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# Smart home market primer



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## **Executive summary**

The report looks at 6 major factors driving the smart home / home automation market:

1. **Rising market demand** Expected to more than double in 5 years
2. **Strong company activity** Big push by well-known multi-nationals like Google or Apple
3. **Emerging company hubs** Smart home company clusters e.g., in San Francisco
4. **Strong startup funding** Total funding of smart home startups now exceeds \$3bn
5. **New business cases** Smart home now all over the house and in the garden
6. **Maturing technology** Becoming integrated, smarter, cheaper

**IoT Analytics**

# Smart home market primer

**Smart Home** is currently leading the emergence of the Internet of Things.

Connected thermostats, smart fridges, remote-controlled lights, and other products promise to revolutionize our home experience over the coming years.

This report looks at the driving forces of the Smart Home market: Demand, supply, technology, investments

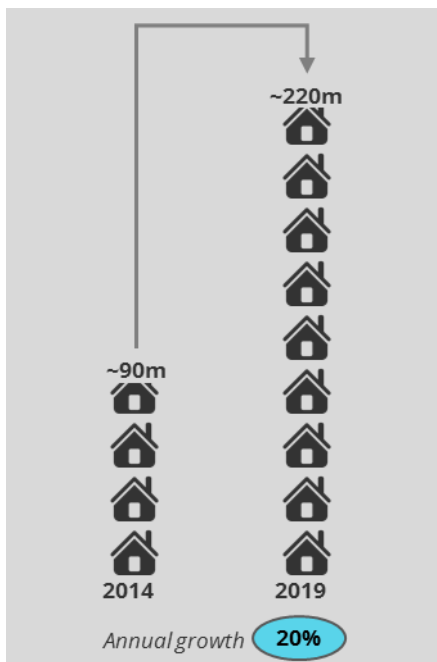
## 1. Market demand

Smart homes have been a niche phenomenon for years. Remote control of entertainment systems, lights, and heating used to be limited to luxury apartments and hotels. We are currently however at the inflection point where smart homes are so attractive to the wider public that they are becoming a mass market phenomenon.

The worldwide demand for smart home systems is expected to more than double in 5 years to 220m smart homes in 2019.

Demand is driven by four factors that provide value to customers:

- **Energy savings potential**  
e.g., Nest promises 10%-12% savings of heating usage in homes with central air conditioning
- **Convenience**  
e.g., the Wink relay promises to control and monitor everything in your connected home from one central location, bringing together disparate services into a single interface
- **Safety&Security**  
e.g., Smart door locks promise to offer a new level of security in your house



**Figure 1: Smart home market demand**  
Global households with "smart systems"  
in millions 2014-19  
(Source: Strategy Analytics)

- **Social status**

Contrary to previous generations, Generation Y equates social status less with luxury items like owning an expensive car. It is rather owning the latest technology that puts them into this position of a desirable social status. And Smart Home falls well into that category.

Falling prices of smart home solutions and new technological developments will stimulate demand further.

## 2. Company activity

The growing demand is mirrored by strong company activity of some well-known multi-nationals like Google. These companies have introduced extensive product lines in home automation throughout 2014.

The growing product supply is amplified by heavy marketing activities of these companies with the goal to lock-in as many customers as possible into their proprietary technology and platform.

These five companies currently have the biggest public smart home footprint:

- **Google**

Google’s acquisition of Nest in January 2014 for \$3.2bn resulted in large-scale public attention for Smart Homes and ultimately led to mass market awareness for the topic. Nest has since launched its second generation thermostat as well as their smoke detector and is now interoperable with other smart home systems. A few months later, Google acquired the cloud-based home security manufacturer, Dropcam. Google’s acquisition of Revolv in October 2014 was a logic extension to the Nest&Dropcam offering so that the company now also offers a universal smart home controller.

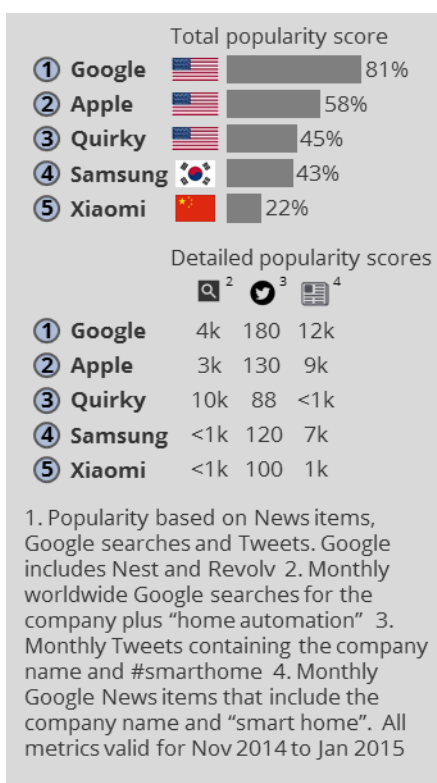
Google is also the driving force behind the new communication standard for home automation called “Thread”.

- **Apple**

In contrast to Google, Apple is paving their home automation story through own developments rather than through acquisitions. The basis is the Apple HomeKit platform that runs on Apple’s phones. The company is partnering with different device manufacturers such as Elgato or iDevices to bring the platform to life.

- **Quirky**

The New York based startup is best known for its Wink platform that it developed in collaboration with General Electric. Other



**Figure 2: Most popular Smart Home Companies** Social media/web footprint (Source: IoT Analytics Database of 250+ Smart Home Companies, Google, Twitter)

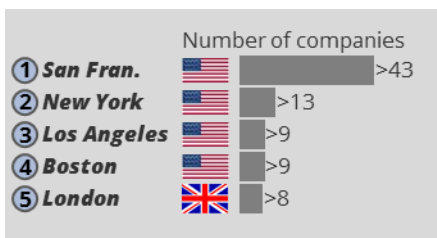
than that the company has a unique business model: It serves both as a smart home market place as well as a startup acceleration and implementation provider.

- Samsung**  
 Samsung might be the smart home company with the most complete product portfolio. As Samsung has been a large vendor of TVs, white goods, and other kitchen appliances for years, a complete home automations solution comes quite natural to the Korean company. Much like Google’s purchase of Revolv, Samsung’s acquisition of SmartThings in August 2014 enables the company to build their products on a smart home platform that is enjoying large popularity.
- Xiaomi**  
 The new entry into the list of big smart home company is Chinese Xiaomi. The company that was founded in 2010 and claims to be the third largest smartphone distributor in the world, made its move into Smart Home in late 2014. The Smart Home push is big. In addition to a smart home platform, a smart home suite including motion and window sensors, an IoT-enabled air-purifier, and a home security camera, Xiaomi is planning to invest in a number of smart home startups.

### 3. Company hubs

Due to the large company activity, geographic clusters of “smart home concentration” have emerged.

Local presence of smart home companies leads to spillover effects in the region: Company collaborations, R&D co-operations with universities, an end-to-end supplier infrastructure, training programs for local employees, and most importantly new small startups.



Headquarters of startups and established companies  
 (Source: IoT Analytics Database of 250+ Smart Home Companies)



Figure 4: Heatmap of Smart home company hubs

It is not surprising that on the back of the Google/Nest deal as well as the already existing startup ecosystem, San Francisco is emerging as the leading home automation hub. The London area is the largest hub in

Europe while Beijing, Shanghai and Hong Kong as well as Bangalore in India form the Asian hubs.

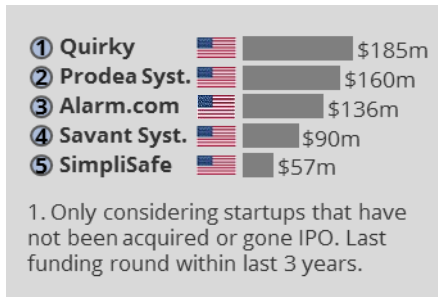
## 4. Startup funding

Another driver for the quick rise of the smart home market is the strong startup funding by major VCs across the world.

Startups are at the forefront of innovating solutions for home automation. The combination of innovative hardware, stable communication, a solid backend and user-friendly apps require substantial capital to do this. To this date, more than \$3bn of VC and other investments have gone into smart home related startups.

Quirky is leading the funding list having collected \$185mn followed by Texas-based Prodea Systems. Virginia-based startup Alarm.com comes in third.

If it wasn't for some of these innovative and well-funded new ventures that have come out with some revolutionary innovations (like the alarm.com security and video monitoring solution or the residential operating system by Prodea), smart home would not be where it is today.






**Figure 5: Top Smart Home startups**  
Startups with highest funding to date  
(Source: IoT Analytics Database of 250+ Smart Home Companies, Crunchbase)






## 5. New business cases

What started with smart entertainment systems, thermostats and smoke alarms has now become a long list of smart devices all over the house and even extending into the garden. Smart everything. These new business cases that have come up in 2013 and 2014 are further fueling the smart home market.




Major smart home business cases today (and selected examples) include:

### a. Home Control


	<b>Smart thermostat/HVAC control</b>	Nest smart thermostat lets you control the temperature with your smartphone
	<b>Smart lighting</b>	Philips Hue lets you control color, brightness, and timing of the LED via an app
	<b>Smart smoke alarm</b>	In case of smoke in the building, Nest Protect lets you what the problem is and where it is

	<b>Smart fridge</b>	LG's Smart Thing fridge knows what's inside, what to cook, and warns when expiration dates are approaching
	<b>Smart washing machine</b>	The Berg Cloudwash lets you program your washing machine from your phone
	<b>Smart cooking</b>	The Supermechanical Range is a cooking thermometer that lets you monitor the temperature of your food
	<b>Remote window control</b>	The Reed KumoSensor sends you notifications when windows or doors are opened or closed
	<b>Home robotics</b>	The iRobot Braava is a floor mopping robot that autonomously cleans your home

## ***b. Home Security&Safety***

	<b>Smart door lock</b>	The August Smart Lock lets you control who can enter your home and who can't, from your smartphone
	<b>Remote surveillance</b>	Rico turns your spare smartphone into a fully loaded smarthome security device
	<b>Drug detection</b>	MethMinder is a silent alarm system designed to detect the manufacture of methamphetamine ('P') in your property

## ***c. Water management***

	<b>Smart water heating</b>	The heatworks model 1 is the world's first digital water heater
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## ***d. Gardening***



### ***Optimized indoor plant watering***

The Koubachi plant sensor measures moisture, sunlight, and more to determine the vitality and needs of your plants



### ***Outdoor plant watering***

The Lono sprinkler system lets you control your sprinkler system with your smart phone

## ***e. Other***



### ***Telepresence***

The Anybot telepresence system allows you to participate in events and meetings through a personal remote avatar

The above list only includes standalone use cases for consumers.

The list does not include business cases around entertainment such as smart TVs (which could also be considered Smart Home).

One should note that there are additional business cases, especially regarding the smart home infrastructure. The most important examples are universal controllers that allow for integration of several of these smart home products.

If Smart Home 1.0 is about creating stand-alone business cases in the house, smart home 2.0 is about integrating these and ensuring a seamless home automation experience.

## ***6. Technology development***

There are two main concerns for early-adopters of smart home solutions: High prices (e.g., the Nest smoke alarm is nice to have but \$99US is too much for many) and limited functionality of individual solutions (e.g., It is great to have a smart lightbulb but if I need a separate app for it, the overall solution not worth that much).

However, the next generation smart home products are responding to exactly those requirements.

- **Technology costs** are rapidly declining. Cost for sensors for example have more than halved over the last 10 years and continue to do so.
- **Enhanced functionality and interoperability.** As indicated above, smart home systems are actually starting to become “smart”: The smart home systems 1.0 allowed you to control your home from your smartphones. The smart home systems 2.0 automate your home based on behavior and presence. In addition a lot of technology development is being put into the integration of multiple standards in one app. Platforms like Wink integrate a number of different technology standards like Nest and Philips to allow communication between different smart home systems/technologies.
- **Technology integration.** After Smart Home 2.0 comes Smart home 3.0. Smart Home 3.0 will lead to an integration of adjacent technologies so that home automation technologies can be combined with other IoT-solutions like wearable devices. The Myo gesture control bracelet for example already connects to your smart home. Amazon’s Echo voice control falls into the same category.

There are a couple of technology aspects that have not yet been solved but that (if solved) will result in a further boost of large scale adoption:

- **Privacy&Security.** Perhaps the most important aspect of technology development for smarter homes is an enhanced focus on privacy and security. Just like computers can be hacked, so can smart homes. And the implications can be far worse. The problem will be that consumer requirements for compelling smart home security solutions will only become apparent to the masses once a specific security breach has happened (e.g., a burglar or even a terrorist hacking into some smart home). This however would almost certainly slow down smart home demand. US president Obama recently made IoT cybersecurity a personal priority to prevent such incidents. Will it work? Time will tell.
- **Data based business models**  
Most experts argue that the largest value of the Internet of Things comes once the first applications are generated that make use of the massive amounts of data generated through the Internet of Things. So far we haven’t seen any scalable such business models in the connected home but it can be expected that it is what we will see being developed in the next years. A



good analogy is the internet: In the early 90s no company was making with data being generated by the internet. Today companies like Google or Facebook are generating most of their revenues from internet generated data.

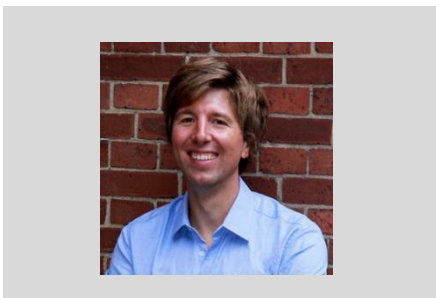
- ***A few widely accepted communication standards***

Just like a human being, any connected device can only learn and remember a few languages well. Therefore it is not advisable to build devices that speak 20 different communication protocols. Development time and complexity would kill the project. Wifi, Bluetooth, and 4G are already omnipresent but all of these standards have clear downsides (either power consumption or range). The battle for the standards is clearly on and not yet decided. Zigbee, Z-wave, KNX, EnOcean, Bidcos and Thread are among the currently most widely used standards. As further competition rolls-in from next generation low power WANs (like Sigfox), the battle will intensify. The ultimate goal is to have as few widely adopted communication standards as possible. It would result in an enhanced consumer experience and in falling technology costs.

## References

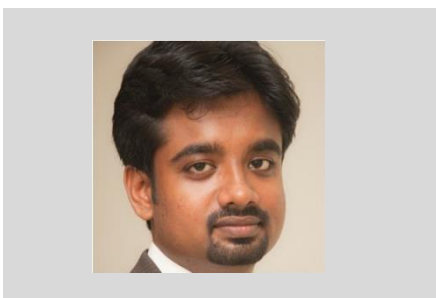
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