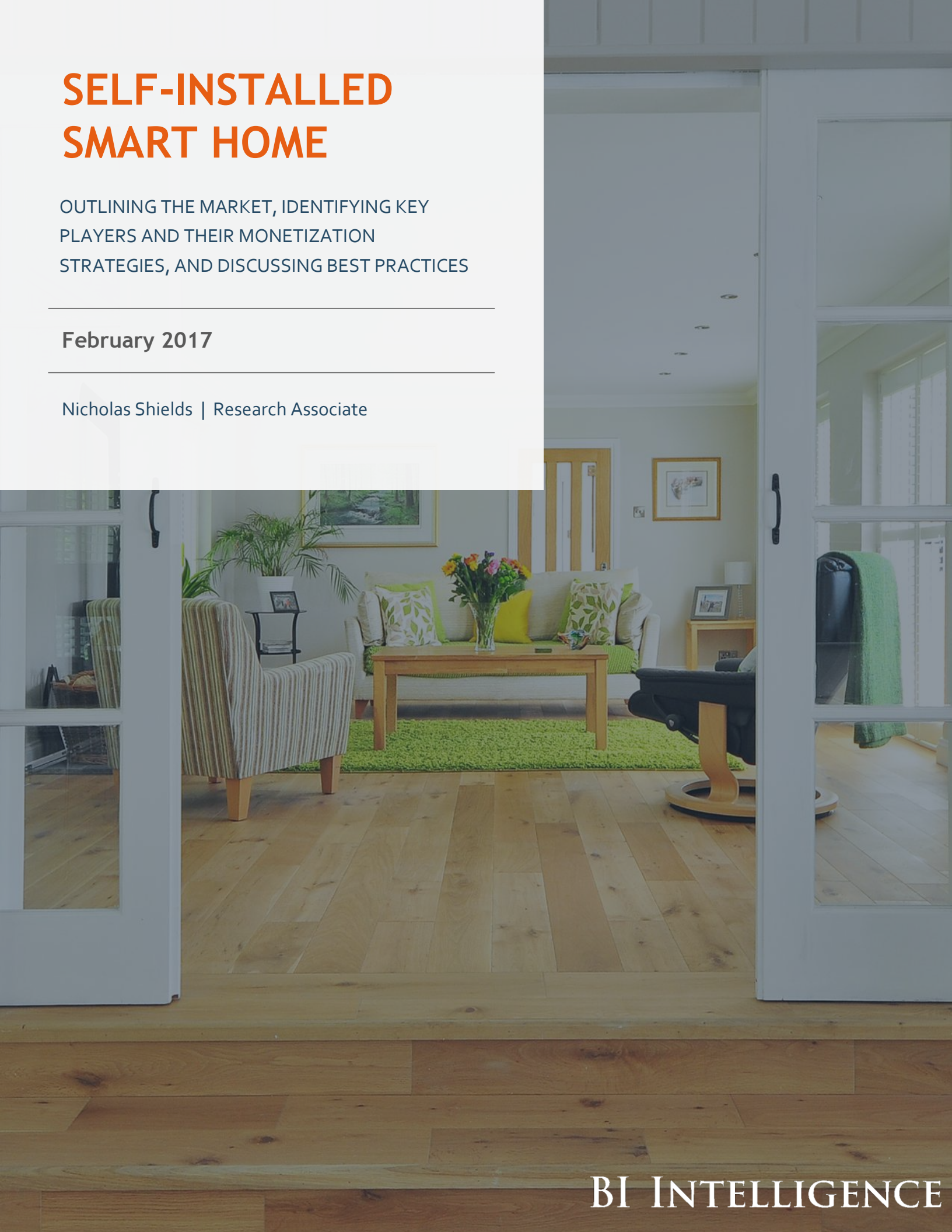


BI INTELLIGENCE

KEY POINTS

- **Smart home solutions come in two varieties — do-it-yourself (DIY) and professionally installed.** Consumers can assemble and connect DIY devices to meet a variety of needs, while professionally installed (sometimes called "do-it-for-me") systems are typically sold by telecom or security companies, and focus on safety and home monitoring.

- **Despite healthy growth in the professionally installed smart home market, the self-installed market continues to lag in adoption.** Outside of voice-activated speakers like Amazon's Echo, even the most popular DIY smart home devices are seeing relatively sluggish sales.

- **Though they're experiencing slow growth, most of the world's largest tech companies are unifying their ecosystems in the hopes of spurring adoption.** They see a myriad of benefits by being ahead of the adoption curve.

- **These companies are moving into the smart home market ecosystem to enhance their core business models and revenue streams.** These benefits include:

    - **Better data on consumer preferences.** Understanding how consumers use their products can provide marketing insights.

    - **Fewer recalls.** Manufacturers can, for example, push firmware updates that reduce the risk of malfunction.

    - **Early-mover advantage.** Companies offering smart home products anticipate that these devices will rise in popularity over time, allowing them to benefit from a head start in the market.

- **Smart home owners that were members of BI Intelligence's panel tended to be male, middle aged, wealthier, and more likely to be employed full-time.** This lucrative target audience makes investment in smart home products more appealing for tech companies.

- **DIY smart home players include ecosystem providers and device manufacturers.** Prominent names that are primarily ecosystem providers include Google, Apple, and Amazon, while device manufacturers include General Electric, Samsung, and Netgear.

- **The main hurdles to greater smart home adoption include high prices, consumer awareness, and technological fragmentation.** Resolving these issues is key to DIY smart home solutions' future growth.

Download the charts and associated data in Excel »

INTRODUCTION

Not that long ago, many home-appliance and consumer-electronics makers were gearing up for what they thought would soon be a rapidly growing market for smart home devices. The instant popularity of the Nest thermostat, introduced in 2011, seemed to confirm their hopes. But those expectations were dashed in the coming years as the market for connected home devices later stagnated.

Tepid demand for many of these smart home products stands in contrast to the healthy market for professionally installed smart home solutions. BI Intelligence projects that by 2021, 13.5 million homes in North America will have a professionally installed smart home solution, many provided by legacy companies like ADT that enjoy broad brand recognition and can leverage consumers' security concerns.

Even with these challenges, many of the biggest consumer technology companies are now moving into the smart home market. For example, Apple, which recently released its self-installed smart home ecosystem, called the Apple Home, traditionally doesn't move into a market until it's very mature and only when it can release a perfected product. Further, Google this fall launched the Google Home and its companion ecosystem, hoping to jump into the voice-activated smart home speaker market, which Amazon currently dominates with its Echo product line.

The market for connected home goods is still in the very early stages of development — an Apple executive likened it to the second inning of a nine-inning baseball game. Consumer technology companies are betting it will begin to gain traction soon, and that having an early foothold will help them establish ecosystems that can reinforce consumer loyalty and provide valuable data on their customers' preferences. Their calculation is that these eventual benefits outweigh the risk of investing too much, too early.

This report will further explore the reasons tech companies and home-appliance makers are entering the smart home market despite consumers' limited interest so far. First, we examine the demographics of the average smart home device owner and discuss why current smart home device owners are appealing to tech companies. We then examine the plans of various tech giants in the smart home market and discuss their monetization strategies. Finally, we examine how these companies can position themselves to make their products and devices more appealing to the mass market. Doing so enables them to extend a new product category, and gives them a larger base of customers to cross-sell their products and services to in order to enhance their core business.

DEFINING THE DO-IT-YOURSELF SMART HOME MARKET

BI Intelligence defines a smart home solution as any stand-alone object found in the home that is connected to the internet, can be either monitored or controlled from a remote location, and has a noncomputing primary function. These devices collect data about the environment around them and transmit it over various networks. The data collected is analyzed and synthesized to be made available to users, device makers, and ecosystem providers. For example, Apple Home users are able to use the mobile application to view suggested “scenes” based on users’ device setting preferences. On the other hand, device makers can collect and analyze data about consumer usage so they can improve their products to best fit common consumer usages.

Overall, BI Intelligence breaks the smart home market into two categories:

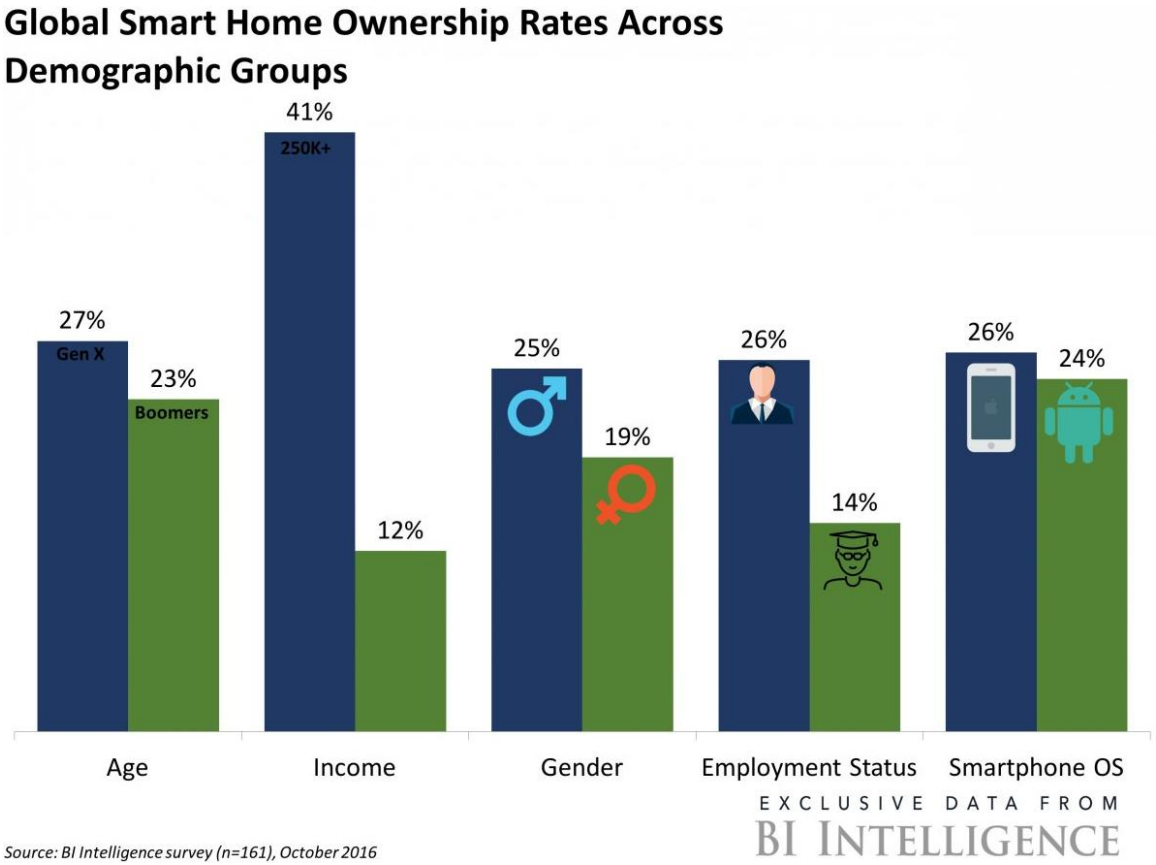
- **The professionally installed smart home:** For the purposes of this report, this refers to companies that are hired to come into consumers' homes and install smart security and/or home automation systems. Historically, customers pay a monthly fee for home monitoring services and an upfront fee. Major players in the market include Alarm.com, Vivint, ADT Pulse, and Xfinity Home.

- **The self-installed smart home:** For the purposes of this report, this includes devices consumers purchase and install themselves. An example of this would be a consumer buying a smart thermostat and installing it himself or herself. Major players in this market include Nest and Philips Hue, which manufacture the devices, as well as companies like Apple, Amazon, and Alphabet, which offer the ecosystems the devices can run on.

While each market is different, there are overlapping features and commonalities. For example, a younger, perhaps more tech-savvy consumer might be more likely to take the time to install and explore a smart home ecosystem and its devices. However, an older consumer with a family who may be more interested in the security benefits of the smart home may opt to purchase a professionally installed system. The next section includes an analysis of BI Intelligence's exclusive data to show which consumers are more likely to own at least one smart home device.

Smart Home Device Owner Profile

BI Intelligence's exclusive survey data identified certain key demographics that tend to own a smart home solution, professionally or self-installed, at a higher rate. Through this, we were able to build out a general strategy for device makers and ecosystem providers to market their devices.



Overall, 23% of US consumers surveyed by BI Intelligence owned at least once smart home device. Here's a breakdown of ownership rates among members of our panel by age, income, gender, and use of other popular technologies such as an Android or iPhone:

- **Of US Gen Xers surveyed by BI Intelligence, 27% own a smart home device, the highest rate of any age cohort surveyed.** Conversely, only 19% of US millennials and 23% of baby boomers surveyed own at least one smart home device. It's noteworthy that digital-native millennials don't own smart home devices at the highest rate; as the youngest group in our survey, they're more likely to have entry-level jobs and less likely to own a home. This is supported by recent data gathered by the Census Bureau, which found that millennials have the lowest rate of home ownership of any generation in their age group in US history. As millennials begin to purchase their own homes at a higher rate in the coming years, they will be the ones driving growth in the smart home market.

- **Of consumers surveyed by BI Intelligence with a household income exceeding $250,000 annually, 41% own at least one smart home device.** On the other hand, middle- and lower-income American consumers tend to own smart home devices at a lower rate. For instance, only 12% of US consumers surveyed with a household income between $75,000 and $99,999 annually own one or more smart home device, while 11% of consumers surveyed with an annual household income between $35,000 and $49,999 own one or more smart home devices.

- **Of men surveyed, 25% own at least one smart home device.** On the other hand, only 19% of women said they own at least one smart home device.

- **Of US consumers who said they own a smart home device, 26% are employed full time.** However, only 14% of retired consumers and 7% of students who were members of BI Intelligence's panel own one or more smart home devices.

- **Twenty-six percent of iPhone users surveyed by BI Intelligence also own at least one smart home device.** On the other hand, only 17% of non-iPhone users own one or more smart home device.

- **Twenty-five percent of Android users who BI Intelligence surveyed indicated they own one or more smart home devices.** Meanwhile, only 23% of non-Android users own at least one smart home device.

Overall, the smart home device owners surveyed by BI Intelligence tend to be wealthier and more middle-aged than the overall population, as well as more likely to own an iPhone and work full-time. This means that device makers and ecosystem providers have an ideal target group to which they can cross-market their core goods and services. For example, since affluent men are also more likely to both watch professional sports and to own a smart home device, it might be wise for Alphabet to expose Google Home users to ads on deals for sports tickets and streaming services such as DirecTV Sunday Ticket or NBA TV. Owners of smart home ecosystems may be then more likely to opt to subscribe to such a streaming service if they're exposed to ads of the sort on their smart home speaker, such as a Google Home or Amazon Echo.

Nonetheless, providers must also expand beyond this traditional wealthier, middle-aged, male cohort if they're to be successful in growing the self-installed smart home market. The data collected by BI Intelligence indicates a market concentration around these demographics for smart home device ownership.

Overall, BI Intelligence expects millennials to drive future growth in the self-installed smart home market. This is because they are the most digitally savvy generation, and they will increasingly come to have more disposable income to spend on technological gadgets, regardless of whether they own a home. While millennials currently own smart home devices at a lower rate than their older counterparts, they'll likely be more inclined to purchase them as they gain more disposable income. Further, unlike the professionally installed smart home market, entry into the self-installed market does not require home ownership. For example, nothing in a typical apartment lease would stop a renter from using smart light bulbs in his or her kitchen light fixtures.

Strategies Of Market Players

If the DIY smart home market suffers from stagnant growth, gimmicky products, and poor ROIs, why are so many tech giants and appliance makers diving in?

When the biggest players in tech enter the smart home market, it's usually to provide another way for customers to access their core products and services. For example, the Echo advances Amazon's strategic objectives not because it's a moneymaker in its own right, but because it's another conduit through which consumers can access the company's core services — namely the massive Prime ecosystem.

It also enables them to stay connected with their product's users after the point of sale of their goods. This creates a much different relationship between the device maker and the owner of the device. There a few ways that tech companies benefit from this:

- **Over-the-air (OTA) updates to avoid recalls.** With the capability to update the software of devices remotely, device makers can provide updates to a device without having to recall the product, which was often necessary for these companies before the age of the smart home. This can save companies millions of dollars. For an example of how costly recalls can be, look to Honeywell's 2011 recall of around 77,000 thermostats, which cost the company about $14 million in lost sales alone. The recall may have been avoided altogether through OTA software updates.

- **Collect and analyze data on usage to improve future products.** Device makers and ecosystem providers can collect and analyze usage data to perfect their existing products and improve future ones. Alphabet, for example, could leverage users' data from Google Home to improve its AI voice recognition, while manufacturers of compatible devices can continue to perfect their device software and try to expand their compatibility into more ecosystems.

- **Build customer profiles to cross-market devices.** Companies study the data collected from connected devices to study consumer behavior and find ideal marketing strategies to target their users with. For example, Google could recognize that a user asks her Google Assistant a lot of questions about professional sports. The company could then target the same user with ads for sports equipment and memorabilia in the hopes of selling those products. They could also do the same for smart home devices that are compatible with the device, thereby enhancing its ad revenue and encouraging users to build out their smart home ecosystems.

Major Market Players And Their Monetization Strategies

Despite the benefits discussed above, companies operating in the self-installed smart home market have yet to see a pickup in demand for their products. This is because consumers say the devices can do too little and cost too much. What's more, the legacy devices they're meant to displace have long replacement cycles. However, some of the world's largest tech giants are jumping in to create their own ecosystems and manufacture their own devices. What follows is an examination of why they're jumping aggressively into the market.

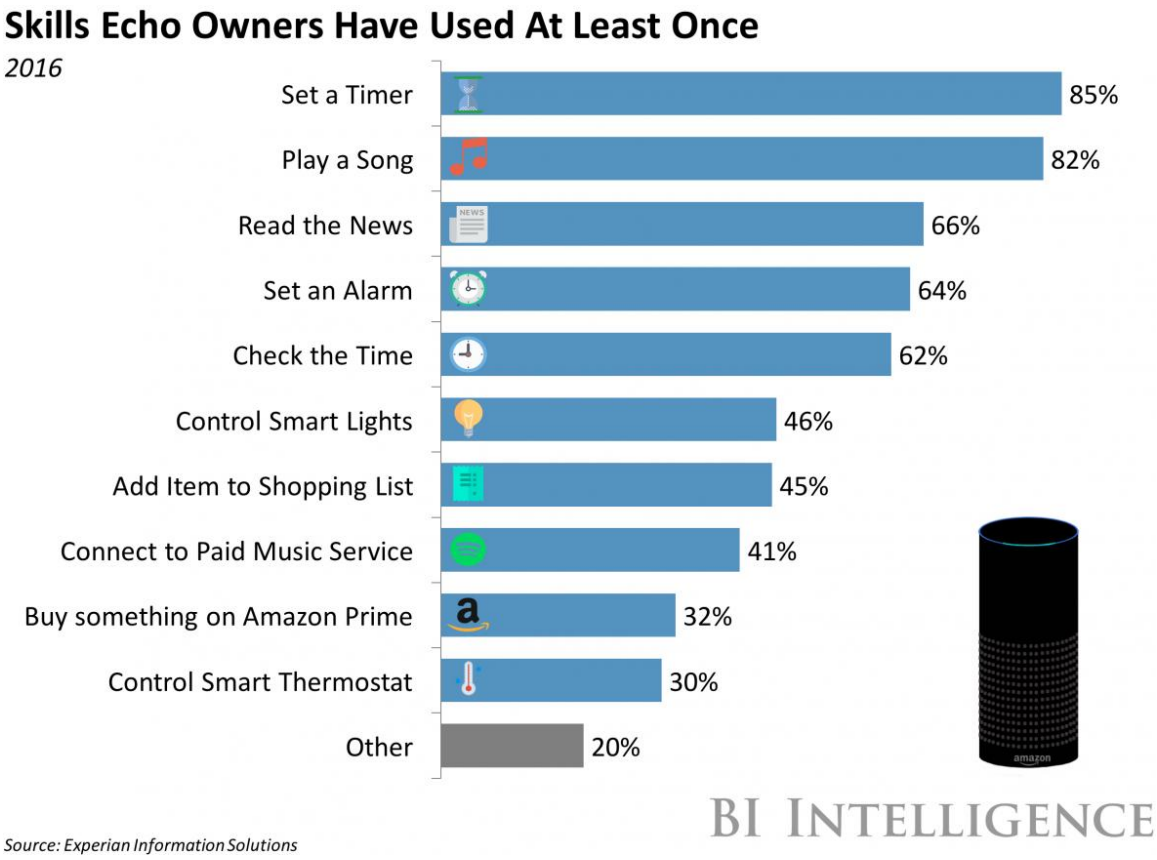
Ecosystem Providers

Many large tech companies have entered the DIY smart home ecosystem market in the last few years. These companies are typically doing so to enhance some element of their core business and often offer a voice-activated speaker as the center of the ecosystem. Many of these companies are starting to offer a more complete, unified ecosystem, which they hope will help spur adoption.

Here's how the major players are approaching the market:

Amazon can sell goods on Amazon Prime via voice ordering through its Echo product line. The Echo product line enhances the company's core revenue stream of selling goods while also providing users with a smart home ecosystem that's compatible with numerous popular devices.

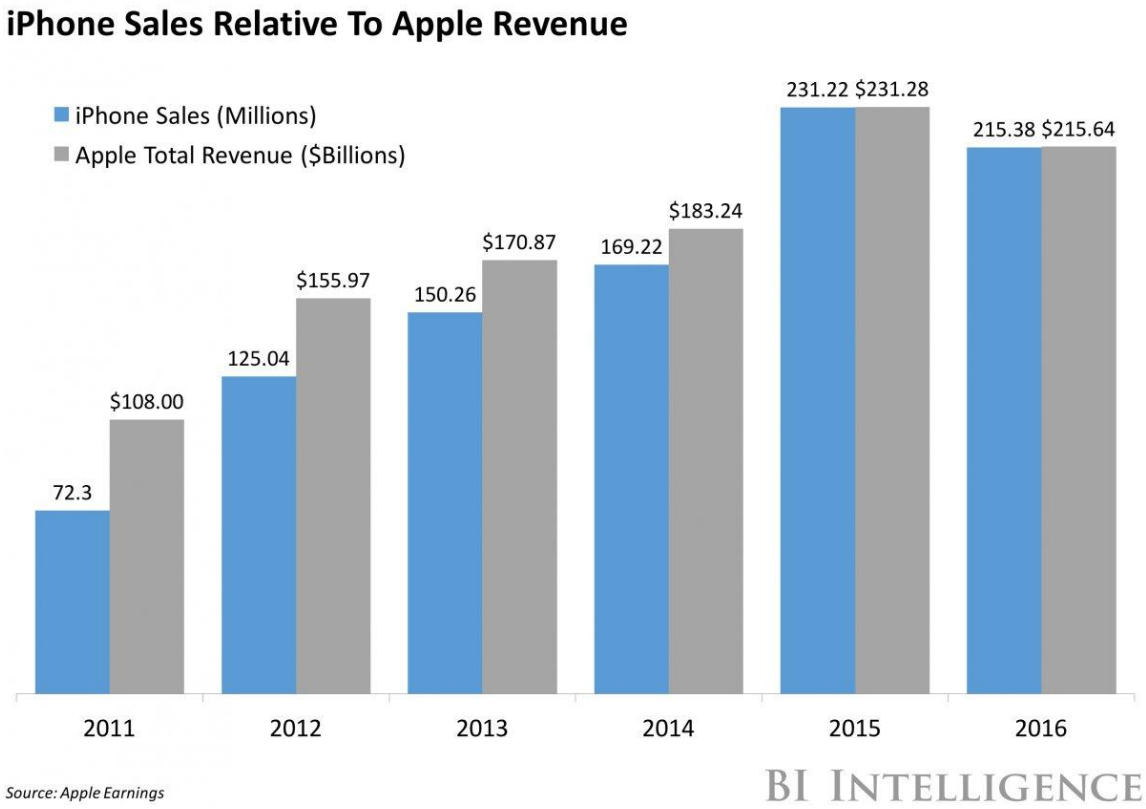
Since introducing the Echo in 2014, the company has seized the largest share of the smart home voice-assistant market. BI Intelligence projected in June 2016 that the device had an installed base of 1.6 million. Since then, the e-commerce giant moved to expand Echo's reach by introducing Echo Dot, a less expensive version available in packs of six or 12 and designed to be placed around the home. This was a smart move, as it lowered the price of entry into the company's smart home ecosystem and made it easier for consumers to integrate voice control into their smart home. But perhaps more importantly, the company expanded the total addressable market for the devices, giving them more potential users that could own an Echo device and order goods and services on Prime. Overall, 32% of Echo users have used the device to order goods or services, according to a recent survey from Experian Information Solutions. To increase that share, Amazon could do even more to incentivize such transactions, such as offering discounts for recurring voice purchases.



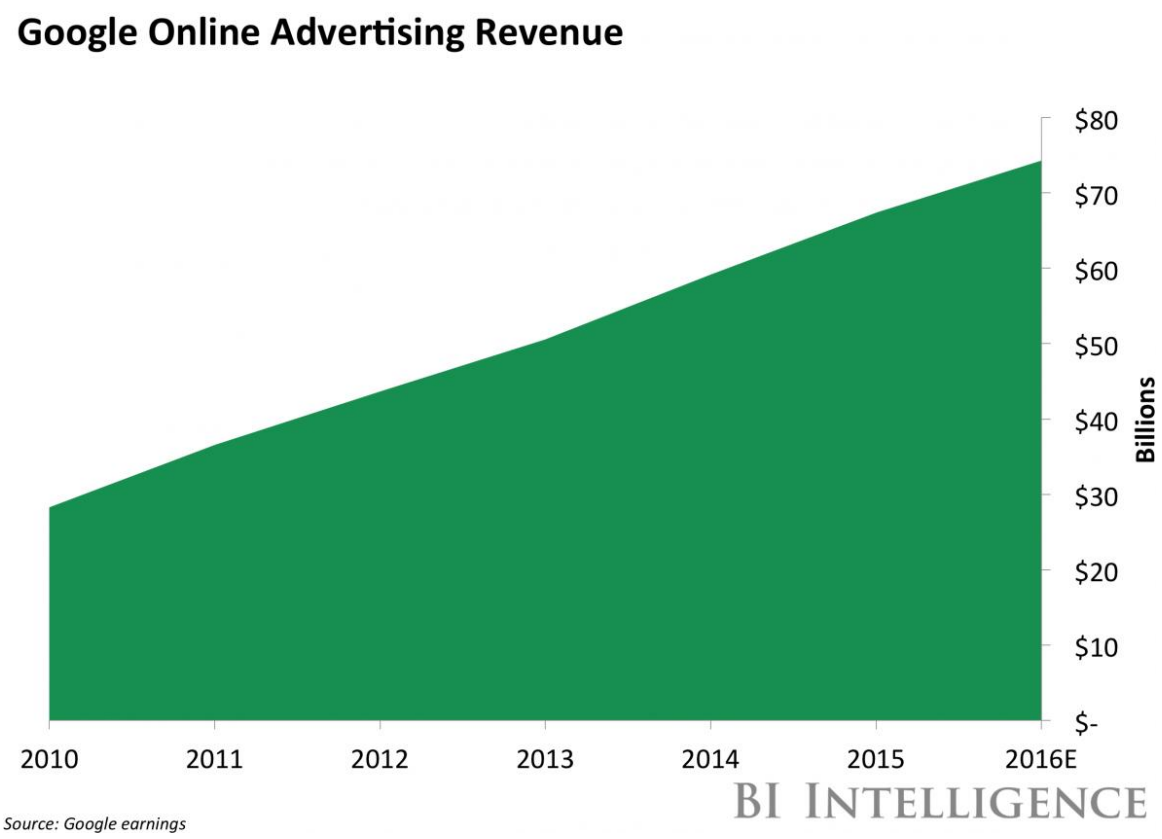
Source: Experian Information Solutions

The company also continues to add skills to the Alexa voice assistant and compatible smart home devices. As of October 2016, the total number of skills available for Alexa exceeded 3,000, and on its Q3 2016 earnings call, CEO Jeff Bezos said the voice assistant "may be Amazon's most loved invention yet." In October, the company announced an Echo-exclusive plan for Amazon Music Unlimited, a stand-alone music streaming service, which the company could use to target users with ads for Prime goods. **Because of its history, reputation, and capabilities, BI Intelligence expects Amazon to continue to be the market bellwether in the self-installed smart home ecosystem and voice-assistant market.**

The Apple Home ecosystem is centered on the company's most popular devices — especially the iPhone. The hub of the Apple Home ecosystem is either an Apple TV or iPad, while the ecosystem remote can only be an iPhone or iPad running iOS 10. This makes sense, given that the iPhone is by far Apple's best-selling product. The company has integrated voice activation into its smart home ecosystem through the Siri voice assistant, which was revamped with an update to the iOS 10 mobile operating system earlier this year. The update gave the native Home app voice control — meaning that users can simply say “Siri, dim the kitchen lights" to control the illumination in that room.



The Google Home exposes its users to ads for compatible smart home devices and other products and services, building on a key strength. Advertising has been the company’s primary revenue stream since its founding, with the AdSense division accounting for $79.4 billion in sales in 2016. Google sells ads for local restaurants, bars, and other attractions, which could then appear to users when they ask the assistant to find them somewhere to eat. Additionally, the company could expose users to ads for its other offerings (Android smartphones, for example) through third-party media played via Google Home, such as music streaming services like Spotify or SoundCloud.

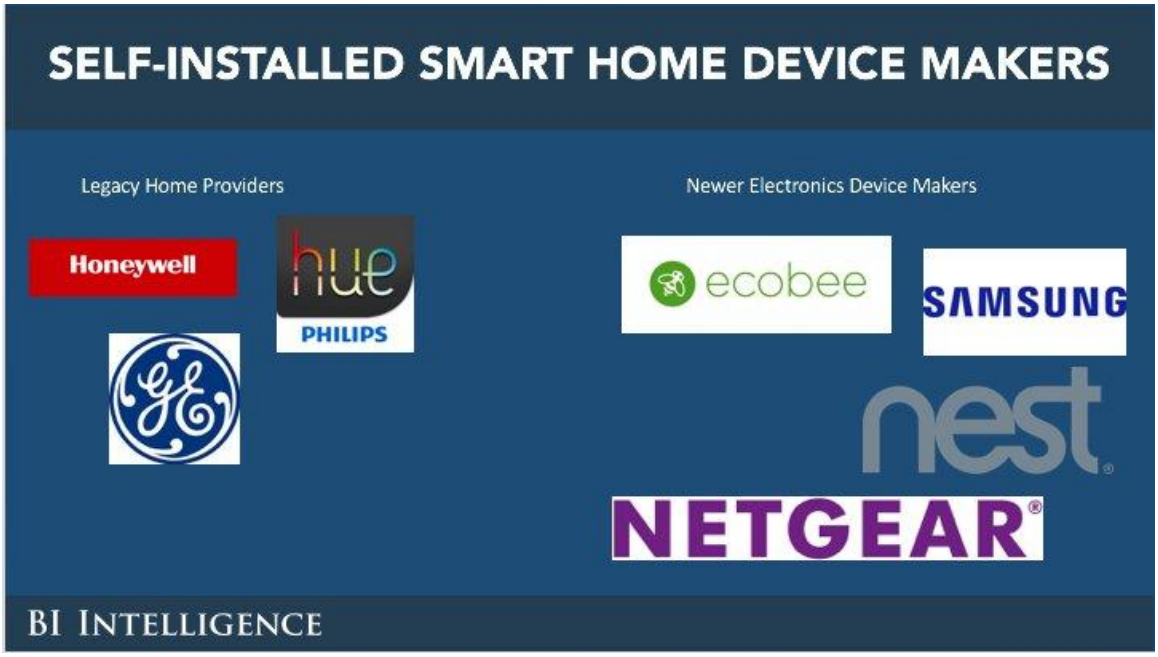


Samsung plans to release a smart speaker to compete with Amazon's Echo and Alphabet's Google Home that it could easily pair with its SmartThings device solutions. Last year, VentureBeat reported that the device would be known as Scoop. The market strategy for the device would be to not only take down Amazon's dominance in the voice-activated speaker market, but also to cross-sell and market its smart home devices to enhance the sales of one of the more popular DIY smart home kits on the market. Further, especially given its background in music and audio, the company could launch a music streaming service, similar to Amazon Music Unlimited, that's exclusive to its Scoop device.

Samsung is one of the few major players in the smart home ecosystem market that's also a major appliance manufacturer. So while the company has yet to release this forthcoming voice-activated speaker, many consumers who are already own SmartThings devices could opt to buy Scoop to unify their ecosystem rather than purchase an Echo or Google Home, which don't easily fit into their ecosystem.

Device Manufacturers

These companies are primarily a combination of legacy home device manufacturers, and some newer tech companies, many of which are also ecosystem providers, that are entering the market to supplement their ecosystems by pairing them with easily compatible devices. But regardless of their background, the companies that enter this market are primarily trying to accomplish two things — first, to add the functionality they think their customers want or will come to demand in the near future; and second, to collect and analyze usage data to improve their products and make them more appealing to consumers. Further, this can also help companies avoid product recalls that can be expensive and operational nightmares.



General Electric (GE) is one of the oldest consumer and enterprise electronics providers in the world and perhaps the market leader in the legacy home device provider space. The company in the last several years has undergone an aggressive transformation to reposition itself as a provider of digital services, particularly in the industrial space, but also within the home. GE sells a wide variety of stand-alone smart home devices, including smart light bulbs, switches, dimmers, thermostats, and security cameras, as well as connected appliances such as toasters, ovens, refrigerators, and toasters.

As it seeks to reposition itself as a technology-focused company, GE has wholeheartedly embraced the IoT. Combined with its still-strong reputation as a maker of legacy appliances and home goods, this could help consumers who aren't early adopters become more comfortable investing in smart home devices. Further, unlike many other device manufacturers, GE is one of the few in this market to also have a strong industrial IoT presence, giving it valuable insight that can help advance its smart home device offerings.

Samsung sells individual smart home devices through the home automation kit as well as separately sold individual devices. The SmartThings kit includes the hub and a smart light switch, and allows users to control all of their smart home devices through the companion mobile application. The company also offers many other stand-alone smart home devices, including lights, thermostats, video cameras, home appliances, and window blinds and shades.

Samsung could see the popularity of the SmartThings kit and the rest of its smart home devices increase if it were to release an Echo competitor. Moving forward, consumers will likely be attracted to unified smart home ecosystems, meaning that once Samsung releases an Echo competitor it may see the popularity of its devices increase as they run on a much more unified ecosystem.

Alphabet's Nest was one of the earliest entrants into the smart thermostat market, releasing its flagship product in 2011. The company now also owns DropCam, a connected video camera manufacturer. As a result of the acquisition, Nest now makes its original flagship product as well as stand-alone smart security cameras and smart smoke alarms.

Revolutionary at the time because it could be controlled through a mobile app and was capable of learning users' climate-control preferences, the device was a hit in the first few years after its release. However, the company struggled after its acquisition by Google, and media reports alleged that it was not meeting the revenue expectations of Alphabet CEO Larry Page. Eventually, founder and CEO Tony Faddell stepped down, signaling a new direction for the device maker.

Despite some recent turmoil, Nest still has many advantages in the smart home market and could be poised to do well in 2017 and beyond. For one, the company still has strong name recognition and has access to Alphabet's resources and massive R&D capabilities, especially after Nest's developers were absorbed by the parent company in 2016. Further, with the release of the Google Home, Nest could see heightened demand for its devices as Google enthusiasts look to unify their smart home ecosystems. Further, because of the company's brand recognition, many professionally installed smart home providers opt to use Nest thermostats in their solutions, creating another revenue stream for the company that won't disappear anytime soon.

Honeywell is one of the largest legacy device makers operating in the self-installed smart home market, as it has produced home devices for over 100 years. Known for its thermostats, the company also manufactures smoke alarms and legacy security alarm systems. The company can thus draw upon its legacy security and device customers to spur adoption of its smart home devices. Further, it can leverage engineers and developers from the defense, energy, home security, and commercial building management spaces.

Overall, Honeywell appears poised to benefit most when the smart home device market overcomes the current chasm and moves into the mass-market adoption phase. This is primarily due to its status as a legacy device maker, but also a result of the diverse focus of the company.

Philips Hue is a legacy device maker that specializes in smart lights, but it also recently expanded to manufacturing smart lighting dimmers, light strips, and tap switches. Many of its devices are compatible with Amazon's Echo products and the Apple Home ecosystem. One of the more prominent legacy home device manufacturers in the smart home market, the company is banking on its name recognition and reputation to spur adoption among consumers new to the smart home in a fashion similar to Honeywell’s strategy for the thermostat market. For example, if a user already has Philips Hue lighting in their home and wants to upgrade to smart lighting, they may opt to upgrade to Philips Hue smart lighting rather than another provider of smart lighting. As a result, the company could see increased adoption as the smart home overcomes the adoption chasm and more mainstream consumers, many of whom may have owned Philips Hue legacy lights, start to purchase smart home solutions en masse.

Netgear, traditionally a networking provider, has moved into the smart home device market, primarily through its connected security cameras. The company retails both individual stand-alone smart security cameras and sets of cameras that can be positioned throughout the home. As the company's primary offering, the products could do well in the coming years as mass market consumers begin to adopt smart home solutions for security purposes, and DIY solutions become and straightforward to install.

Ecobee is a popular smart thermostat manufacturer, albeit as one of the newer and relatively less well-known entrants into the market compared with smart thermostat giant Nest. Additionally, the company offers smart thermostats for commercial use, giving it another stream of revenue to rely upon moving forward with the onset of smart offices and smart building management solutions.

But the manufacturer's devices are some of the few compatible with the Apple Home — a strong, unified ecosystem. This was a good move for the manufacturer, as it's one of the ecosystem providers at the forefront of mitigating technological fragmentation and linked to the massive Apple user network.

STRATEGIES TO BOOST MASS-MARKET PENETRATION

While many tech companies are entering the self-installed smart home market, not many are having much luck gaining traction for their solutions beyond the first wave of smart home adopters. Further, the relative success of the professionally installed smart home market hampers adoption of self-installed smart home solutions, since installing one's own devices can often be a hassle, especially for less technologically adept consumers. But based on the analysis in this report, BI Intelligence identified the moves that will allow device makers and ecosystem providers to move their products and services into the mass market.

Reduce Prices

One of consumers' most consistent complaints about smart home solutions is that the devices and ecosystems are too expensive, especially compared with their legacy counterparts. Amazon is a good example of this: The company recently lowered the price of its Echo Dot to $49.99 in a bid to create a more accessible entry point into its smart home ecosystem.

The price of smart lighting solutions continues to drop, though the majority of lights and light systems on the market continue to be somewhat more expensive than those offered by their legacy counterparts. Prices for connected locks and security cameras could come down next, as these security-focused devices have become popular with consumers. If device makers lower their prices, it should spur demand and create a virtuous circle (from the consumer's perspective) of competition that results in improved affordability across the industry. However, this is still at least several years off and won't occur until awareness of these devices begins to set in more with consumers.

Fix Technological Fragmentation

Self-installed smart home solutions must have a unified ecosystem that's easy to install and maintain if they're to be successful in the long term. This means that providers need to make it simple to set up and add devices their ecosystems or face sluggish adoption. It also involves running all devices on a single network and under the control of a single mobile application. A good example of this would be the Apple's HomeKit, which was revamped earlier this year to bring all devices and networks under the umbrella of the new Home app, a new native app for iOS 10. BI Intelligence identified at the time that while the revamped ecosystem was a significant move in the direction of technological unification, it wouldn't change the overall trajectory of the smart home market, especially the self-installed portion.

The push by companies like Google and Samsung into the voice-activated smart home speaker market is an encouraging sign. It will likely drive consumers to adopt a single ecosystem, rather than opting to pair their Echo, for example, with a Nest thermostat. Certain providers can also incentivize adoption of their smart home devices through ads on their voice-assisted speakers (Google Home cross-marketing a Nest thermostat, for example.)

Lastly, Nest earlier this year released OpenThread, an open-source networking protocol that's a version of the popular Thread mesh networking standard. This move helps unify the fragmentation of the ecosystem that Nest and Dropcam devices run on, and now with the introduction of the Google Home's voice integration, Alphabet's smart home ecosystem is even more integrated.

Raise Consumer Awareness

The majority of US consumers are aware of the existence of smart home devices, but don't yet recognize their value and aren't yet purchasing them at high rates, according to a 2016 survey conducted by KRC Research. Eighty-three percent of US consumers are aware of the existence of smart home devices, while only 30% own at least one device. The likely reason for this gap between ownership and awareness is the barriers that BI Intelligence identified as early as 2015: long home device replacement cycles, high prices, a lack of technological unification, and limited demand. Raising consumer awareness of the value of smart home devices and provider ecosystems starts with helping consumers understand the true monetary and intrinsic value of their product.

As a result, device makers must create a need for their devices rather than positioning them as a luxury. This could mean, for example, Nest advertising its popular connected thermostats to energy-aware consumers, as the devices can save users costs on their energy bills and lessen the burden on electrical infrastructure that's often old or outdated. This is why utilities companies are encouraging some consumers to purchase smart thermostats. For example, California Edison earlier this year agreed to a partnership with Nest to incentivize households to purchase the thermostats, thereby lessening the burden on California Edison’s power lines during times of stress. Additionally, National Grid recently began encouraging its customers to purchase Nest thermostats. Because it's a good way to create a need for devices, similar partnerships could emerge in the future. Additionally, device makers for smart lighting solutions would be wise to follow suit, making their connected lights more energy efficient and partnering with utilities providers to encourage adoption in a way that can save energy — not just time — for consumers.

THE BOTTOM LINE

- Smart home solutions come in two varieties — do-it-yourself (DIY) and professionally installed.
- Despite healthy growth in the professionally installed smart home market, the self-installed market continues to lag in adoption.
- Though they've experienced slow growth, most of the world's largest tech companies are unifying their ecosystems in the hopes of spurring adoption.
- These companies are moving into the smart home market ecosystem to enhance their core business models and revenue streams.
- Smart home owners that were members of BI Intelligence's panel represent a lucrative target audience that makes investment in smart home products more appealing for tech companies.
- DIY smart home players include ecosystem providers and device manufacturers.
- The main hurdles to greater smart home adoption include high prices, consumer awareness, and technological fragmentation. Resolving these issues is key to DIY smart home solutions' future growth.

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