

WHO IS WINNING THE RACE TO SMART HOME AUTOMATION



Whitepaper

1.1 Introduction

For many years, the term ‘smart’ has been used as a marketing tool, as opposed to denoting the actual functionality of a device. It is therefore necessary to arrive at a definition of the term ‘smart home’ before we proceed.

Juniper Research defines a smart home as:

One that is designed to deliver or distribute a number of digital services inside and outside the home, through a range of networked devices.

While high-speed Internet connectivity is not entirely essential for all of the devices deployed in the home, the full functionality of a smart home depends on the availability of a permanently accessible broadband connection. ‘Outside the home’ refers to the flow of information to cloud services from these devices, as well as connected vehicles and so on.

It should be noted that at no point in the definition is there any mention of autonomous, or intelligent, services delivered through networked devices. This is because while smart home is the accepted term, it does not at present offer a ‘smart’ service.

More accurately, the smart home is the ‘connected home’, as connectivity enables additional services over the standard home. In the longer term, the connected home will become the smart home as solutions become increasingly autonomous, reliant on AI (Artificial Intelligence) and requiring little human input.

Juniper’s breakdown of the smart home market into its separate ecosystem components is shown below.

Figure 1: Smart Home Ecosystem

Smart Entertainment

- eg: Netflix, Hulu, Spotify

Smart Home Automation & Monitoring

- eg: Philips Hue, Samsung SmartThings, Belkin

Smart Metering

- eg: GE (General Electric), British Gas, SSE

Connected Vehicles

- Android Auto, Apple CarPlay, Geolocation Services

Connected Appliances

- eg: Bosch, Samsung, Hoover

Connected Health

- eg Healthrageous, Connected Health & Alere

Source: Juniper Research

At present, each segment is defined by a different list of players, with the exception of Samsung, which has a foothold in the majority of the sectors via its SmartThings brand, as well as Google, who compete in a number of sectors.

1.2 Recent Smart Home Movements

i. The Rise of Voice Assistants

The biggest movement in the smart home over the last 12 months has been the advent of voice assistants. This development cannot be overstated, as voice assistants have gone from a niche area to many users' preferred manner of controlling their smart home. The ease of integration which has been made available by the major voice assistant providers has aided this. Each vendor has developed their own development kit for the smart home. For Apple, this is HomeKit, which allows developers to use Apple devices for smart home control, creating integrations with Siri and the Apple Watch. Other vendors offering this type of development kit include Alphabet, with Google Home, as well as Skills with Alexa and the SmartThings SDK.

ii. Cheaper Devices Becoming Commonplace

Vendors at the lower end of the scale have also entered the smart home market, which shows its rising maturity. The tendency has been to offer devices with limited functionality at a reduced price. However, these products must still offer quality features, or risk being outclassed by rivals.

This is a firm trend in the home automation area, where items such as smart plugs have been undercut with low cost devices from manufacturers such as TP-LINK.

In the domestic aide robotics area as well, there have been market entrants on the lower end of the market. Anker has entered the space through its Eufy sub brand, which is offering robotic vacuums at a very competitive price.

Figure 2: Eufy RoboVac 11c



Source: Eufy

iii. Rapid Rate of Acquisitions

There has also been a large number of acquisitions in the smart home market. The highest profile of these has been Amazon's acquisition of Ring, the smart doorbell manufacturer for a reported figure of \$1 billion. This follows Amazon's purchase of Blink, a manufacturer of home security cameras in December 2017. These acquisitions have been focused largely on the smart security arena, which has become increasingly popular in the market.

1.3 The Smart Home Market: Key Trends

Some of the trends Juniper believes will shape the market are listed below:

i. Voice Assistants Becoming the Most Important Interface

The smart home market is being disrupted to a vast extent by the growing importance of voice assistants. This means that there is a huge opportunity for systems that integrate with these voice assistants.

For many elements of the smart home, particularly in the automation area, it is far simpler to use voice as an interface than to carry a smartphone. This is a trend that is expected to increase in importance over the next few years, with voice assistant compatibility essential for success.

ii. Partnerships More Important Than Ever

Given the relevance of voice assistants, stakeholder partnerships are becoming more important than ever. This, in the first instance, means that vendors need to have the correct compatibility in place with frameworks such as HomeKit. At a more advanced level, however, this means that smart home vendors need to work closely together with manufacturers.

Many smart home vendors have traditionally focused on a specific element of the market, such as smart doorbells or thermostats, building their product ranges around a single core offering. Users now expect a more complete smart home set. This means that vendors often need to integrate devices from other vendors into their systems or turn to manufacturers to plug the gaps in model line-ups. This trend will only

become more pronounced as vendors such as Amazon and Alphabet increase their market presence, forcing traditional vendors to adapt.

iii. Use in Insurance Multiplying

One area where the smart home is having a definite impact is in the insurance industry.

Insurers are typically not overly technological in the way in which they operate. They are attempting to address this through the use of smart home devices, frequently in partnership with smart home vendors. Devices such as water leak sensors are being leveraged to form part of an insurance product, which gives home insurers a differentiator against others in the insurance market.

Figure 3: Roost Insurance Partners



Source: Roost

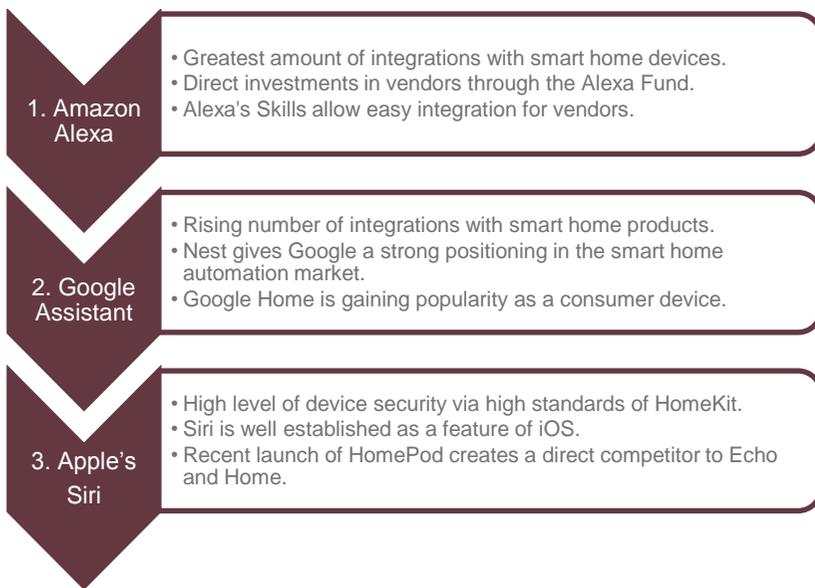
Smart home vendors such as Roost are deliberately targeting themselves as a partner for insurers, with new insurers such as Neos hinging on

smart home adoption. Juniper anticipates that insurers will adopt these approaches to seek an advantage in a competitive marketplace.

1.4 Sector Assessment: Voice Assistants

The figure below shows the ranking of the 3 main voice assistant vendors on their efforts specific to the smart home:

Figure 4: Leader Ranking in the Voice Assistant Area



Source: Juniper Research

Amazon is an extremely compelling vendor in this area, with Alexa establishing itself as the leading interface in the smart home sector.

It has executed a cohesive strategy to take leadership of the smart home in several ways:

- a built-in hub features as part of the Echo Plus, which can replace a standard smart home hub.
 - by heavily investing in smart home start-ups with its Alexa Fund, which has invested in vendors such as Rachio, Nucleus, ecobee and Garageio. This means that Amazon has directly stimulated the market through investment, investing over \$160 million in the area.
 - Alexa's Skills access means that it is easy for third parties to create apps for Alexa, adding functions as required. This makes the smart home vendors' task very simple.
 - Alexa has advanced features, such as routines, which allow the advanced automation of several devices, over and above what may be possible by using individual apps.
 - its acquisition of Ring allows the company to strengthen its position in the smart home security and automation sector.
- i. Google

While Google is strongly positioned in the smart home market, it is currently unable to match Amazon's level of control of the sector.

However, Google Assistant has a larger potential addressable market, given the fact that it comes pre-installed on devices running Android. This will give them an edge in the services they can offer; Juniper expects

Google's ecosystem to be an enticing prospect for generating new partnerships.

Until the launch of its Home series of speakers it was not directly competing with the Echo range, which gave Amazon the lead in this area. Google does however have several strengths in the smart home market:

- The acquisition and recent integration of Nest under the Google brand is a move that promises changes for the smart home market. The stated aim of the move is to bring AI and Assistant to the core of Nest's offerings, meaning that voice assistants are expected by Google to form a massive part of the smart home in the future. Assistant integration therefore is expected to be built in to Nest products as a crucial element of the offering.
- Google also has experience in the AI and machine learning field, which will allow Nest to build in more intelligent autonomous functions into its devices. This will allow Nest's devices to compete in a congested competitive environment.
- Nest's range is becoming broader all the time, including a more recent focus on the smart security area. This will allow it to directly compete with Amazon, which is targeting the area with the Ring acquisition.
- Google has recently introduced Duplex as a future feature of its Assistant offering, boasting the ability to make automated calls for appointment booking in a way that is largely indistinguishable from a human. While this demonstrates advanced features, it is unproven in the market and this ranking is based on existing products.

ii. Apple

In launching Siri in 2011, Apple brought digital assistants out of science fiction and into mainstream consumer consciousness.

The release of AirPods in 2016 and the HomePod in 2017 has expanded Siri's reach, but without a broader range of audio options the company may fall behind as other companies offer cheaper and more widely compatible options. In addition:

- The HomePod, while universally acknowledged as providing excellent sound quality, does not offer the same breadth of features as Echo and Home. Voice control is limited to devices that are explicitly supported, which limits the ecosystem available.
- Apple's requirements for HomeKit support are extensive, meaning that the list of devices supported under HomeKit pales in comparison with both the Amazon and Google equivalents. This limits its usability in the smart home space.

However, the ability to connect Siri with HomeKit will extend the function of HomePod devices and may ultimately lead to the ecosystem becoming broader, but this is not currently something that Apple appears to support. Where Siri can differentiate from other assistants is through integration with Apple's hand-off capabilities, allowing cross-device voice assistant use.

Opening up Siri to third party developers will help the assistant illustrate the possibilities of non-smartphone interactions without the additional investment in additional devices. However, the assistant's broader use is still uncertain, given that Apple's adjustment of it to other platforms has typically been slow.

1.5 Smart Homes Movers and Shakers



Rick Osterloh

Google

Senior VP, Hardware

Rick Osterloh is the Senior VP for Hardware at Google, responsible for all of Google's hardware offerings, including its Home range and the newly absorbed Nest brand. His responsibilities also cover the Pixel range, including Pixel smartphones and Pixel Buds headphones.

Osterloh first joined Google in July 2012, as SVP at Motorola Mobility, then a Google subsidiary. Osterloh then took over as President of Motorola Mobility in February 2014, continuing this role under Lenovo's ownership from November 2016. He then re-joined Google in April 2016, taking responsibility for all hardware products.

His previous jobs include VP at Skype prior to the Microsoft acquisition, as well as Senior Consultant at Deloitte. Osterloh received several qualifications from Stanford University.



Roel Peeters

Roost

CEO & Co-Founder

Roel Peeters co-founded Roost in June 2014, aiming to develop a low cost smart home solution adding maximum benefit for the consumer. Since that time, Peeters has supervised the transition from direct sales to customers to sales via insurance partners, overseeing partnerships with several large insurers across multiple markets.

Prior to his role at Roost, Peeters was the Director, Strategic Marketing at Amtel, being responsible for Amtel's IoT offering. Prior to this, Peeters was the founding CEO of Ozmo Devices, a start-up which specialised in developing low power Wi-Fi devices.

Peeters received a MS in Electrical Engineering from KU Leuven, followed by an MBA in Finance from the University of Pennsylvania.



Jason Johnson

August Home

Founder & CEO

Jason Johnson founded August in November 2012, to reinvent the way users experience technology in their own homes. Since then, he has overseen the launch of several products and August's acquisition by Assa Abloy.

Prior to founding August Home, Jeff spent more than 15 years in various executive roles. These included CEO at BlueSprig, a mobile security provider, Co-Founder at Rethink Books, Vice President of Marketing and Business Development at Dolby Laboratories, Vice President of Marketing and Business Development at Global IP Solutions and CEO at InterQuest.

Johnson was educated at Pepperdine University.



Todd Pedersen
Vivint
Founder & CEO

Born in 1968, Todd Pedersen first job in 1992 was in door-to-door sales, eventually selling burglar alarms as part of the process. He founded APX Alarm Security Solutions in 1997, changing its name 2011 to Vivint to better reflect the shift of focus from security to digital home automation and monitoring services.

Pedersen is still the company's CEO, despite Vivint's acquisition by Blackstone Group in 2012. He led the firm to branch out into other connected home technologies, including Vivint Solar Energy, as well as setting up charities such as the non-profit organisation Vivint Give Back.

He was named Young Entrepreneur of the Year in 2012 from Ernst & Young and has led Vivint to be named as one of the World's 50 Most Innovative Companies by Fast Company.



Stuart Lombard
ecobee
Founder & CEO

Stuart Lombard founded ecobee in 2007, acting as its CEO ever since. In this role Lombard has driven ecobee's transition from energy conservation to smart home technology.

Before founding ecobee in 2007, Lombard was a Partner at JLA Ventures from October 1998. Prior to this, he was CEO at Isolation Systems, following a stint as CEO at Inforamp.

Lombard received a BSc in Applied Mathematics from Queens University in 1988, following education at UCC.



Luke Schoenfelder
Latch
Founder & CEO

Luke Schoenfelder is the Founder and CEO of Latch, having founded the company in 2013. Since that time, Schoenfelder has focused on taking smart access to as many consumers as possible.

Prior to founding Latch, Schoenfelder was Founder and CEO at GridPotential, a start-up attempting to develop smart grid solutions via cellular technologies. Prior to this, Schoenfelder was a Specialist in Worldwide Government Affairs at Apple.

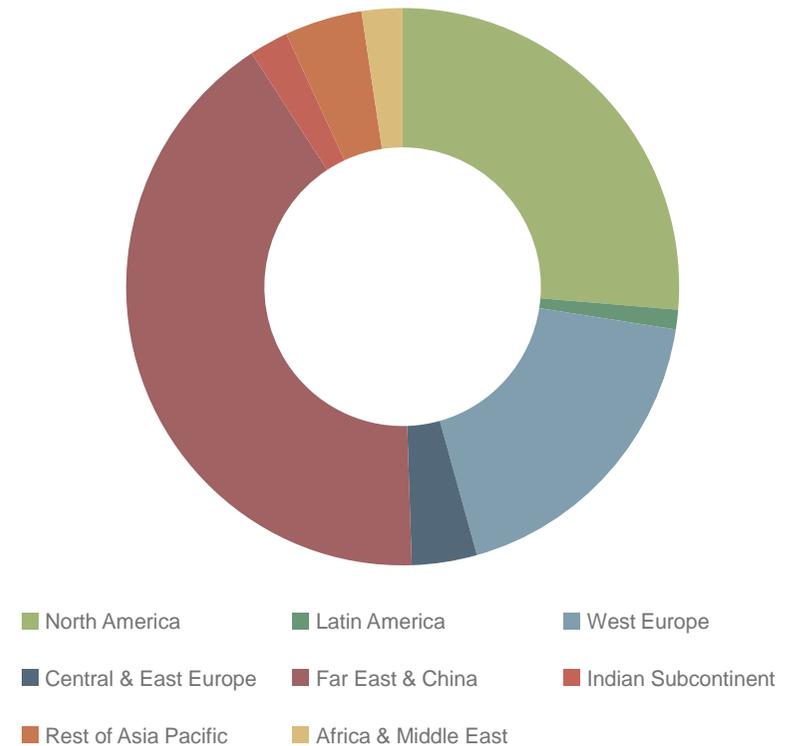
Schoenfelder was educated at Georgetown University, receiving a BA in Government, as well as at Imperial College London, receiving a MSc in Innovation, Entrepreneurship and Management.

1.6 Forecast Summary

Juniper forecasts that increasing smart security adoption will drive home automation and monitoring revenues from an estimated \$12 billion in 2018 to over \$45 billion by 2023, a growth of over 260%.

- Smart security is the driving force behind this market growth, with manufacturers such as Nest, Hive and Netgear producing compelling mass market products. This move is reinforced by the heavy focus by big players on smart entry solutions, as evidenced by Amazon's acquisition of Ring.
- Juniper found that major vendors are concentrating on building out their ecosystems, with corporate partnerships and acquisitions being the primary tools. Juniper predicted that open ecosystems will rapidly accelerate growth, reaching 1 billion automation and monitoring devices by 2023, up from 176 million in 2018, leading to benefits for both consumers and vendors.
- Juniper found that the smart home offers a significant opportunity for insurers to boost their appeal to consumers. Juniper estimates that during 2018, around 65 million new home insurance policies will leverage smart home technologies.

Figure 5: Total Revenue from Smart Home Automation & Monitoring (\$m) Split by Region, 2023: \$45.7 billion



Source: Juniper Research

Order the Full Research

Juniper's latest report on the **Smart Homes** market delivers crucial insights and in-depth analysis of this innovative sector. This report covers market disruptions and opportunities across key sectors. Interviews and Case Studies feature leading industry players and innovative new start-up ventures, alongside an extensive forecast suite to provide the clearest picture yet of the current state of the Smart Homes industry.

Key Features

- **Market Analysis & Impact Assessment:** Separate analyses for the impact of Smart Homes by segment, aligned with a breakdown of current market trends.
- **Regional Analysis of Smart Home Adoption & Readiness:** Includes analysis of adoption and barriers to growth across 8 key regions.
- **Juniper Leaderboard:** 12 leading Smart Home vendors compared, scored and positioned on the Juniper Leaderboard matrix.
- **Business Model Analysis:** Comparison of important business models in the Smart Home space, including subscription services and one-off purchase models, as well as opportunities for mobile operators, eCommerce providers and insurers.
- **Juniper Disruptors & Challengers Quadrant:** Analysis and positioning of 20 leading Smart Home start-ups, alongside analysis of key investments guiding the future of the sector.
- **Interviews:** Leading Smart Home vendors interviewed including Deutsche Telekom, Hive, Nest, Roost and more.

What's in this Research?

1. **Executive Summary & Core Findings** – Top-level report summarising key trends, competitive analysis and market forecasts, allied to a series of key takeaways and strategic recommendations.
2. **Deep Dive Strategy & Competition** – Strategic analysis of market dynamics, drivers and trends, a detailed investigation of key Smart Home segments and player analysis.
3. **Deep Dive Data & Forecasting** – Smart Homes market prospects analysis together with 5 year forecasts for key metrics, including number of Smart Home devices in use.
4. **Interactive Forecast Excel** – Highly granular dataset comprising over 21,000 datapoints, allied to an Interactive Scenario Tool giving users the ability to manipulate Juniper's data (Interactive XL).

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