



Defusing the hype in the smart home space

Alex Herceg

Alex Herceg at Lux Research provides an analysis of the smart home market and explains why functions related to energy efficiency are still central to the appeal of this technology.

Beginning with energy management technologies in the early 2000s, there has been an unprecedented amount of investment in smart home technologies – to the tune of \$550 million. In fact, smart home was among the fastest growing venture segments, accounting for 21% of funding that flowed to startups in the building systems and energy efficiency space in the past decade. The “smart home” technologies have their roots in home energy management (HEM), a crowded space in both the U.S. and Europe. This space saw startups developing capabilities ranging from home energy dashboards, like [eGauge](#), to intelligent and automated control systems – like [Green Energy Options](#). Primarily these technologies were appealing to utilities, who continue to grapple with how to best acquire and engage with their residential customers – some, such as [E.ON](#), have realized that customer services are the only viable path forward. This continues to be a lucrative market for leaders like [Opower](#) (which IPO'd in 2014) and [Tendril](#), but neglects the B2C market entirely.

Over the past three years, the focus has shifted substantially from energy-centric startup offerings to those focused on security and well-being. New funding models such as crowdfunding have allowed innovators to compete – and in some cases upstage – larger hardware companies. In 2014, Google acquired smart thermostat maker [Nest Labs](#)

and [Dropcam](#) for a combined \$3.75 billion, and Samsung also acquired Kickstarter-backed [SmartThings](#) for \$200 million. This increased attention in looking beyond energy, igniting a flurry of activity in the space. These companies are aggressively expanding their reach of products, with [SmartThings](#) now counting 2000 compatible products, and [Nest](#) boasting partnerships with 18 startups spanning 15 smart home capabilities.

Despite this massive expansion of the capabilities in the home – consumers are still largely in the dark. New types of companies have entered the home, from web giants such as Google to appliance OEMs and even insurance companies; Allianz has already established a partnership with Panasonic. The key problem rests with integration, however – consumers must evaluate and integrate all of the technical



Home energy management features like the smart thermostat are still central to the smart home technology, but companies are now introducing functions in additional areas such as wellbeing and security in an attempt to appeal to a larger customer base (Image courtesy of Shutterstock).

aspects of the smart home. It is this disorganization which has spawned the “protocol wars” – or more aptly – “platform wars”. These show no signs of abating, as large companies, such as Philips, continue to hedge their bets by producing products which are compatible with all of the multiple platforms, such as [Apple’s HomeKit](#), Wink, SmartThings, Works with Nest, and the [AllSeen Alliance](#).

Looking closely, we can make estimates of the extent of adoption in the smart home market. Samsung claims it processes 150,000,000 “events” (i.e. activities) per day, across all of its devices, according to a presentation James Monaghan gave at IoT Expo in London. It also says that on average, a consumer has 13 connected devices in his or her home. This is similar to what an executive at [Wink](#) told us – that customers who purchase its hubs have an average of 10 devices. Assuming 100 “events” per device, per day, we estimate SmartThings powers around 120,000 smart homes. Similarly, Wink disclosed it has sold one million hubs, so it too, reaches about 100,000 homes. To put this penetration into perspective, consider that the EU-27 and U.S. taken together have close to 250 million households. SmartThings and Wink are among the leaders in smart home platforms, but to date, have only penetrated 0.09% of the total addressable market.

SmartThings has told us its customers add a new device to their home every quarter – but this is not indicative of the broader market. Smart home adoption is slow, because the hardware is simply expensive. We have found that using average device pricing, a typical home would require \$6700 worth of hardware to make it “smart” – and that excludes big-ticket items like connected appliances, energy storage, or onsite generation (e.g., PV).

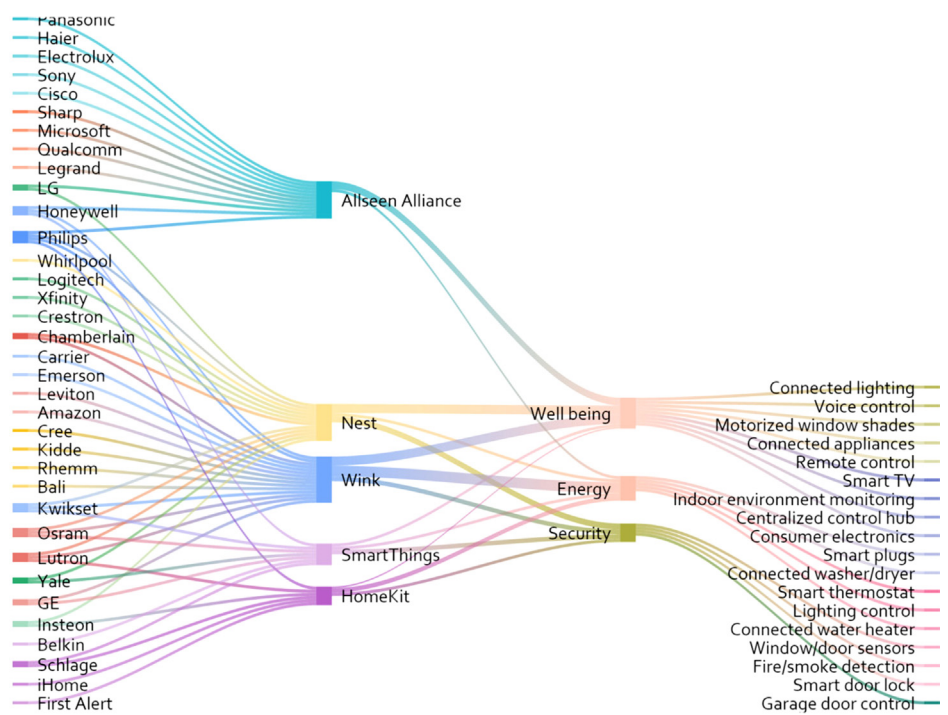
The reason that adoption in the smart home market is lagging is because there is no shortage of companies promising benefits – but few have failed to prove their value. This problem is largely with those marketing hardware centered around well-being and security. The capabilities range from senior monitoring, to water-leak detection, and even smart door locks. Many of these products are still “nice to have”, but don’t offer a tangible benefit. To address this, Lux Research created a framework for evaluating these technologies in terms of their position on the “value

spectrum”, from loss-prevention at one end, to value adding on the other. Security products are squarely in the loss-prevention camp (by preventing burglary), while a smart thermostat is arguably adding value (through improved comfort and cost savings). There are many interesting functions related to health and well-being, such as air quality monitoring, and smart vent control, but these don’t yet add significant value.

Lux Research evaluated 13 different smart home functions across the focus areas of energy, security, and well-being, in terms of cost and value-spectrum score. The results showed that many of these technologies are still in the limited appeal category – those that have reasonable hardware costs but offer limited value adding potential. There were some interesting candidates for early adoption, such as smart apartments. [Iotas](#) is one company in particular moving quickly in the smart apartment space, and smart door lock developer Latch recently raised \$16 million to tackle rental properties. In the focus area of energy, the smart thermostat is still the king – and the only “killer app” according to our analysis. Other related functions, such as connected plugs and whole-home energy management only provide incremental

gains – but those don’t justify the hefty jump in hardware costs. In the well-being category, several technologies are moving towards mass appeal, such as air quality monitoring. However, developers in this space will really need to achieve partnerships with hardware and service providers in order to manage air in the same way that utilities or energy retailers manage energy. While the “last mile” of air quality can be very lucrative, the stand-alone sensors lack any way of dealing with the problems they are uncovering.

It’s important to emphasize that we are still relatively early in terms of this market. According to [Gartner’s “Hype Cycle” for 2015](#), smart homes have not yet reached the peak of its hype. In the rapid ascent we have seen some casualties. Now defunct hardware developer Quirky has proven it’s extremely expensive to develop and market new products – even if you have your own successful platform. Smart night light maker [Leeo](#) raised \$37 million before it laid off one-third of its staff last year and went back to the drawing board. There will be more carnage to come, as well as consolidation, particularly in communication. For example, Google Thread (its new 6LoWPan application layer) will be compatible with ZigBee 3.0.



Source: Lux Research, Inc. www.luxresearchinc.com

Partnership map for dominant smart home platforms introduced by large companies.

There is also a pressing need for a master integrator in the smart home, something similar to what companies like [Next Step Living](#) were doing in the energy efficiency space to help the average homeowner understand their options. All of the large participants are vying for this position, and it's too early to call a clear winner.

This is the path to integration for renewables in the smart home. Renewable energy technology developers and service providers will need to engage with smart home platform developers in order to navigate the evolving functions within the smart home. Energy is only one piece of the smart home, and understanding the

broader picture is essential in staying relevant to the consumer.

ABOUT THE AUTHOR

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