GfK Future of Smart Home Study

Global Report: January 2016

January 2016

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Foreword
The future of smart home

In the last 12 months we have seen a large number of announcements around the smart home, showcasing a whole plethora of products and offerings for the consumer. Analysts are predicting great things for smart home as this is seen as a huge growth opportunity in the next few years. It finally feels like the time that home automation and smart home products and services will take off, as we see a host of organisations looking to address the developing opportunity.

It was in this context that GfK decided to investigate the levels of interest among consumers by running a global study on the smart home. The aim was to really examine consumer reaction to smart home and try and establish some understanding of the potential opportunity. To what extent are consumers even aware of and interested in smart home? what aspects really appeal? how do they expect it to work? are just some of the questions we looked to address in this study. This report details some of the reaction from consumers and examines if the opportunity lives up to the hype.

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Introduction
Key topics

To better understand how the future of smart home, this study seeks to explore and provide insight on the following questions by assessing consumer attitude and behaviour.

1 **What do consumers know and expect of smart home?**

2 **What are the key areas of opportunity?**

3 **The main barriers to adoption?**

4 **How can smart home be best delivered?**

Introduction

Introduction

How we approached the study

To understand the market for smart home we have structured the report around three layers, aiming to understand the consumer landscape, the opportunity and potential of smart home categories and products, and finally how smart home can be best delivered.

Understand the **consumer landscape**

Assess consumer reception to smart home, product categories and individual use cases

Understand how smart home can be **best delivered**

Introduction
GfK Future of Smart Home Study: Overview

GfK conducted primary research with consumers in countries where smart home is increasingly relevant or presents an opportunity for significant growth in the near future. Respondents were recruited and interviewed using an online survey based methodology.

7 Markets

Consumers interviewed in Brazil, Germany, Japan, UK, US, China and South Korea

7,000+ consumers

Representative of online audience in each country

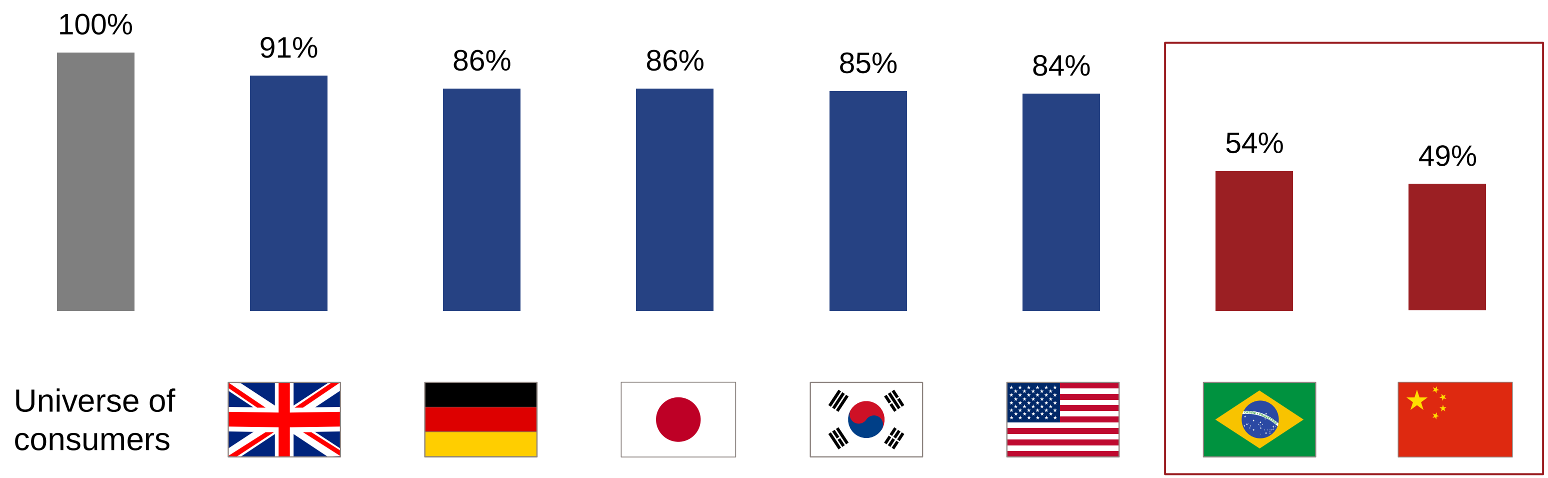
Online Interviewing

Via smartphones, tablets, laptops and PCs

Introduction
Sample representation

An online methodology is most representative in developed markets due to the ubiquity of online usage. The impact of lower levels of online penetration in emerging markets (Brazil, China) has meant that our sample is not as representative of the total population in these markets, but rather of a more tech engaged segment.

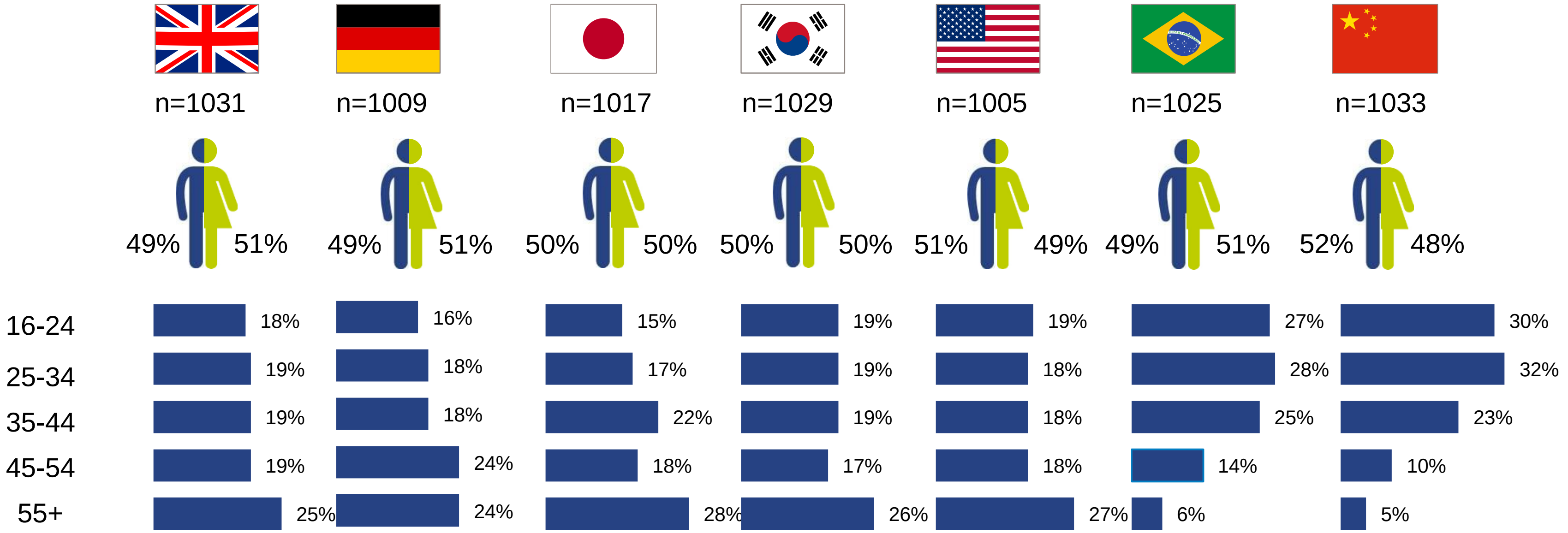
(%) of respondents who use the internet regularly



Source: ComScore 2014

Introduction
Respondent profile overview

Age and Gender data has been weighted to be representative of online usage. In China and Brazil this results in a much younger age profile, which is reflective of online usage in these markets.

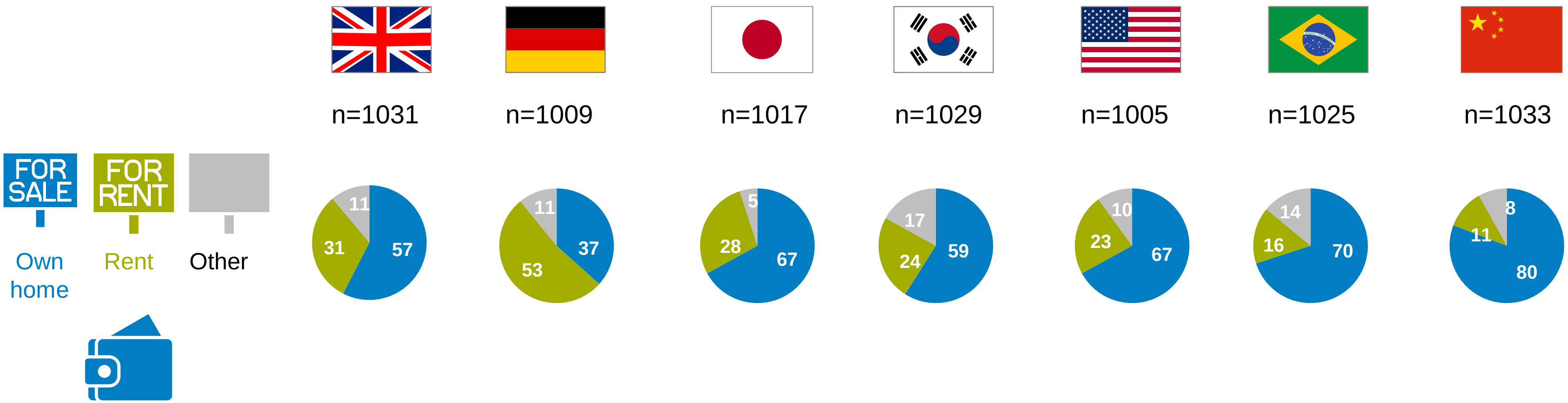


Source: ComScore 2014

Introduction

Respondent profile overview: The household

Household profiles differ significantly across the markets, with Germany in particular having very high levels of rental. Household income in China is in line with other markets in the study - due to our focus on online households.

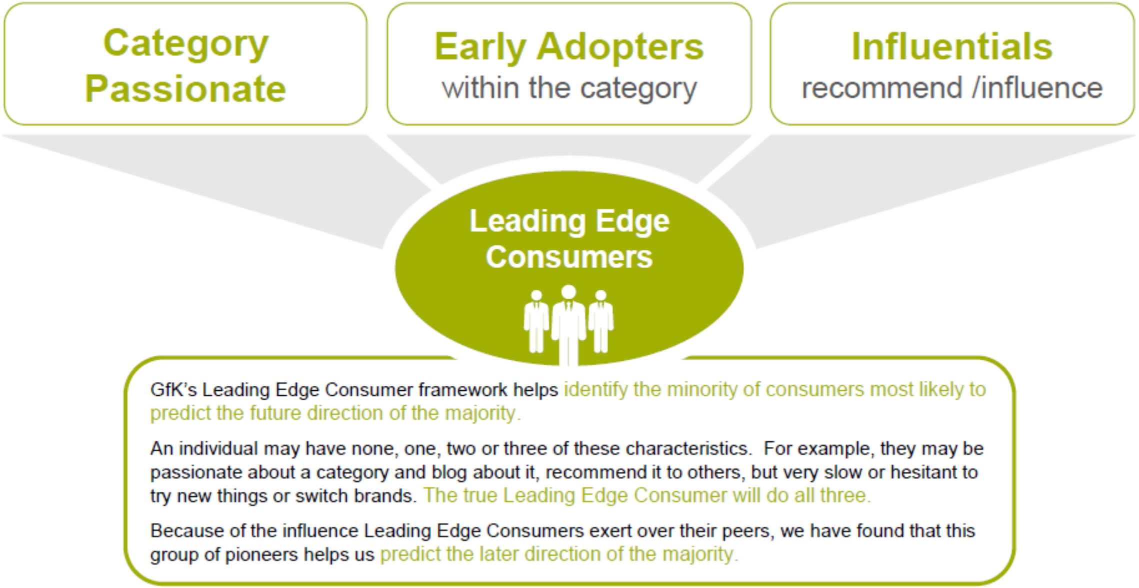


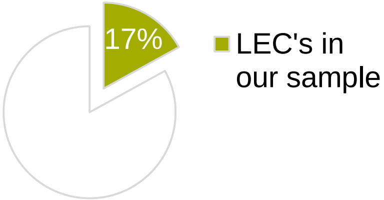
Average household income (Converted to USD)	$52,310	$48,470	$53,710	$45,330	$69,271	$27,580	$58,070

Leading Edge Consumers: Predicting the future

Identifying the consumers that will drive the category

We identified the consumers who are most likely to be critical to a new product's success - those that are early triers of a product, who are passionate about the category, and/or influence others in the category. We call these people Leading Edge Consumers. The attitudes and behaviours observed from LECs can help us predict the later direction of the majority.





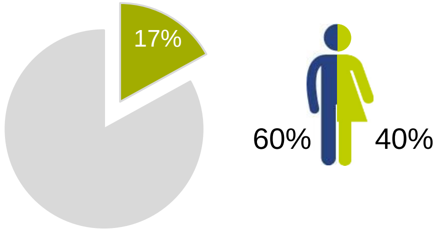
There are three question areas that, when combined define the Leading Edge Consumer (early adoption behavior, influential status, and passion for/interest in the category).

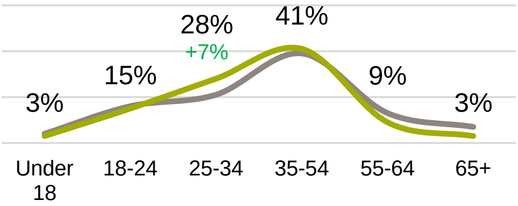
Leading Edge Consumers: Predicting the future

What do our Leading Edge Consumers look like?

We know the Leading Edge Consumers are more likely to consider themselves experts when it comes to technology, have people seek their opinions and are passionate about technology. We see a younger, male skew among Leading Edge Consumers and they are more engaged in technology - using more devices and also more subscription services than the average consumer.

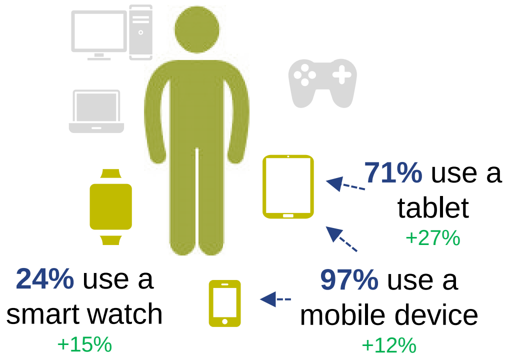
LEC's in our sample





Leading Edge Consumers use more devices on average

5.3 vs. 3.7



Leading Edge Consumers are already daily users of a 'smart' function

54% use a smart TV +23%

77% use it's 'smart' functionality daily +11%

82% currently pay for / have access to multiple subscription services +28%

58% use music streaming +24%

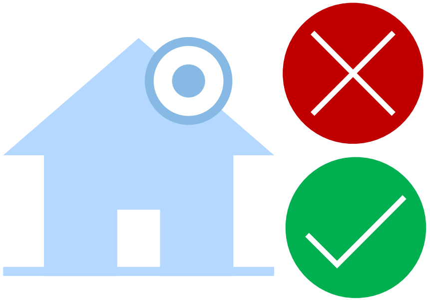
63% use video streaming +27%

Base: All markets=7149, Total Leading Edge Consumers=1189. *+/-% compared to average*

GfK MarketBuilder

Developing a realistic evaluation of potential smart home adoption

Traditionally new product and service innovation testing has relied on consumer's stated intention to purchase to uncover likely take up of new concepts. However, GfK has developed a more realistic and standardised approach (GfK MarketBuilder) which also takes into account how well it will fit into consumer's lives before a new product is adopted, giving a much more calibrated potential for any new offering. We used this approach to assess likely take up of Smart Home.



Behavior-centric testing

Concept-centric KPIs are replaced by behavior-centric KPIs that measure how new experiences fit into consumers' lives

Key Levers

UX and Behaviour change
Self-Identification
Social Effects
Marketing/Retail Push
Relative Advantage
Trust
Service & Support

Introduction
This report in context

This report is a global overview of the finding of the GfK smart home study. In addition, country deep dive reports are available that provide a more detailed market evaluation from January 2016.

Global Overview

Detailed country reports

Brazil, Germany,
Japan, UK, US, China, South Korea

Executive Summary

Consumers and the smart home:

Consumer awareness and expectations are high for smart home

When we examine the level of currency that 'smart home' as a term has, it is clear that consumer expectations are high on what smart home will offer:

- Nearly two-thirds of consumers are familiar with the term and half of them expect smart home technology to impact their lives in the next few years;
- The expectations are particularly high among Leading Edge Consumers (LECs), where more than '3 in 4' expecting it to have an impact on their lives ahead of all other technology trends;
- While familiarity with the term is high, the depth of knowledge is relatively limited, with few claiming to know a lot about the terms (except in US/China and Brazil where more than 20% claim to have a lot of knowledge);
- To some extent, people have already adopted some smart home technology, with over a quarter already owning at least one smart home device (level of adoption is considerably higher among LECs, with more than half owning at least one smart home device);
- However, the fragmented nature of the market is seen in the fact that there is no single 'hero' product that is driving the adoption of smart home devices, with a whole host of products having been adopted to date.

Identifying the opportunity for smart home:

Many consumers clearly understand smart home to be relevant and useful

Reaction to the concept as a whole and also specific categories and products within these show that smart home is seen as potentially relevant to many consumers' lives:

- The appeal and relevance of the smart home concept itself and across specific categories is relatively high with smart security & control and energy & lighting emerging as the areas of most appeal;
- The levels of appeal and interest are considerably higher among LECs, Millennials and Gen X and also those with High/Medium income levels, suggesting that these groups should be targeted for initial development;
- However, while appeal is relatively high, there remains a significant proportion of consumers who are lukewarm to smart home, suggesting they need to be fully convinced of the merits of adopting this technology and how it could improve their lives;
- Overall, we see similar levels of interest and stated intention to purchase amongst the specific products tested within each category area;
- Among Leading Edge Consumers, the stated intention to purchase specific products is considerably higher and their interest centres on smart lighting and appliances in the main.

Predicting the potential for smart home:

Current levels of understanding will only support incremental growth globally

While the majority of consumers state they intend to adopt a smart home device in the next 2 years, validating this potential adoptions shows only 14% will be likely to do so:

- Using GfK's MarketBuilder validation approach to the adoption of smart home technology reveals that three key areas emerge that will prevent widescale adoption – trust, the user experience and personal identification with smart home technology;
- Concerns around trust in the brands and how they will handle data privacy, learning how to use the new technology as well as feeling it fits with them personally are the key barriers to taking on the technology;
- The validated purchasers of smart home technology are evident in high levels in China and Brazil – which is expected in these markets given the online population is younger and more tech engaged – and is also seen to a high level in the US (16%);
- Likely adoption levels are considerably lower in the UK (6%) and Germany (6%) and Japan (3%) – who need greater education of the benefits and how smart home will work for them;
- The main areas they will adopt centre on smart lighting, detectors and appliances;
- When consumers were asked directly on barrier's to adopting smart home technology the key stated concerns are cost, data privacy and knowledge emerge as issues that they need to be convince on.

Delivering smart home:

A clear expectation and desire for simplicity and seamlessness

Consumers expect the smart home to be delivered and managed in a seamless and simple fashion with an expectation that the disparate technologies will work together in the background:

- The majority of consumers expect devices to connect and communicate with each other and would be willing to pay for a single application to control all the devices in the home;
- This expectation is amplified amongst those that already own a smart home device and also for Leading Edge Consumers, suggesting this need will need to be delivered on if smart home adoption is to take off;
- Interest in simplicity for the smart home is further reflected in the fact that many consumers would prefer to have a single vendor supply all their smart home technology (43%);
- How consumers expect to control the smart home is reflective of current device ownership levels, with Smartphones emerging as the key expectation;
- Installation, maintenance and payment options reflect the device dominated nature of the current smart home market, with many preferring to self install and maintain devices and to pay for devices as a ‘one-off’ payment (especially among LECs);
- In terms of the types of companies expected to offer smart home products, this reflects the diversity of organisations that consumers trust, ranging from manufacturers, technology brands and retailers as well as utilities in particular for smart energy & lighting.

Key implications for developing the smart home opportunity

In order for brands to realise the potential for smart home it is clear there a number of issues they will need to consider:

- Positively, it appears that a lot of the market hype and buzz around the category has already connected with consumers but this will also have raised hopes on smart home delivery;
- Consumers have a clear desire for simplicity and expectations on how smart home technology will work in the home – the current fragmentation and lack of coherency across the disparate devices will potentially only drive incremental growth;
- Communicating how smart home technology will fit in with and enhance people’s lives is key as well as ensuring that the user experience is engaging and intuitive in order to truly deliver mass market adoption;
- It will also be critical that concerns around the data collected (via smart home technology) are allayed – trust is going to be a key issue that brands will need to reassure buyers on;
- Building value across the devices and usage in the home will also be central to communicating the potential of the smart home – this means a number of organisations will have to work together and unlikely partnerships will form to address consumer needs;
- Ultimately, brands will need to be clear on how making the home smarter will really benefit consumers and how adopting the technology could transform their lives.

Consumers and the smart home

Consumers and the smart home

Personal device usage in the home

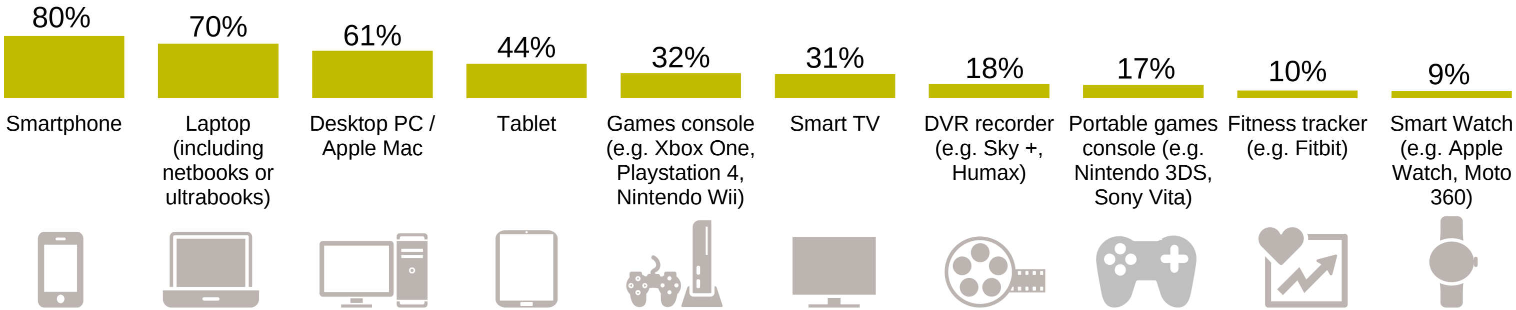
Consumers are using a variety of connected devices in the home, with vast majority having at least one mobile device (Smartphone or tablet). We also see Smart TVs gaining significant traction; introducing consumers to the idea (if not the practice) of smart technology in the home.

Personal device usage in the home

85% Own a modern mobile device of some kind

Consumers personally use an average of 3.7 connected devices

(from a list of 10)



Base: H02. Which of the following devices do you use personally? Base: All markets=7149

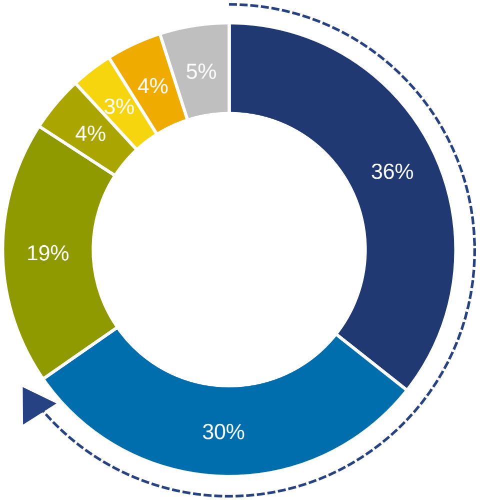
Consumers and the smart home

Ownership and usage of Smart TV

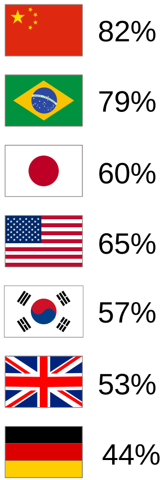
Smart TV represents the first mainstream smart home product. Consumers use the smart functionality regularly; with nearly ‘2 in 3’ using smart features at least once a day; however German consumers are significantly less likely to use this functionality on a daily basis.

Frequency of TV ‘smart’ functionality use

31% use a Smart TV



Several times a day
At least daily
At least weekly
At least monthly
Every 1-3 months
Less than every 3 months
Never used the ‘Smart’ functions



Use smart TV functionality ‘At least daily’ or ‘Several times a day’

(Smart TV owners)

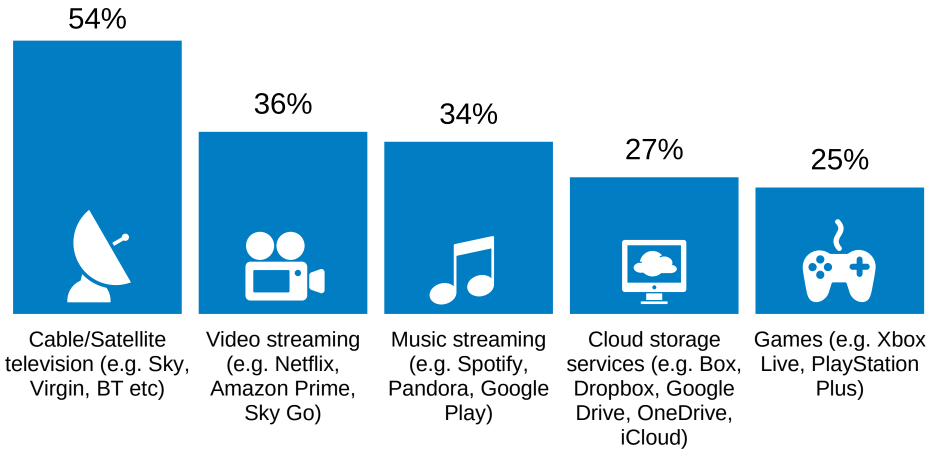
Definition of ‘Smart Functionality’: *Smart functionality could relate to anything other than watching normal channels i.e. accessing video on demand/catch-up TV services, or accessing the internet / apps such as Facebook and Netflix through your Smart TV.* Base: H02. Which of the following devices do you use personally? [Smart TV] H04. Thinking about your Smart TV how often do you use the Smart functionality? Base: Smart TV Users=1757.

Consumers and the smart home

Digital subscriptions

Most consumers are paying for at least one subscription, with entertainment being the key element. The fact that many consumers are comfortable accessing subscription services and this is likely to increase in the future may well have implications for smart home delivery in the future – potentially through a service model.

Top consumer subscriptions



75%
pay for (or have access to) a **subscription**

61%
pay for (or have access to) a **digital subscription***

43%
pay for (or have access to) **multiple digital subscriptions***

****Digital subscription=*** *Pay for or have access to any of the following subscriptions: Includes Music streaming, Video streaming, Productivity software, Creative software, Cloud storage services, Games, Privacy and Connection Security, Paid news subscription (Excluding: Cable/Satellite television subscriptions).*

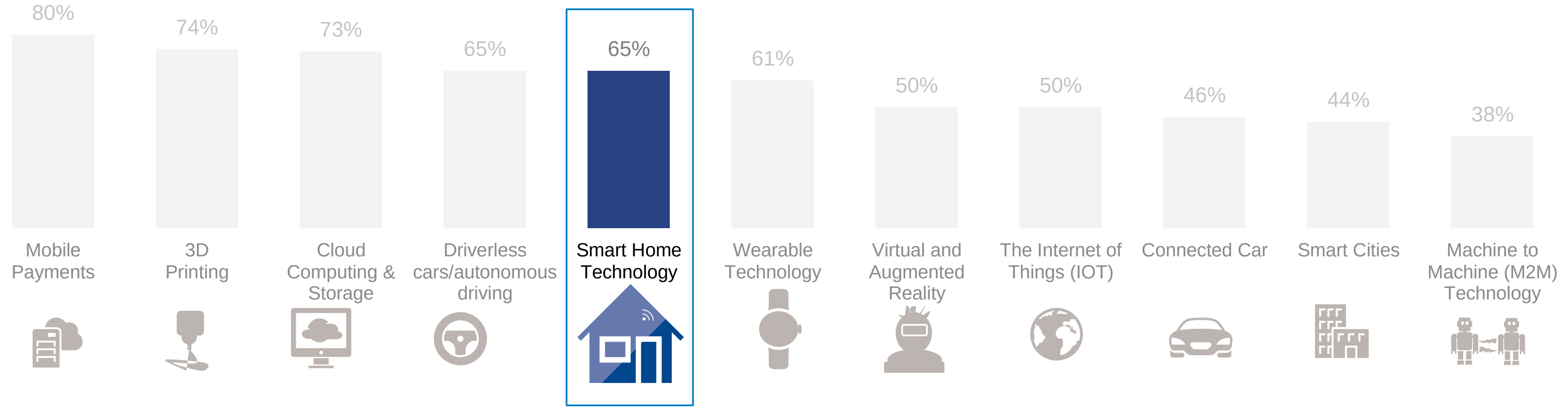
Base: H03. Do you pay for (or have access to) any of the following subscriptions? Base: All markets=7149

Consumers and the smart home
Knowledge of technology trends

Although smart home is a broadly established term among consumers (86% having at least of heard of it), depth of knowledge is less than some other comparable technologies, which may reflect its relatively recent emergence into the mainstream.

Knowledge of technology trends

Those who have some knowledge of trend (know a lot/a fair amount/a little)



Base: C01. Please indicate how familiar you are with the technology and trends that are known by the following terms. Base: All markets=7149.

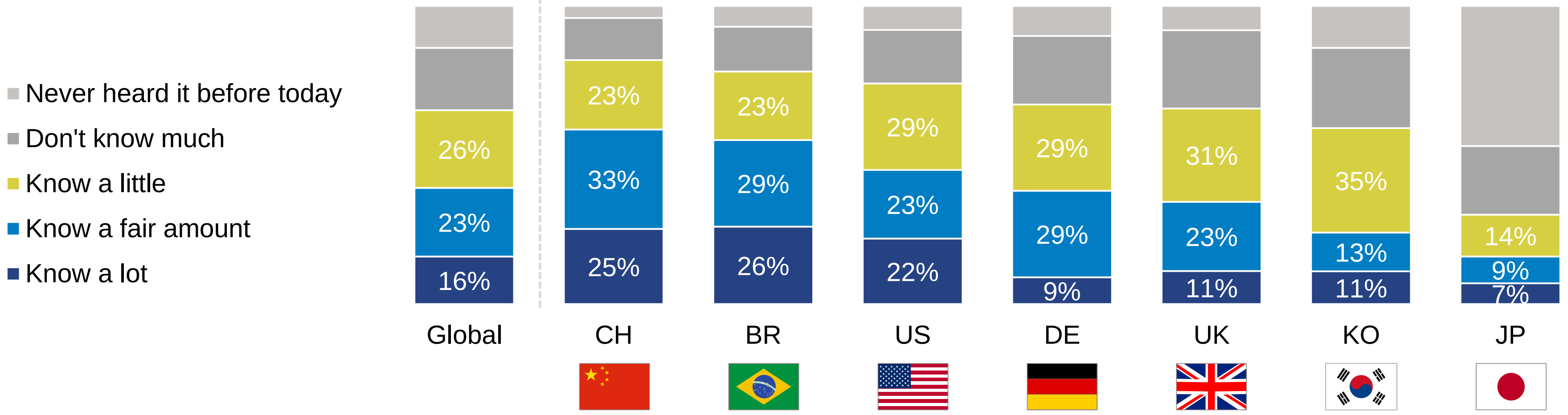
'Have some knowledge'=Code 'I know a lot' or 'I know a fair amount' or 'I know a little'

Consumers and the smart home

Awareness and depth of knowledge of smart home

When we examine knowledge of smart home across markets, we see China and Brazil as the most engaged with the topic (which is unsurprising since the online population is more technology engaged). There are relatively low levels of knowledge in Japan, with the US the leading developed market.

Smart home depth of knowledge



Base: C01. Please indicate how familiar you are with the technology and trends that are known by the following terms. Base: All markets=7149.

'Have some knowledge'=Code 'I know a lot' or 'I know a fair amount' or 'I know a little'

Consumers and the smart home

Consumer knowledge of smart home

Understanding of the term ‘smart home’

“All remote control… equipped with adjustment function… technology that can be friendly to children and the elderly.”

“Internet matrix for home electronic equipment… control the home from a single wireless communication device…an adjustable system.”

“An in-home network controlling domestic devices… technology monitors everything in your home…all connected to one hub…items connecting together.”

“Networked home, all about smartphones and controlling homes even while travelling… technology that intelligently adapts.”

“All appliances and home security are connected to an app on your smartphone…I can directly monitor my household devices.”

“Connected devices chatting with each other…without physical presence… anything with automation of home and domestic work.”

“Making family life in the home intelligent through automation networks and electronic devices…using remote control.”

Least engaged with term — **Most engaged with term** (% Knowledge of trend)

(30%) (59%) (65%) (67%) (74%) (78%) (81%)

Base: C17. What is your understanding of the term ‘smart home’? [Open end] Base: All who know at least a little about the smart home term

Consumers and the smart home

Technologies that will impact consumers lives

Around half of consumers expect smart home to have an impact on their lives in the near future, a feeling most pronounced, relative to other technologies, in the UK, Germany and US. Consumers in China see smart home as the technology most likely to have a potential impact, although this feeling is not shared in Japan.

Technologies/trends consumers feel will have an impact on their life

Most likely

% of consumers who feel that technology will have an impact on their life

Least likely

- 55% Mobile Payments
- **50% Smart home technology**
- 41% 3D Printing
- 38% Cloud Computing and Storage
- 35% Wearable Technology
- 33% Driverless cars / Autonomous driving
- 29% The Internet of Things
- 26% Connected Car
- 24% Virtual / Augmented Reality
- 24% Smart Cities
- 14% Machine to Machine Technology

50%

Of consumers feel that **smart home Technology** will have an impact on their life over the next few years

Base: C01b. Please select the technologies/trends you feel will have an impact on your life over the next few years. *Please select all that apply.* Base: All markets=7149

Consumers and the smart home

Leading Edge Consumers: Predicting the future

Leading edge consumers identify smart home as the trend most likely to impact their life over their next few years – ahead of technologies such as wearable technology and 3D printing. This suggests that LECs have very high expectations on the possibilities of smart home technology and how it will transform their lives.

Technologies/trends consumers feel will have an impact on their life

Most likely

% of consumers who feel that technology will have an impact on their life

Least likely

- **78% Smart home technology**
- 74% Mobile Payments
- 63% Wearable Technology
- 62% 3D Printing
- 60% Cloud Computing and Storage
- 52% Connected Car
- 51% Driverless cars / Autonomous driving
- 50% The Internet of Things
- 48% Smart Cities
- 46% Virtual / Augmented Reality
- 29% Machine to Machine Technology

78%

Of leading edge consumers feel that **smart home Technology** will have an impact on their life over the next few years

Base: C01b. Please select the technologies/trends you feel will have an impact on your life over the next few years. *Please select all that apply.* Base: All markets=7149 LECs=1189

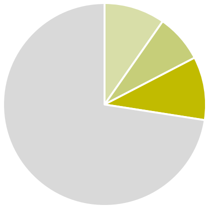
Consumers and the smart home
Smart home product ownership

While the smart home is an emerging trend for many consumers at a conceptual level, It is clear that many are already adopting smart home products/services, but, in many cases, they may not perceive this as part of broader ‘smart home’.

Ownership of a smart home product

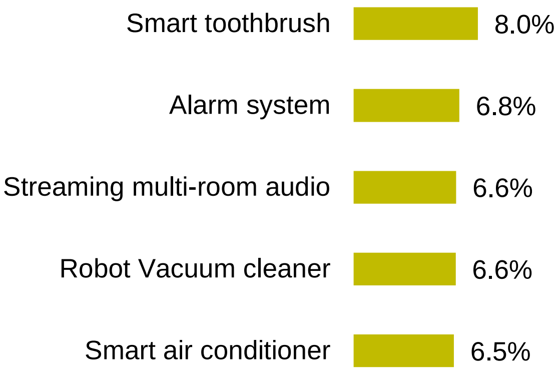
27%

Own at least one smart home product or device*



46% 35% 27% 26% 25% 22% 13%

Smart home products currently used



*This definition does not include Smart TV, Smart set-top boxes or health/fitness devices. Base: D02. Do you currently use or are you interested in using any of the following smart home products or services within your household? Base: All markets=7149

Consumers and the smart home

Leading Edge Consumers: Predicting the future

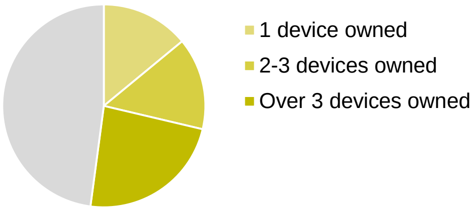
Over half of Leading Edge Consumers have already bought at least one smart home product and Leading Edge Consumers are more likely to own more than one, with over 2 in 5 owning more than 3 products. We see similar categories of interest for LECs but higher usage of all products among Leading Edge Consumers.

Ownership of a smart home product

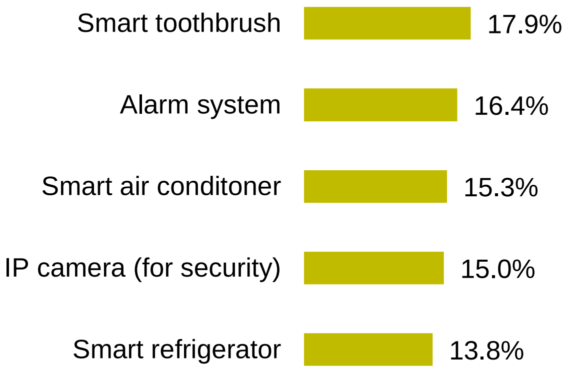
Leading Edge Consumers

52%

Own at least one smart home product or device*



Smart home products currently used



*This definition does not include Smart TV, Smart set-top boxes or health/fitness devices. Base: D02. Do you currently use or are you interested in using any of the following smart home products or services within your household? Base: All markets=7149. Total Leading Edge Consumers=1189.

Consumers and the smart home

The long tail of smart some product ownership

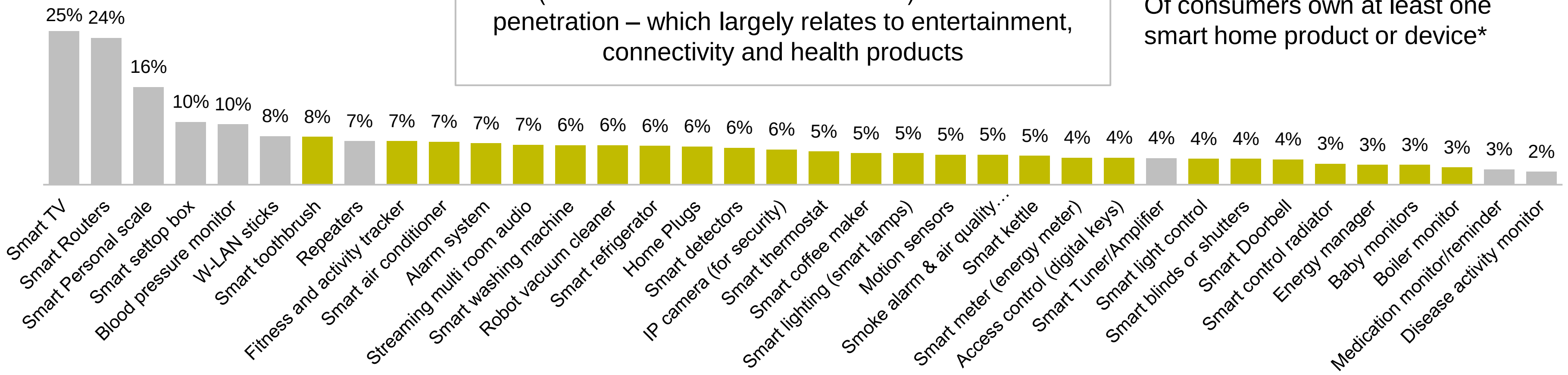
Very few smart home products currently have any clear advantage when considering existing ownership, and items most popular with conusmers tend to be those where manufactuers have integrated smart functions into everyday devices – resulting in most smart products being used in isolation, and for specific tasks in the home, resulting in a highly fragemented market place.

Smart home product ownership

We have not included smart devices that have a high chance of consumer confusion regarding ownership (i.e. the exact definition of 'smart') or market penetration – which largely relates to entertainment, connectivity and health products

27%

Of consumers own at least one smart home product or device*



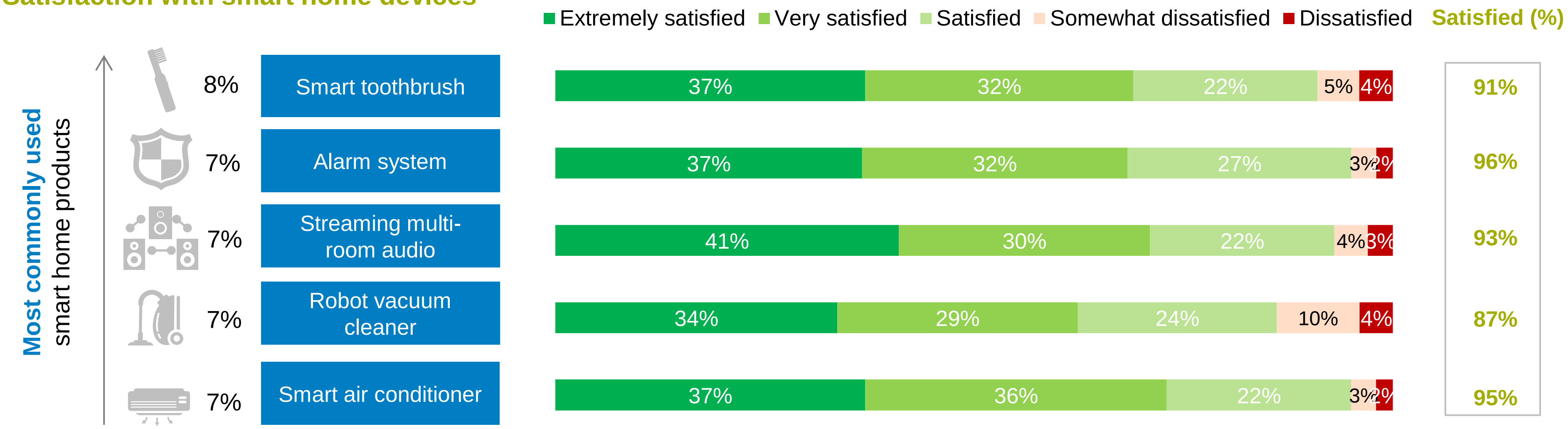
D02. Do you currently use or are you interested in using any of the following smart home products or services within your household? Base: All markets=7149.

Consumers and the smart home

Satisfaction with smart home devices

Satisfaction with devices is strong among early adopters, with a relative minority being dissatisfied with their devices. Both smart toothbrushes and robot vacuum cleaners show some indication of dissatisfaction when compared to products such as alarm, audio and air conditioning systems due to the heavy reliance on the technology in daily use

Satisfaction with smart home devices



D03. How satisfied are you with the following products or services that you own? Base: Smart toothbrush:542, Alarm system: 476, Streaming audio:440, Robot vacuum:455, Air conditioner:444

Consumers and the smart home

Expectations from smart home

When giving opportunity to talk about the devices they associate with smart home, consumers respond with a range of potential devices, which while positive for future adoption highlights the lack of a single leading ‘hero’ product or application, further reinforcing the likely fragmented nature of the market.

Products, devices or services thought of when thinking of ‘smart home’

Appliances

“Refrigerators monitoring stock...that can independently shop for items themselves” *(DE)*

“TV, computer, telephone, refrigerator, stove, washer, dryer, microwave, DVD, cable television, air conditioner, Automotive, radios, doors, fan” *(BR)*

“Vacuum cleaners and air conditioners, refrigerators” *(JP)*

Smart Health

“‘Watches, fitness trackers.” *(UK)*

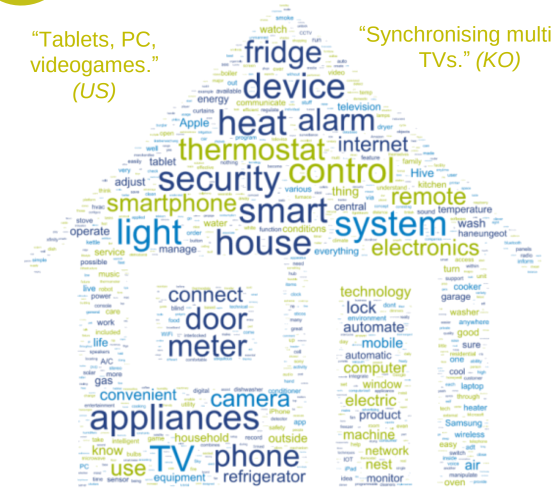
“Devices that you wear and connect to other machines and monitor things like your pulse and BP.” *(UK)*

Entertainment

“Tablets, PC, videogames.” *(US)*

“Home audio and video products.” *(CN)*

“Synchronising multiple TVs.” *(KO)*



Security and Control

“Including smart appliance control, intelligent lighting control, electric curtain control, anti-theft alarm, access control intercom, gas leaks and other.” *(CN)*

“Video cam / CCTV, curtains, alarms, gas sensor.” *(UK)*

“Smoke detectors, locks, garage doors, windows, lighting.” *(US)*

Energy and Lighting

“Light bulbs that turn on with your phone.” *(US)*

“Energy devices; lighting; socketed appliances.” *(UK)*

“I think of heating and air conditioning.” *(US)*

“Apps control the heating, lights.” *(DE)*

Base: C18. What products, devices or services do you think of when thinking of ‘smart home’? [Open end] Base: All who know at least a little about the smart home term

Identifying the opportunity for smart home

Identifying the opportunity for smart home

How we approached smart home

We evaluated the opportunity for smart Home in three stages: starting with the concept as a whole; then broad smart home category areas and then finally individual product use cases.

1 Smart Home **Concept**

Evaluate the **appeal, credibility and relevance** of the concept as a whole

2 Smart Home **Categories**

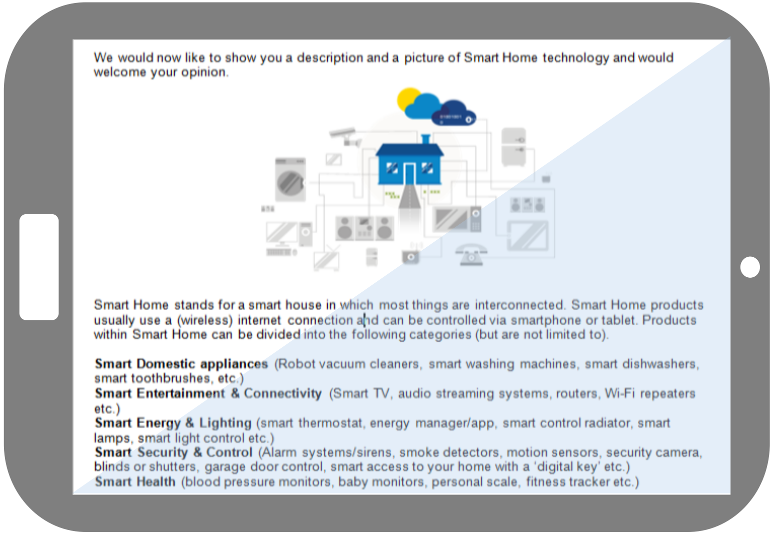
Understand **interest and appeal** towards 5 broad smart home categories: Energy & Lighting, Entertainment, Security & Control, Health and Appliances

3 Smart Home **Products**

Test **interest, appeal and purchase intent** for a comprehensive list of smart home products in each of these categories

Identifying the opportunity for smart home
Understanding consumer perceptions of smart home

We introduced an overview of the smart home concept to respondents and highlighted the types of categories and products that can be related to the concept. We then tested the smart home concept against the following key measures…



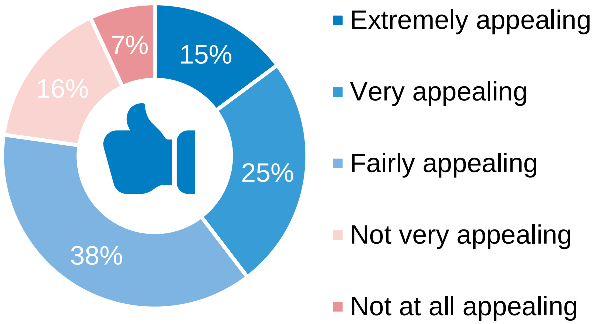
1. How **appealing** is the smart home concept?
2. How **believable** is the smart home concept?
3. How **easy is the smart home concept to understand**?
4. Does the smart home concept **fulfil a problem or need**?

Identifying the opportunity for smart home

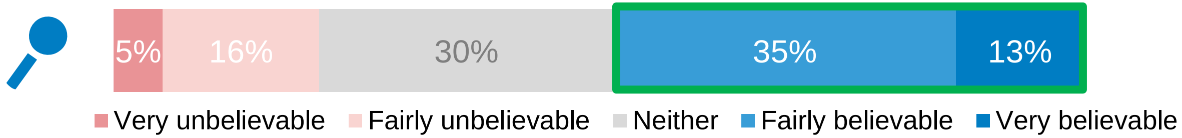
How well does the concept resonate with consumers?

At a headline concept level, while the smart home is seen as credible and understood, it is not necessarily communicated well enough how it will fit into consumer's lives, with only 37% agreeing that the concept fulfils a need they have – better consumer understanding of the benefits of smart home will help further increase appeal

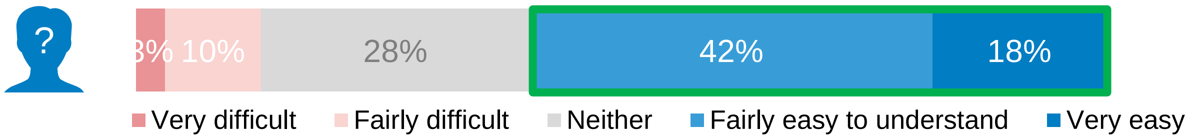
Appeal of smart home concept



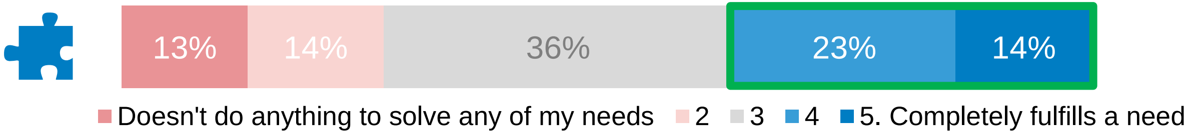
How **believable** is it?



How **easy is it to understand?**



Does **it fulfil a need?**

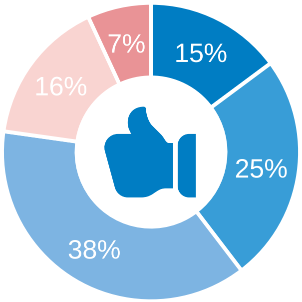


Identifying the opportunity for smart home

Appeal of smart home

Consumer response is generally favourable to smart home, though a large proportion (38%) of consumers *just* find the concept fairly appealing, a group who like the idea but are not ready to jump into the category. Appeal is strongest in Brazil and China – but we also see high appeal among our broader sample of US consumers.

Appeal of smart home concept



- Extremely appealing
- Very appealing
- Fairly appealing
- Not very appealing
- Not at all appealing

40% of consumers agreed that 'smart home' was an extremely or very appealing concept

70%	55%	41%	34%	32%	29%	19%

78% of consumers agreed that 'smart home' was an extremely, very appealing or fairly appealing concept

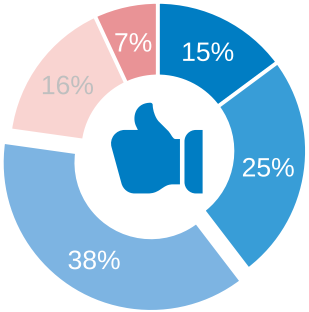
The US significantly outperforms other mature markets for smart home appeal, with nearly 1 in 5 **(17%) of consumers finding the concept extremely appealing**

Base: C02. How appealing is smart home technology to you? Base:All markets=7149

Identifying the opportunity for smart home
The undecided consumers

A large proportion of consumers feel generally favourable towards smart home, without reaching the higher levels of appeal (especially in South Korea and Japan). This more cautious reaction is driven by less belief in the credibility and ability of smart home to fulfill a specific need, suggesting it is key to communicate this to build interest.

Appeal of smart home concept



- Extremely appealing
- Very appealing
- Fairly appealing
- Not very appealing
- Not at all appealing

38% of consumers agree that 'smart home' is a fairly appealing concept

55% 42% 38% 38% 36% 34% 19%

37% agreed that smart is a **credible concept**
(-13 vs total)

19% agreed that smart home **fulfils a need**
(-18 vs total)

Have a similar profile to the total sample in terms of age & gender

This group is most apparent in markets where smart home is less established, highlighting need for further education

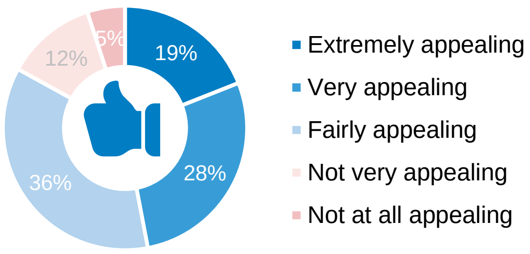
Base: C04. To what extent does smart home technology solve a problem or fulfil a need that you currently have? C05. How believable do you think smart home technology is? By that we mean how likely you think it is that smart home technology could actually be available and working in the next 12 months? C06. Having read the description of smart home technology, how easy is it to understand? [T2B Scores] Base:All markets=7149

Identifying the opportunity for smart home

Smart home appeal: Influence of life stage

The smart home concept most resonates with millenials, and importantly does not see a significant drop-off in appeal with the 35-54 group, with only relevance significantly trailing younger consumers. This is also seen with the elder demographic who will require further education on how the smart home can directly benefit their lives.

Millennials (16-34)

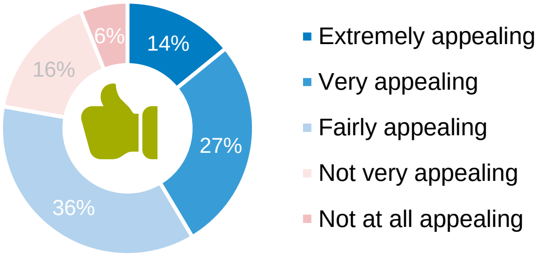


52% Credible ↑

64% Understand ↑

43% Need ↑

Generation X (35-54)

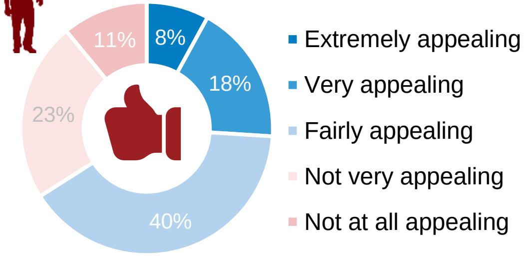


52% Credible ↑

61% Understand ↑

39% Need ↑

Baby boomers & beyond (55+)



42% Credible ↓

49% Understand ↓

23% Need ↓

↑↓ Significantly difference from total at 95% confidence

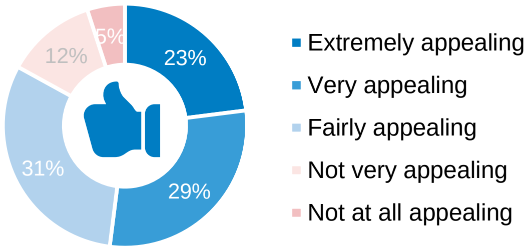
Base: C02. How appealing is smart home technology to you? Base:All markets=7149

Identifying the opportunity for smart home

The Influence of greater spending potential

Income level has a greater impact on appeal, with high income (c.20%) consumers being must more comfortable with the concept and how it will impact their lives. Due to the early stage of adoption, there is a real relevance issue for low income households – driven by the fragmented (and often expensive) marketplace.

High income (Top c.20%)

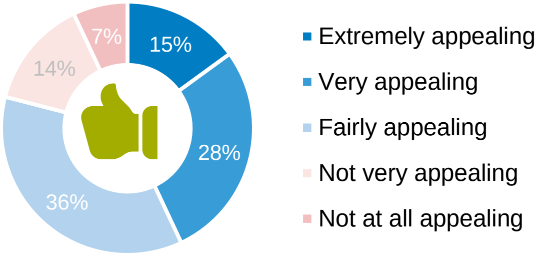


61% Credible ↑

72% Understand ↑

52% Need ↑

Medium income (Middle c.50%)

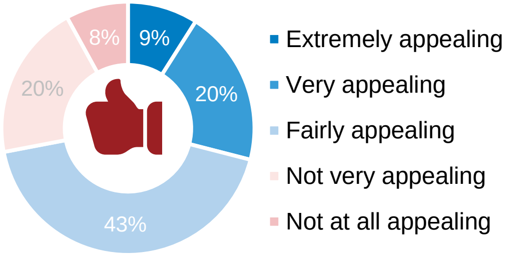


52% Credible ↑

63% Understand ↑

40% Need ↑

Low income (Bottom c.30%)



39% Credible ↓

50% Understand ↓

25% Need ↓

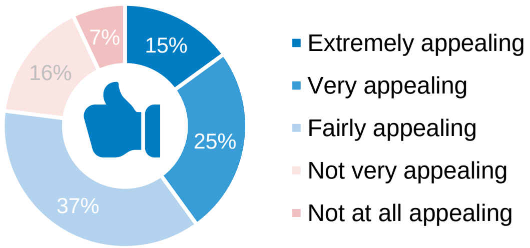
↑↓ Significantly difference from total at 95% confidence

Base: C02. How appealing is smart home technology to you? Base:All markets=7149

Identifying the opportunity for smart home
Leading Edge Consumers

Leading Edge consumers find the smart home concept interesting and relevant to their lives. Nearly three quarters find it extremely/very appealing, which reflects their keen interest in the category and more broadly technology in the home.

Total

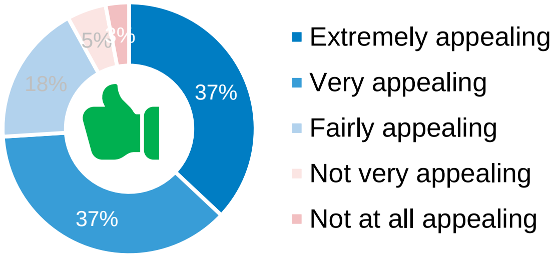


49% Credible

59% Understand

37% Need

Leading edge consumer



77% Credible ↑

88% Understand ↑

70% Need ↑

↑↓ Significantly difference from total at 95% confidence

Base: C02. How appealing is smart home technology to you? Base:All markets=7149

Identifying the opportunity for smart home

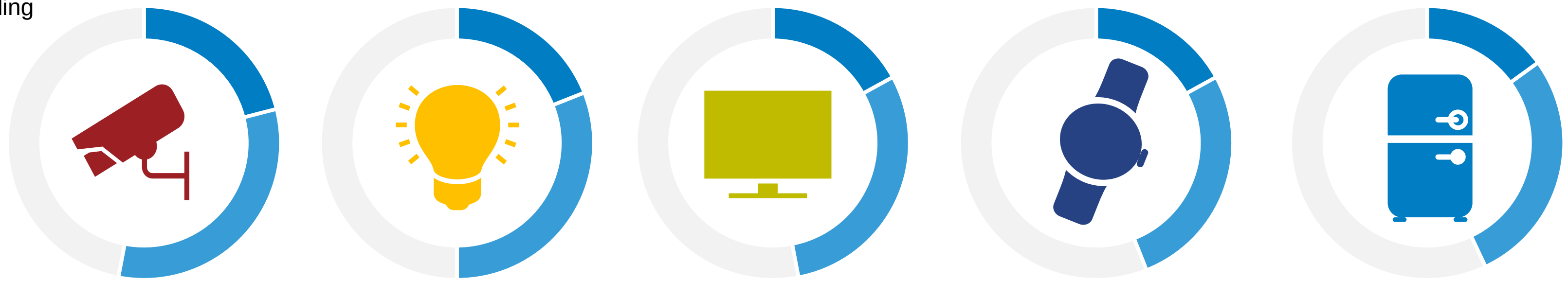
Category Appeal

Following on from the concept as a whole, we tested the consumer appeal of five broad smart home categories. Security and Control and Energy and Lighting resonate the most – driven by a clear understanding on what these aspects cover and the proliferation of devices already available in these areas.

Appeal of smart home category

All consumers

- Extremely appealing
- Very appealing



	Security & Control	Smart Energy & Lighting	Smart Entertainment & Connectivity	Smart Health	Smart Appliances
Category Appeal	**53%**	**50%**	**47%**	**44%**	**43%**

Base: D01. How appealing are the following categories of smart home products or solutions to you? Base:All markets=7149

Identifying the opportunity for smart home

Leading Edge Consumers: Category appeal

Leading edge consumers see much stronger appeal for all categories due to greater relevance and knowledge of the broader smart home concept. Entertainment and connectivity has a greater appeal in relation to the other categories – reflective of their greater device usage

Appeal of smart home category

Leading Edge Consumers

- Extremely appealing
- Very appealing

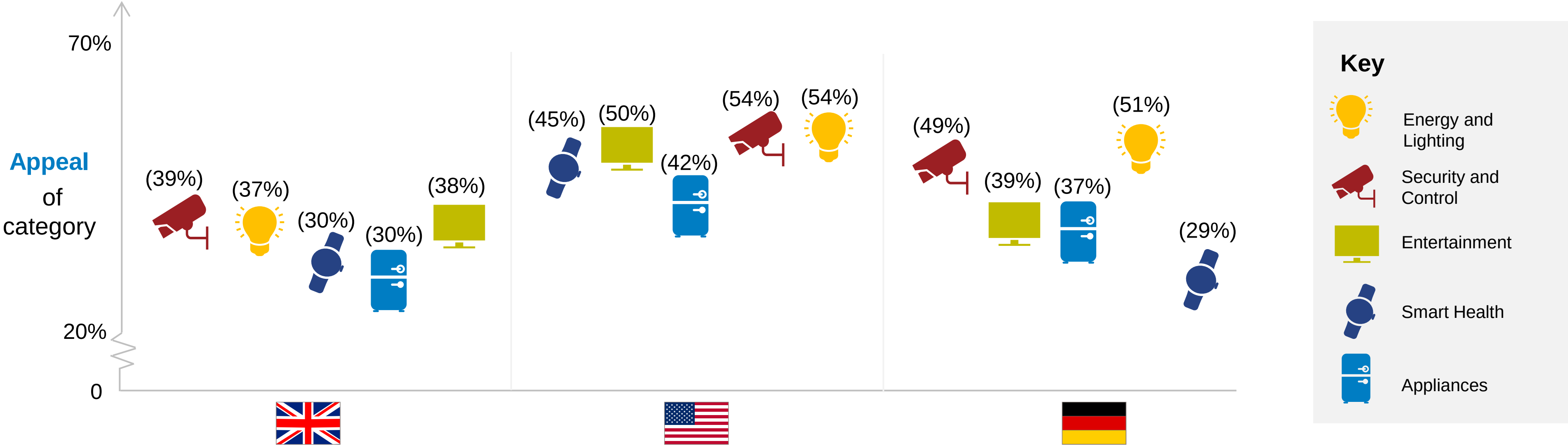
	Security & Control	Smart Entertainment & Connectivity	Smart Energy & Lighting	Smart Appliances	Smart Health
Category Appeal	82%	81%	80%	75%	67%

Base: D01. How appealing are the following categories of smart home products or solutions to you? Base:All markets=7149

Identifying the opportunity for smart home
Category Appeal: UK, US, Germany

Category appeal is largely consistent in the western markets, with Security, Control and Energy/Lighting leading in each market. Smart Entertainment, however, is a more attractive proposition in the UK and US, as well as Smart Health which is more inline with other categories in the US.

Appeal of smart home category: UK, US, DE



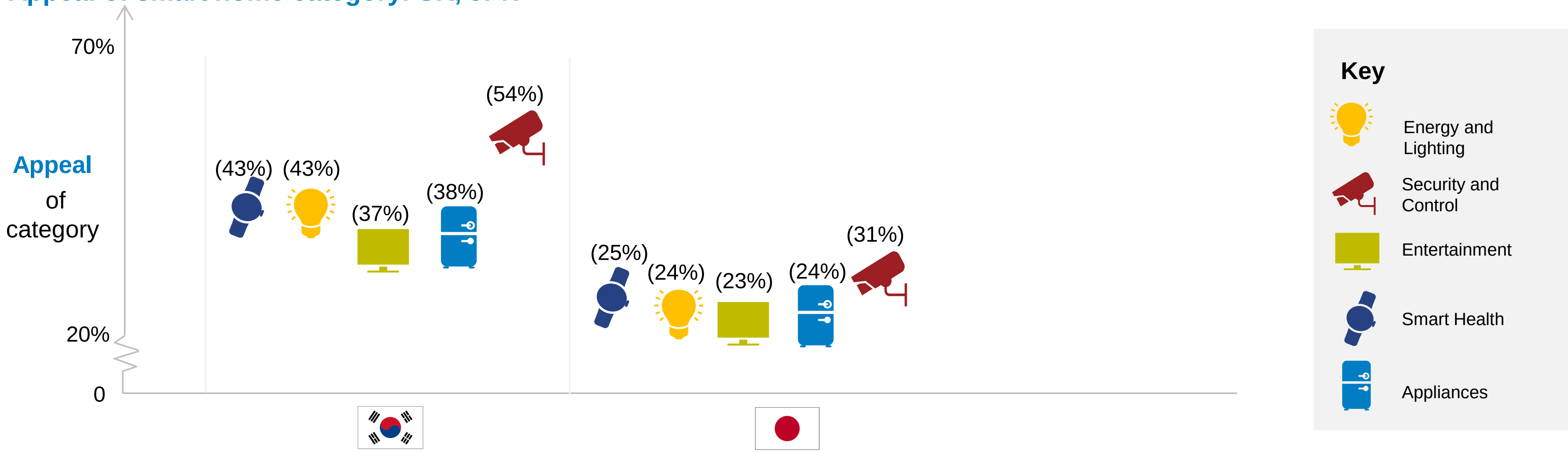
Base: D01. How appealing are the following categories of smart home products or solutions to you? Base: UK=1031, US=1005, DE=1009

Identifying the opportunity for smart home

Category Appeal: China, South Korea, Japan

Appeal is driven by a range of categories in South Korea, but it is clear security and control resonates strongest. While widespread smart home knowledge and adoption is at a relatively early stage in Japan, it is interesting to note the comparative importance of Smart Health – especially relevant to an ageing demographic.

Appeal of smart home category: SK, JPN



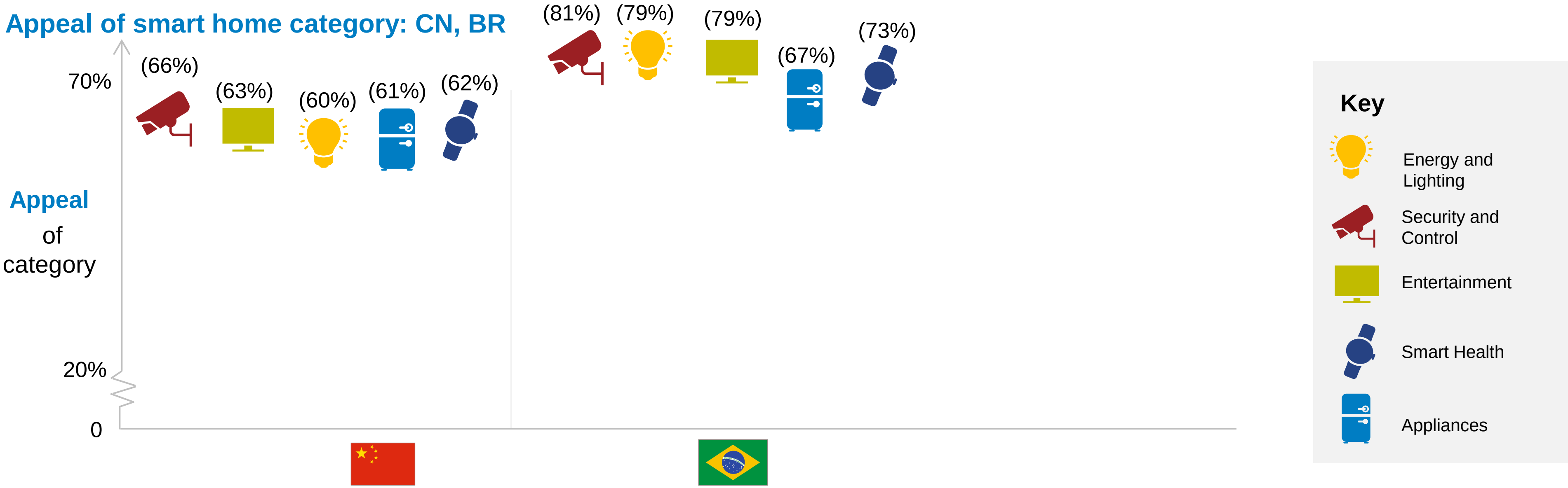
Base: D01. How appealing are the following categories of smart home products or solutions to you? Base: South Korea=1029, Japan=1017

Identifying the opportunity for smart home

Category Appeal: China, South Korea, Japan

Appeal is consistently high in both China and Brazil, where technology adoption among this group is occurring at a rapid rate. Brazil in particular has extremely strong appeal across all categories – reflective of our tech savvy online sample.

Appeal of smart home category: CN, BR



Base: D01. How appealing are the following categories of smart home products or solutions to you? Base: China=1033, Japan=1017

Identifying the opportunity for smart home

Product Interest, Opportunity and Current Ownership

While reaction to the broader concept is important to understand, it is individual products and use cases for smart home products that really helps to understand consumer interest in the category. We tested 38 different use cases (with descriptions) among consumers; helping us to gauge the levels of interest, potential purchasing and current ownership.

Interest

- I might buy or use it sometime in the future
- I would be interested in buying or using it in the near future

Planning to Buy

- I am planning to buy or use in the near future

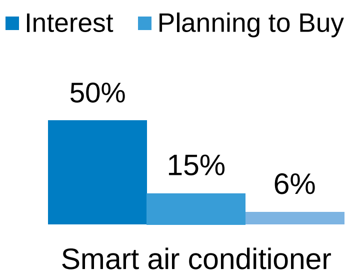
Currently Own

- I already own or use it

An example…

Smart air conditioner

Power your air conditioner and determine the temperature from a distance, via an app



Please see the Appendix for a full list of the products and devices tested along with the description provided to respondents

D02. Do you currently use or are you interested in using any of the following smart home products or services within your household? Base:LECs=1180

Identifying the opportunity for smart home

Smart home devices that consumers are planning to buy

Interest in individual products is varied, but we see much higher levels of interest (relevance) than seen earlier for the broad concept and categories when individual use cases are communicated. For example, Smart Appliances are much more readily seen as appealing when the individual products are detailed in terms of what they can do

Greatest demand 18%

Planning to buy or use in the near future

Least demand 8%

Security & Control

Detectors/Smoke alarm (15%)
Alarm system (15%)
IP camera (14%)
Access control (14%)
Motion sensor (13%)
Smart doorbell (13%)
Smart blinds (11%)
Baby monitor (9%)

Energy & Lighting

Smart lighting (17%)
Light control (16%)
Energy manager (15%)
Smart thermostat (13%)
Smart meter (13%)
Boiler monitoring (12%)
Smart radiator (11%)

Entertainment

Smart TV (14%)
Smart settop box (13%)
Multi-room audio (12%)
Repeaters(12%)
Tuner/Amplifier/Receivers(12%)
W-LAN sticks(12%)
Home plugs(12%)
Smart routers (11%)

Health

Fitness & activity tracker (12%)
Blood pressure monitor (12%)
Disease monitor (11%)
Smart toothbrush (10%)
Medication reminder (10%)
Personal scale (9%)

Appliances

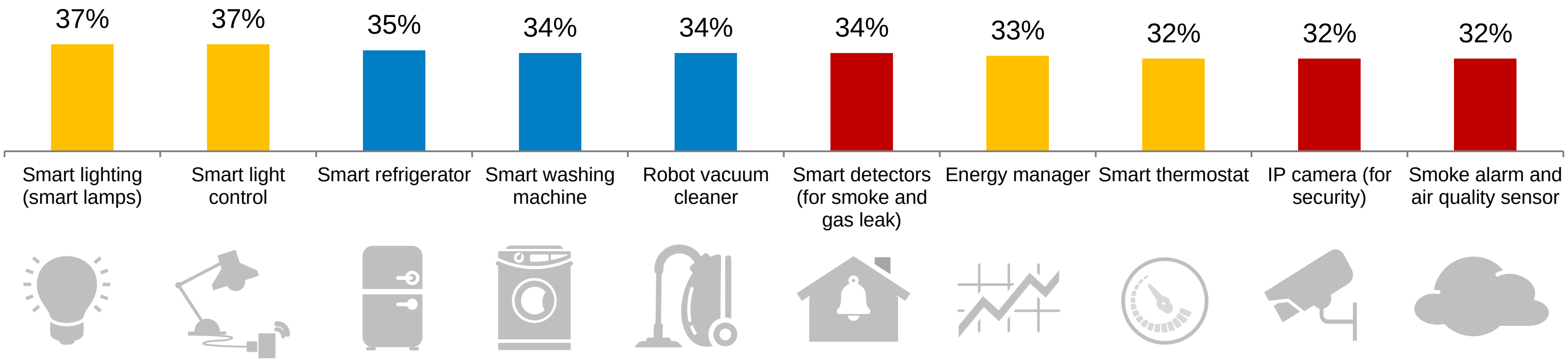
Smart Refrigerator (17%)
Smart Washing machine (16%)
Robot vacuum cleaner (16%)
Smart air conditioner (15%)
Smart coffee maker (11%)
Smart Kettle (11%)

Identifying the opportunity for smart home

Smart devices that LECs will most likely purchase

The ten smart home products embraced most by LECs are those where smart functionality has been added to everyday, domestic devices – with remote control/monitoring and self-maintenance being the two key features that enhance these domestic items.

Leading Edge Consumers: Planning to purchase or use in the near future



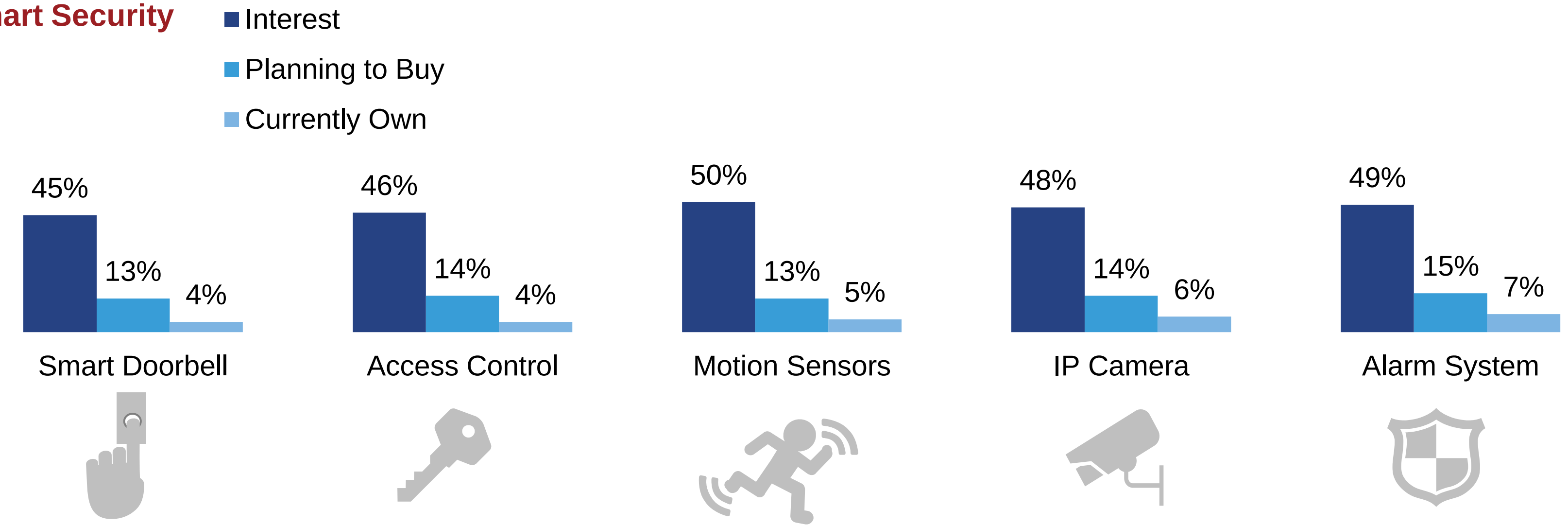
D02. (I am planning to buy or use it)Do you currently use or are you interested in using any of the following smart home products or services within your household? Base:LECs=1180

Identifying the opportunity for smart home

Smart Security: Interest, Opportunity and Ownership

Security products and services have been one of the first areas to gain market traction. Surveillance and Alarm systems offer the greatest immediate opportunity, although interest is clear across the range of security use cases tested.

Smart Security



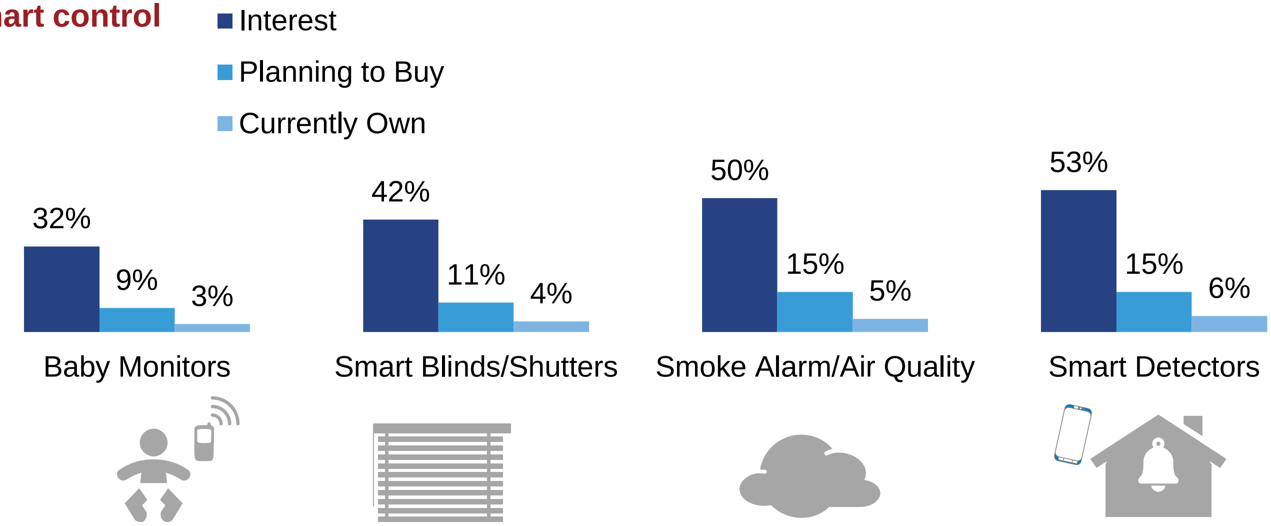
D02. Do you currently use or are you interested in using any of the following smart home products or services within your household? Base: All Markets=7149

Identifying the opportunity for smart home

Smart Control: Interest, Opportunity and Ownership

Household detectors show the clearest opportunity for smart home control, although it is clear that the category may well become more relevant once other smart products are already in the home, most notably around energy, lighting and security.

Smart control



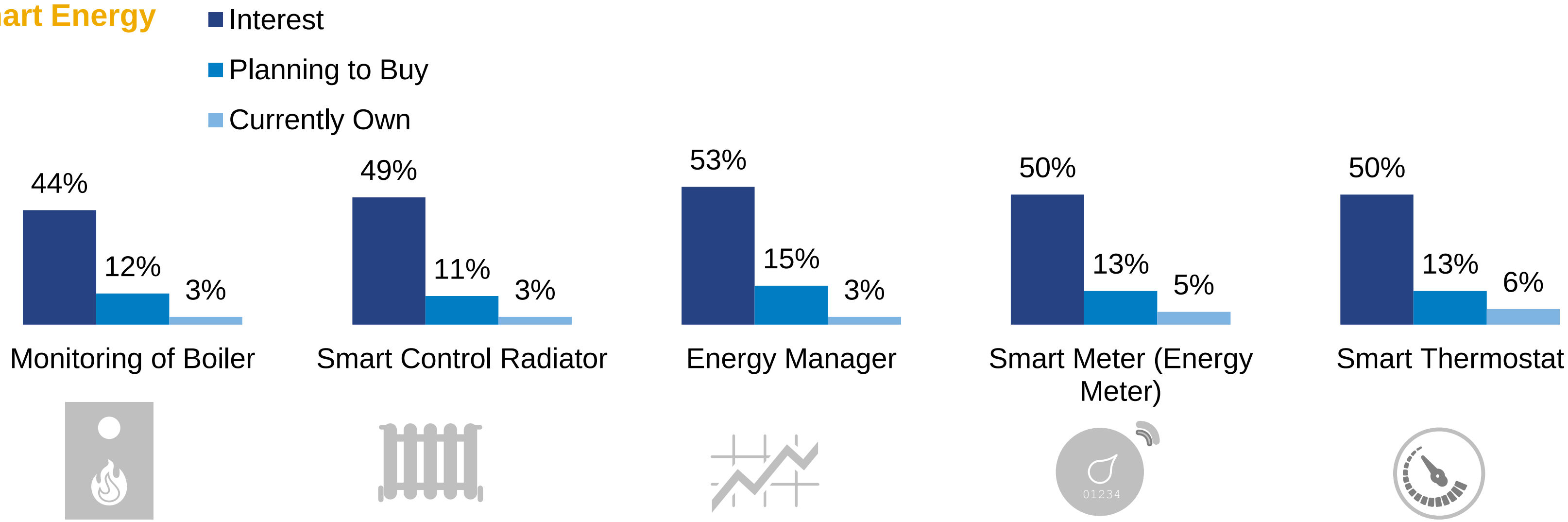
D02. Do you currently use or are you interested in using any of the following smart home products or services within your household? Base: All Markets=7149

Identifying the opportunity for smart home

Smart Energy: Interest, Opportunity and Ownership

There are a wide variety of smart energy devices on the market. Energy management, and smart meters hold the highest immediate opportunity, with radiator and boiler management not having as strong appeal.

Smart Energy



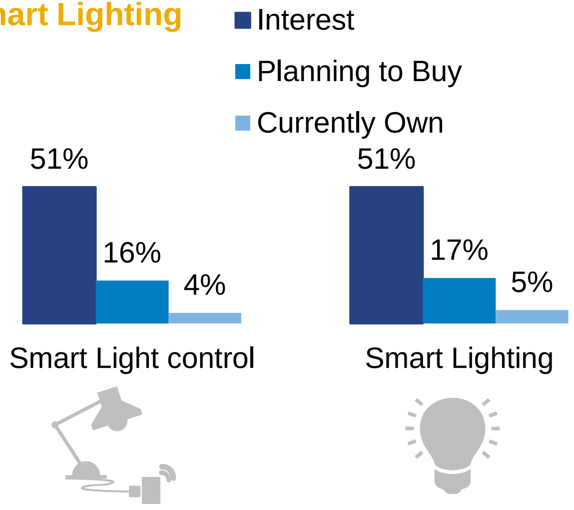
D02. Do you currently use or are you interested in using any of the following smart home products or services within your household? Base: All Markets=7149

Identifying the opportunity for smart home

Smart Lighting: Interest, Opportunity and Ownership

Of all energy and lighting products, Smart Lighting has a notably high interest to opportunity conversion rate – arising from the prominence of established brands bringing products with easily understandable use cases to market.

Smart Lighting



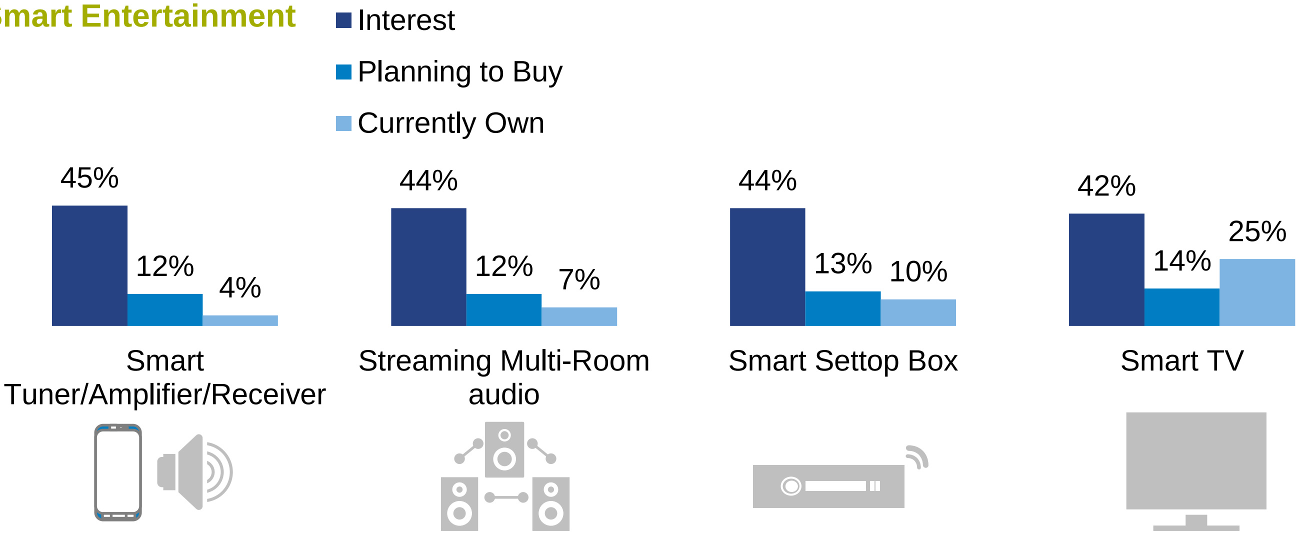
D02. Do you currently use or are you interested in using any of the following smart home products or services within your household? Base: All Markets=7149

Identifying the opportunity for smart home

Smart Entertainment: Interest, Opportunity and Ownership

When asked about ownership of a Smart TV in the context of the smart home ownership falls to 25% of consumers (from 31%) – reflective of those that actually use smart features on their TV.

Smart Entertainment



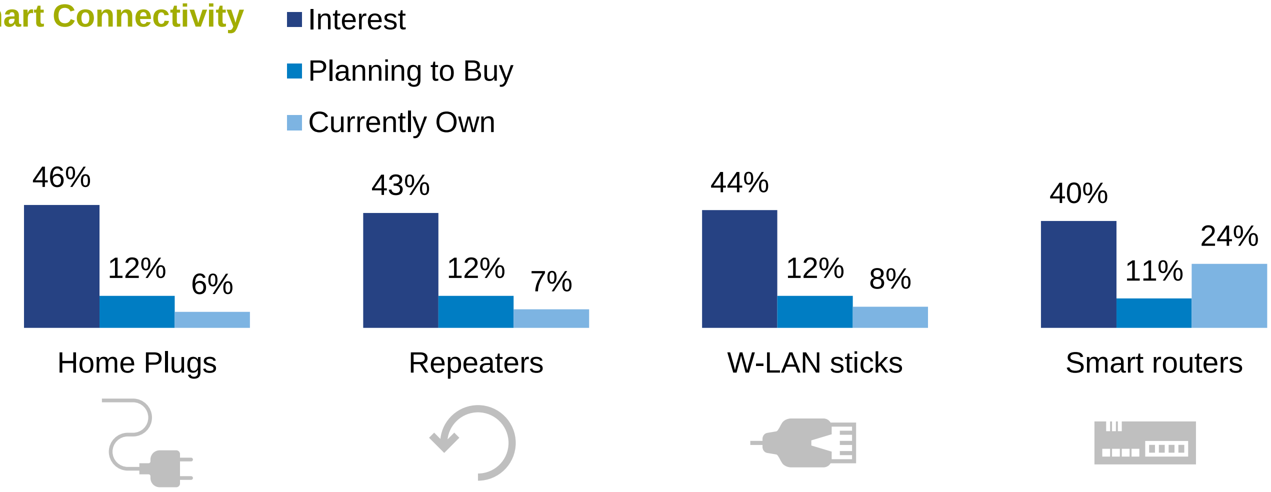
D02. Do you currently use or are you interested in using any of the following smart home products or services within your household? Base: All Markets=7149

Identifying the opportunity for smart home

Smart Connectivity: Interest, Opportunity and Ownership

Smart connectivity applications have similar levels of interest and potential for purchase, suggesting that manufacturers focused on implementing smart features into commonplace, everyday devices are more likely to be convincing consumers of the need for smart home products than those who do not.

Smart Connectivity



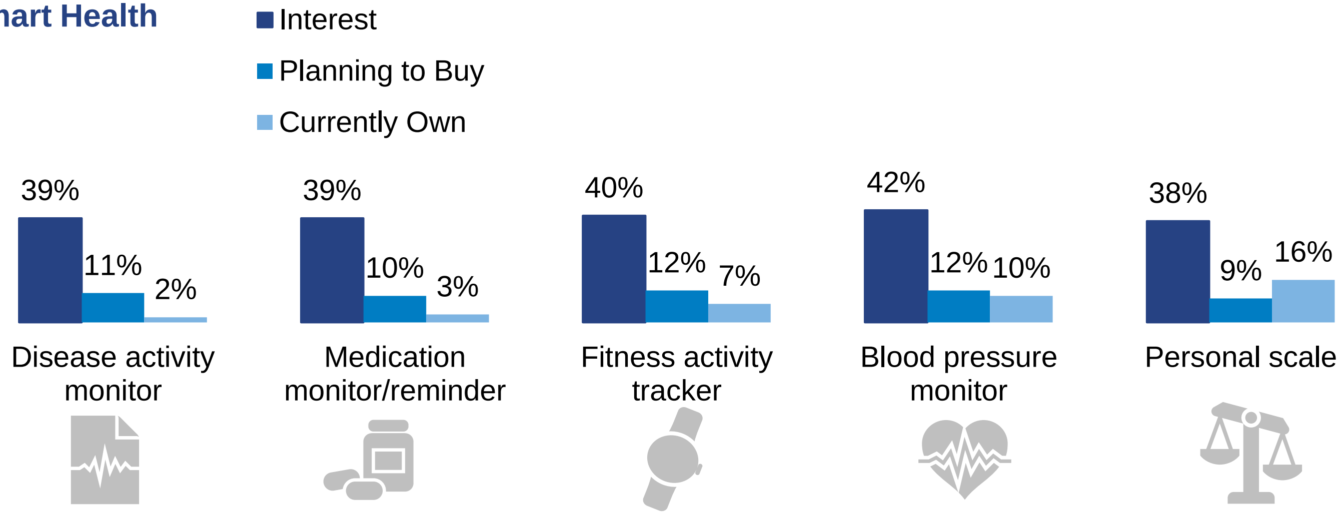
D02. Do you currently use or are you interested in using any of the following smart home products or services within your household? Base: All Markets=7149

Identifying the opportunity for smart home

Smart Health: Interest, Opportunity and Ownership

Health is an increasingly important category both inside and outside of the home. While interest, and therefore opportunity in fitness trackers is on the rise, traditional health devices like Blood pressure monitors and Personal scales – often with a smart element to their design or functionality – have the highest levels of ownership.

Smart Health



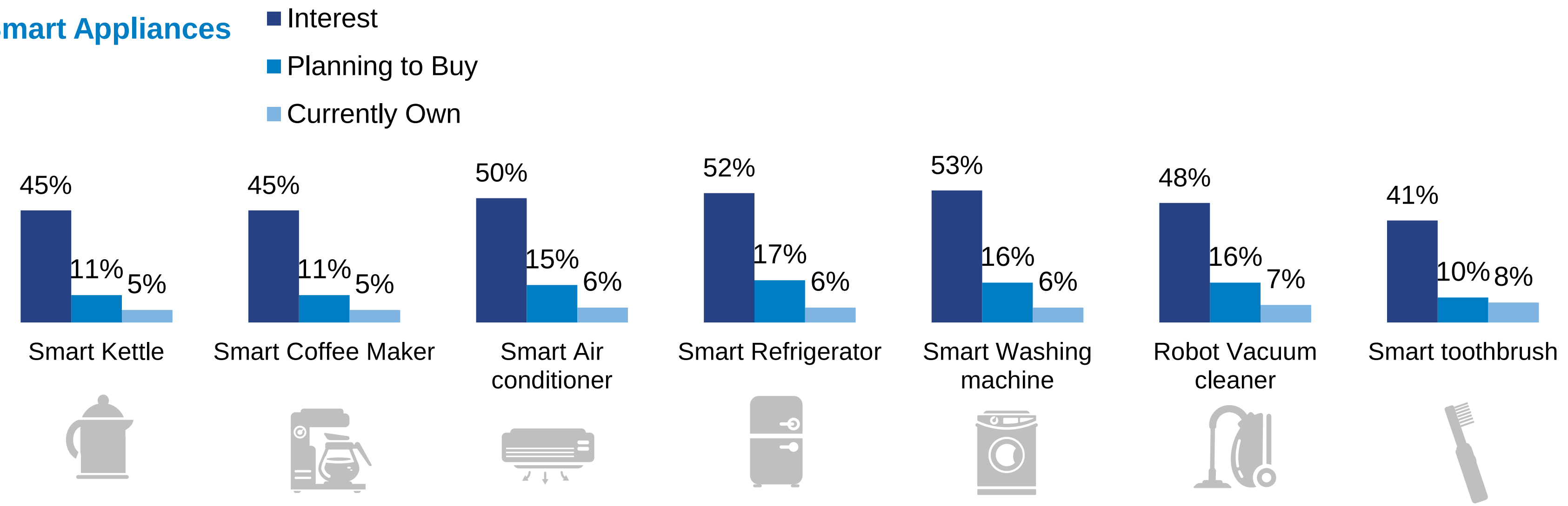
D02. Do you currently use or are you interested in using any of the following smart home products or services within your household? Base: All Markets=7149

Identifying the opportunity for smart home

Smart Appliances: Interest, Opportunity and Ownership

While not having the strongest appeal initially as a category (when compare do Energy/Lighting and Security/Control) , there is significant interest in specific smart domestic appliances once the use case is explained. Current ownership is relatively low, though interest is very high in appliances that might ordinarily require more human interaction / time, like vacuum cleaning and checking stock in the refrigerator.

Smart Appliances



D02. Do you currently use or are you interested in using any of the following smart home products or services within your household? Base: All Markets=7149

Predicting the potential for smart home

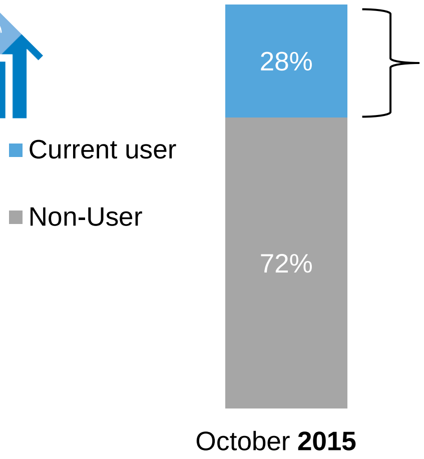
Predicting the potential for smart home

Claimed smart home product uptake

Smart home device ownership is set to expand quickly, with claimed intention of purchase for over half of consumers. However it is clear that claimed intention should be tested to ensure it provides an accurate estimation of consumer take-up

Currently own a smart home product*

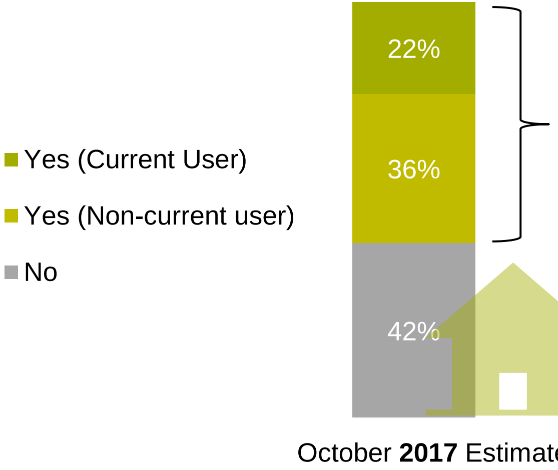
Currently own a smart home product



28% of consumers currently own a smart home product

Interested in purchasing*

A smart home product in **next two years**



58% of consumers claim they will purchase a smart home product in the next two years

However, we know that respondent claimed intention is <u>higher than often realised in practice.</u>

Note: Smart home product as defined on slide 28 (excluding Smart TVs, health and connectivity devices such as routers)

Predicting the potential for smart home

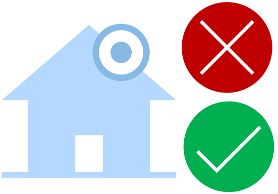
Calibrating intention to purchase: GfK MarketBuilder

To calibrate purchase intent, we have taken into account the relative importance that consumers put on different factors when purchasing technology in the home, then tested how smart home performs in each of those areas.

We asked respondents to rate the importance of statements regarding the purchase of technology within the home

We then asked respondents to evaluate how the **Smart Home concept performed** against these expectations

If the smart home concept satisfied all statements that are important to the consumer, then purchase would be validated



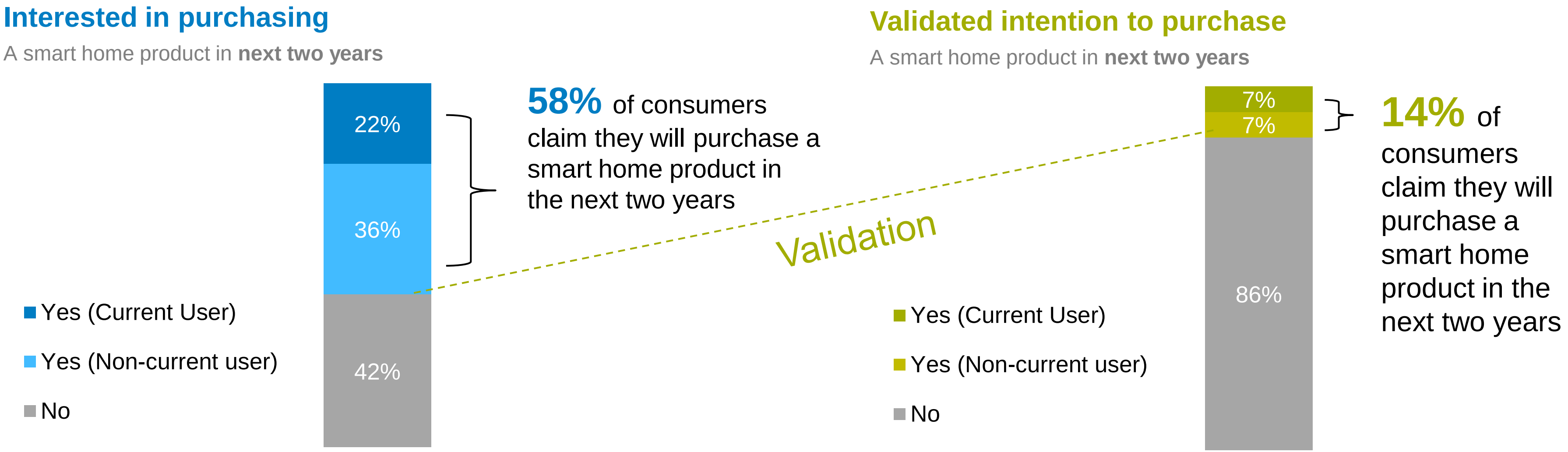
We tested **16 statements** that can be grouped into **7 categories**…

UX and Behaviour change
Self-Identification
Social Effects
Marketing/Retail Push
Relative Advantage
Trust
Service & Support

Predicting the potential for smart home

A validated prediction

Once the validation was applied we see that 14% of consumers that stated they would purchase a smart home product **and** also feel that the smart home concept addresses all the factors that are important to them when buying technology. Interestingly this group includes a significant proportion of non users highlighting how smart home will reach new audiences in the coming years but not necessarily at the explosive rate of growth many might be predicting.



Note: Smart home product as defined on slide 28 (excluding Smart TVs, health and connectivity devices such as routers)

Predicting the potential for smart home

Using ‘levers’ to validate likely adoption

Around a quarter of those who stated they were likely to purchase a smart device in the near future passed all of the adoption levers. Trust, activation and UX & Behaviour are the areas where purchasers are least likely to believe that the smart home concept meets their expectations when buying technology in the home

14% of consumers expected the smart home concept to meet or exceed **expectations across all evaluation criteria** & state they are likely to purchase a smart home product in the next 2 years and are therefore considered **validated purchasers**

(%) of respondents who passed all levers within this adoption lever

Service and Support	71%
Relative advantage	70%
Social effects	60%
Marketing/PR push	57%
Trust	51%
Activation/Identification	48%
UX & Behaviour	42%

Trust, Activation and UX & Behaviour

are the key areas where consumers were least likely to believe the smart home concept could meet expectations

Predicting the potential for smart home
The key reasons for consumers not validating purchase

Trust and user experience are the key areas to which consumers feel smart home products do not meet their expectations when purchasing technology within their home. While a proportion of those interested pass these 'levers' there are a significant number of interested consumers who will require education into how smart products deal with data and offer a meaningful difference to their lives before actual purchase could be expected

(%) of respondents who passed all levers within this adoption lever

Service and Support	71%
Relative advantage	70%
Social effects	60%
Marketing/PR push	57%
Trust	51%
Activation/Identification	48%
UX & Behaviour	42%

Smart home concept met expectations
Did not feel Smart home concept met expectations

% of respondents who passed or failed each individual lever within the overall adoption lever.

Trust

51% of likely purchasers believed smart home performed to expectations in terms of **trust**

	Met expectations	Did not meet expectations
I trust in the protection of my privacy and personal data	70%	30%
If I trust the brands that promote it	74%	26%

UX & Behaviour

42% of likely purchasers believed smart home performed to expectations in terms of **UX & behaviour**

	Met expectations	Did not meet expectations
If I am confident that it always does what I want it to do	72%	28%
If learning how to use it properly doesn't take too much effort	79%	21%
If it comes with a great design	79%	21%
If I find it exciting to try out	81%	19%

Activation & Identification

48% of likely purchasers believed smart home performed to expectations in terms of **activation & identification**

	Met expectations	Did not meet expectations
Smart home fits my style and personality	76%	24%
I would feel proud to have smart home	82%	18%
Smart home looks very high value	84%	16%
The prospect of having a smart home makes me feel very happy	74%	26%

Predicting the potential for smart home

Secondary reasons for not passing validation

A lack of depth of knowledge informs many of the secondary factors, especially with concerns around service and support and expectations that smart home can offer something significantly better than existing technology.

(%) of respondents who passed all levers within this adoption lever

Service and Support	71%
Relative advantage	70%
Social effects	60%
Marketing/PR push	57%
Trust	51%
Activation/Identification	48%
UX & Behaviour	42%

Smart home concept met expectations

Did not feel Smart home concept met expectations

% of respondents who passed or failed each individual lever within the overall adoption lever.

Service and Support

71% of likely purchasers believed smart home performed to expectations in terms of **service and support**

	Met expectations	Did not meet expectations
If a sufficient level of service and support is available	71%	29%

Relative advantage

70% of likely purchasers believed smart home performed to expectations in terms of **relative advantage**

	Met expectations	Did not meet expectations
If it offers something significantly better than existing alternatives I am aware of	70%	30%

Social effects

60% of likely purchasers believed smart home performed to expectations in terms of **social effects**

	Met expectations	Did not meet expectations
If I read and hear a lot of good things about it	75%	25%
If people I know love it	81%	19%

Marketing/ PR Push

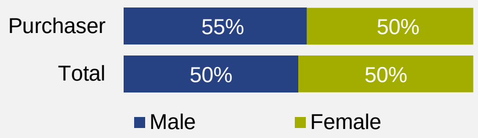
57% of likely purchasers believed smart home performed to expectations in terms of **marketing/ PR push**

	Met expectations	Did not meet expectations
If sales people in stores recommend it strongly	84%	16%
If I come across an attractive promotion offer	80%	20%
If I see advertising that really stimulates me to buy it	82%	18%

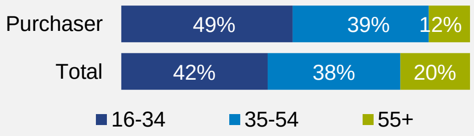
Predicting the potential for smart home
Profiling our validated smart home purchasers

Our validated purchasers are generally younger, more likely to be male and home owners. 40% can be considered Leading Edge Consumers, more than double the number found at a total level – highlighting the importance of early adopters to this group.

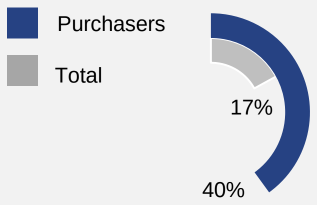
Gender



Age

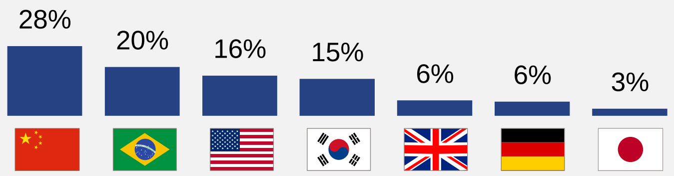


Leading Edge Consumers

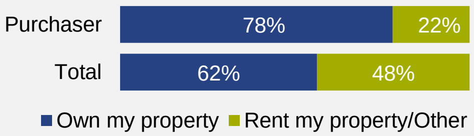


40% of the validated smart home product intenders are LECs – highlighting the role of smart home as a proposition that is (at the moment) focused towards early adopters

Proportion of each market



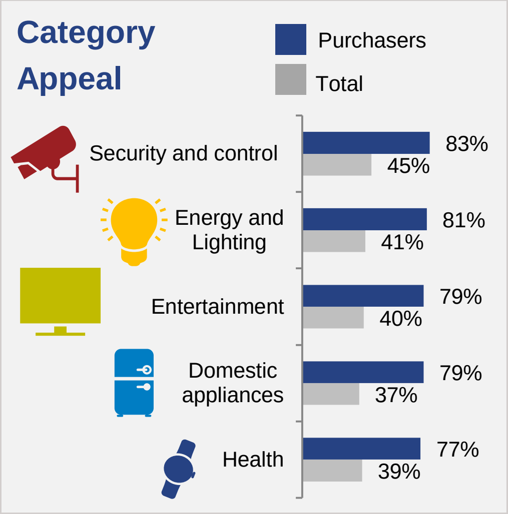
Own or Rent property

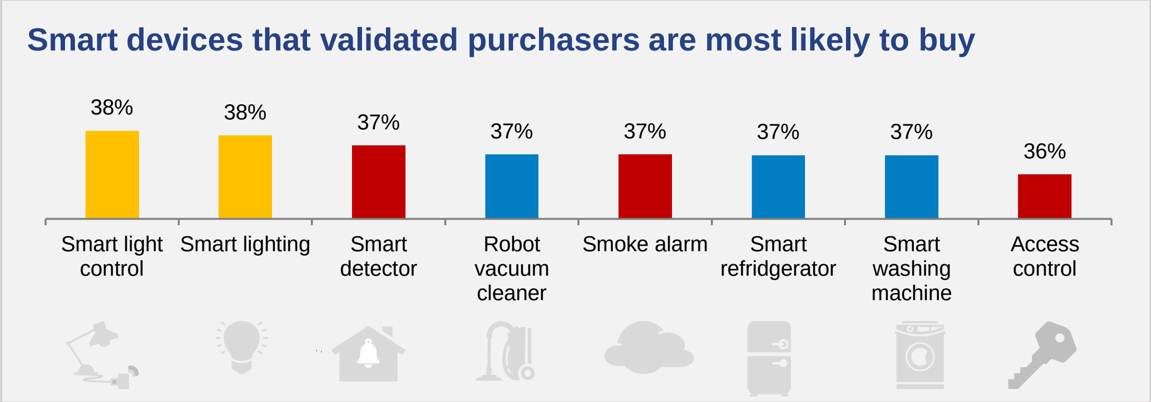


Base: Purchasers= Likely to buy at least one Smart Home Product (Validated) = 969

Predicting the potential for smart home
What are they planning to buy?

Validated purchasers, unsurprisingly see greater levels of appeal for the smart home categories – although interest shows the same pattern to the overall sample. Product interest is focused on lighting, control and appliances





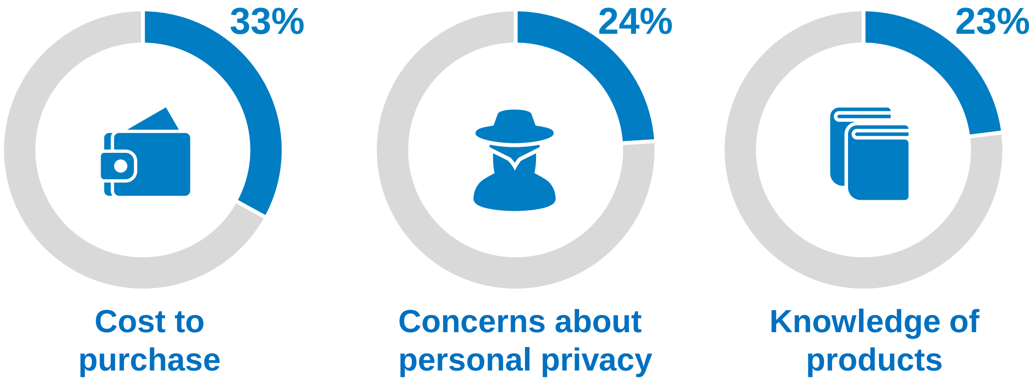
Base: Purchasers= Likely to buy at least one Smart Home Product (Validated) = 969

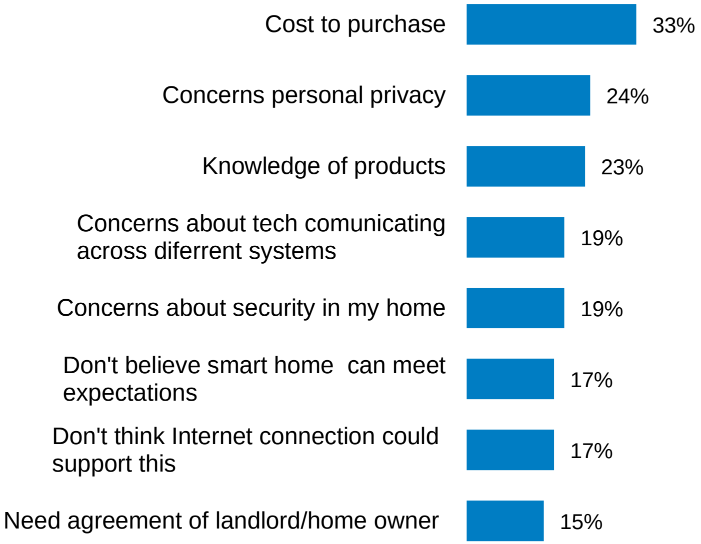
Predicting the potential for smart home

Key Barriers for adoption

When asked directly, consumers see cost to purchase, privacy concerns and lack of knowledge as the main factors preventing purchase.

Top barriers to smart home technology purchase





Base: D06. What do you see as the potential barriers for purchasing the following categories of smart hom e technology? Base:All markets=7149

Predicting the potential for smart home

Key barriers to adoption by category

While cost to purchase is consistently the main barrier to each category, there are perceived nuances around privacy and integration that need to be overcome for specific product groups –most notably security, control, entertainment, connectivity and health.

Top barriers to smart home category purchase

Top barriers	Smart Energy and Lighting	Smart Security and Control	Smart Entertainment and Connectivity	Smart Health	Smart Domestic Appliances
1	The cost to purchase would be too high **(34%)**	The cost to purchase would be too high **(36%)**	The cost to purchase would be too high **(33%)**	The cost to purchase would be too high **(29%)**	The cost to purchase would be too high **(37%)**
2	Concerned that tech across different systems wouldn't be able to communicate with each other **(20%)**	Concerned about personal privacy **(33%)**	Concerned about personal privacy **(28%)**	Concerned about personal privacy **(25%)**	Concerned that tech across different systems wouldn't be able to communicate with each other **(19%)**
3	Would have to get landlord / homeowner agreement **(19%)**	Concerned about security in my home **(31%)**	Concerned that tech across different systems wouldn't be able to communicate with each other **(22%)**	Don't believe it will meet my needs/ expectations **(19%)**	Don't believe it will meet my needs/ expectations **(17%)**

Base: D06. What do you see as the potential barriers for purchasing the following categories of smart home technology? Base:All markets=7149

Predicting the potential for smart home
Personal privacy as a barrier

Concerns regarding privacy are seen most in security, control, entertainment, connectivity and health. German consumers are as a whole the most concerned with privacy, although it is of particular concern for Chinese respondents in the Smart Entertainment and Connectivity category.

% Concerned about personal privacy

Most concerned ←

		Germany	China	Korea	US	UK	Brazil	Japan
Smart Security and Control	33%	44%	33%	38%	32%	26%	33%	26%
Smart Entertainment and Connectivity	28%	38%	40%	24%	28%	22%	25%	17%
Smart Health	25%	38%	25%	31%	28%	23%	15%	17%

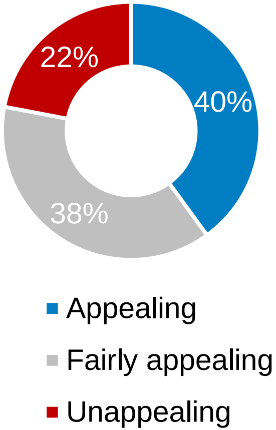
Base: D06. What do you see as the potential barriers for purchasing the following categories of smart home technology? Base: All markets=7149, UK=1031, Germany=1009, US=1005, Korea=1029, China=1033, Japan=1017

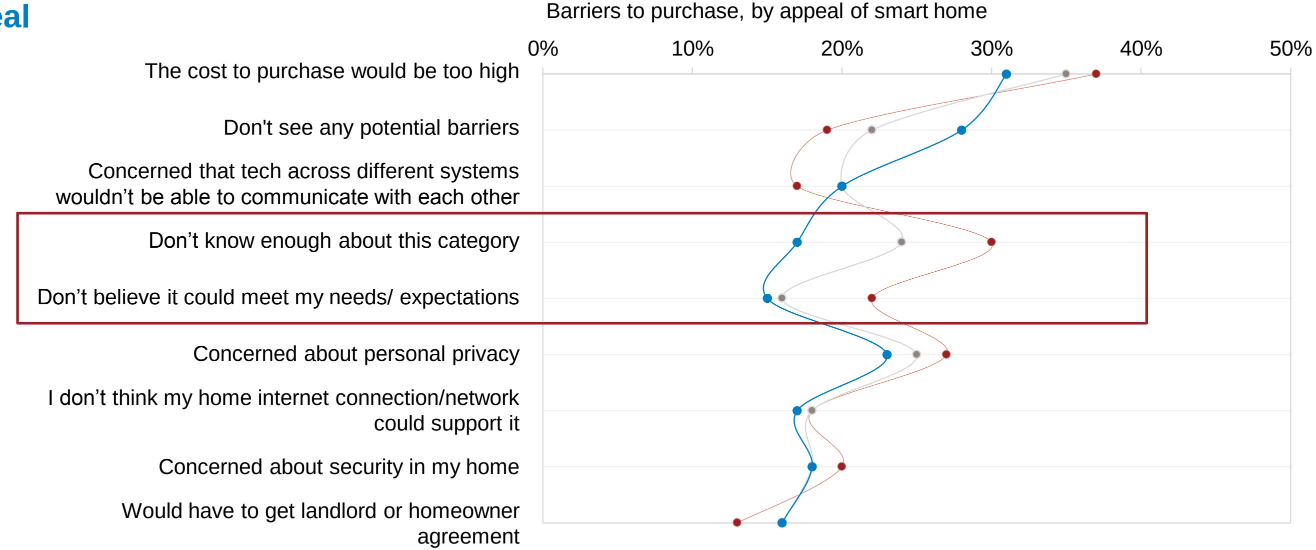
Predicting the potential for smart home
Barriers for those by stage of appeal

When looking at potential barriers by appeal of the smart home concept, we see that category knowledge and expectations are a key differentiator. Further promoting and communicating the benefits of smart home products will help increase relevance (and drive appeal) for those who do not currently see the appeal of smart home

Barriers by smart home appeal

Appeal of smart home





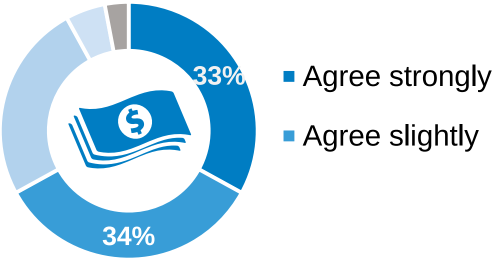
Base: D01. How appealing are the following categories of smart home products or solutions to you? D06. What do you see as the potential barriers for purchasing the following categories of smart home technology? Base:All markets=7149

Delivering smart home

Delivering smart home
Paying for smart home devices

While most consumers expect to pay just once for a smart home product, with no recurring fee, a large proportion of consumers are still undecided on their expectation of payment. Particularly when it comes to paying a subscription fee either to include the smart home product cost or a separate subscription fee associated with running the product, reflecting consumer uncertainty.

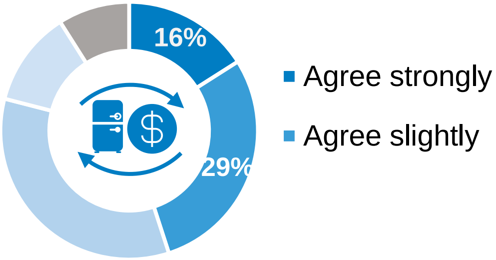
Expectation of payment for smart home products



67%

would expect to pay just once for the products (no recurring fee)

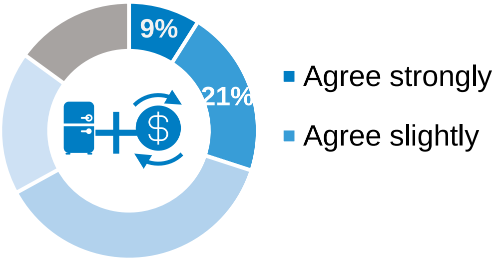
25% are undecided



45%

would expect the cost of the smart home product to be included in a subscription / recurring fee

34% are undecided



30%

would pay for the product and for a subscription / recurring fee associated with running the product

37% are undecided

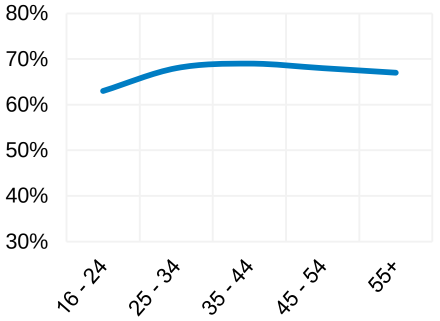
Base: D05. To what extent do you agree with the following statements? Base:All markets=7149. T2B Scores: ‘Agree Strongly’ or ‘Agree Slightly’

Delivering smart home
Paying for smart home devices

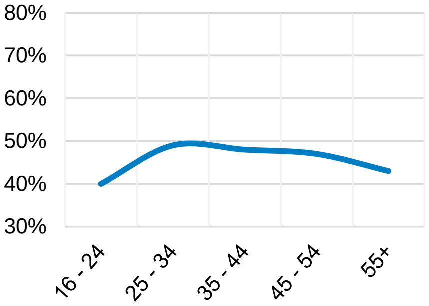
While a considerable proportion of older consumers (55+) are willing to pay a subscription fee, this number more than halves when the same group is questioned on their willingness to pay for both a smart home product and the accompanying subscription fee associated with running the product.

Expectation of payment for smart home products – By age

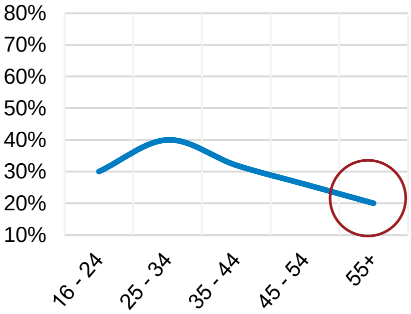
One payment for smart home products (no recurring fee)



Would expect the cost to be included in a subscription / recurring fee



Would pay for smart home products and for subscription / recurring fees associated with running the product



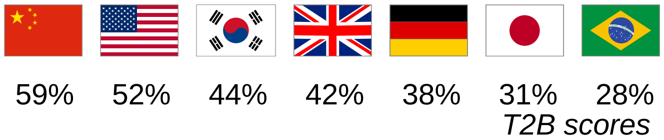
Base: D05. To what extent do you agree with the following statements? Base:All markets=7149. T2B Scores: 'Agree Strongly' or 'Agree Slightly'

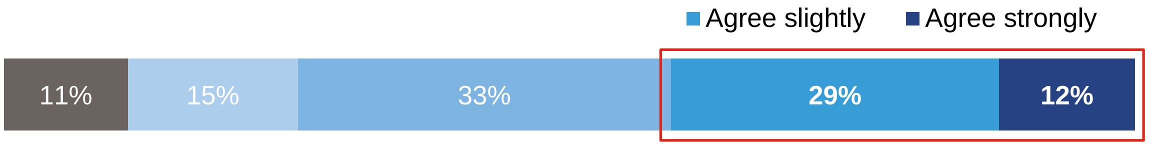
Delivering smart home

Maintenance of smart home devices

While the greatest proportion of consumers would prefer to self maintain, there is large number (33%) who are unsure regarding their preference. Potential buyers are more likely to prefer to self-maintain, potentially a product of their greater knowledge of the category and products on offer and expectations of simplicity and desire for ‘plug and play’ products.

% agree that they ‘would want to self-service/independently maintain my smart home products’





42% of consumers would prefer to self-service/independently maintain their smart home products

62% of those looking to purchase smart home devices would prefer to self-service/independently maintain their smart home products

Base: D05. To what extent do you agree with the following statements? Base:All markets=7149. *T2B Scores: ‘Agree Strongly’ or ‘Agree Slightly’*

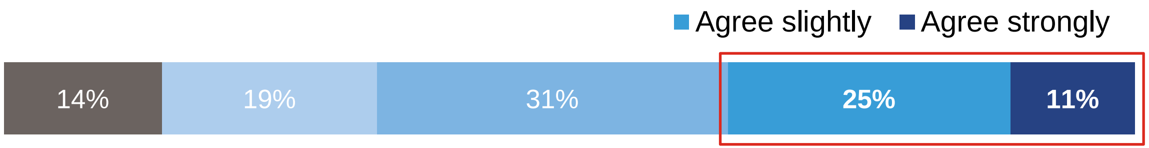
Delivering smart home
Self-Installation of smart home devices

A large proportion of consumers are simply unsure as to their preference towards installation of smart home products. There is greater willingness for self-installation among those looking to purchase smart home products – although half of these potential buyers either are unsure or disagree that they would prefer self-installation – suggesting there could be an opportunity for retailers and service providers to reassure with installation as part of the service.

% agree that they 'would prefer to install smart home products myself, without any assistance from the device provider'

43%	40%	37%	31%	28%	35%	35%

T2B scores



35% of consumers would prefer to install smart home products themselves, without any assistance from the device provider

50% **of those looking to purchase smart home devices** would prefer to install smart home products themselves, without any assistance from the device provider

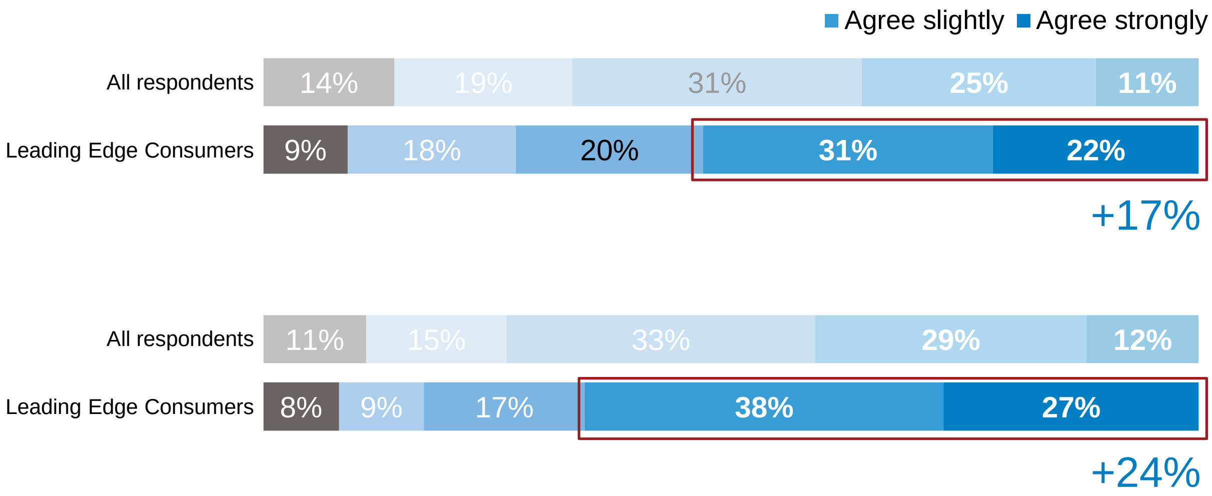
However it is clear there are not established expectations for many with **20% unsure and 30% disagreeing** that they would prefer installing smart home devices themselves **(of those looking to purchase smart home devices)**

Base: D05. To what extent do you agree with the following statements? Base:All markets=7149. *T2B Scores: 'Agree Strongly' or 'Agree Slightly'*

Delivering smart home
Leading Edge Consumers

Reflecting stronger category knowledge, interest in self-installation and self-service/independent maintenance of smart home products is much higher among Leading Edge Consumers. However, some do maintain a preference for assistance with smart home product installation/ maintenance and some uncertainly remains on how they would expect to manage the process.

Self-Installation and Maintenance



I would prefer to install smart home products myself, without any assistance from the device provider

I would want to self-service/independently maintain my smart home products

Base: D05. To what extent do you agree with the following statements? Base:All markets=7149, Total Leading Edge Consumers=1189. *T2B Scores: 'Agree Strongly' or 'Agree Slightly'*

Delivering smart home

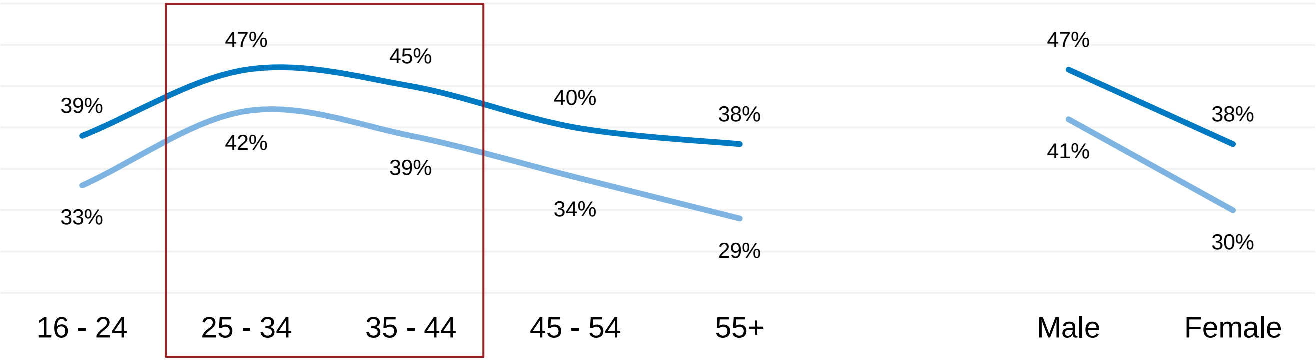
Self-installation and maintenance by gender and age group

There is a clear gap when looking at expectations by gender, with females less likely to prefer self-install or maintain smart devices. There is also a clear age divide, with those fitting in to the key target groups (25-44) most likely to understand the realities of setting up and maintaining smart devices for the home.

Self-Installation and Maintenance

I would prefer to **install smart home products myself, without any assistance** from the device provider (% agree)

I would want to **self-service/independently maintain** my smart home products (% agree)

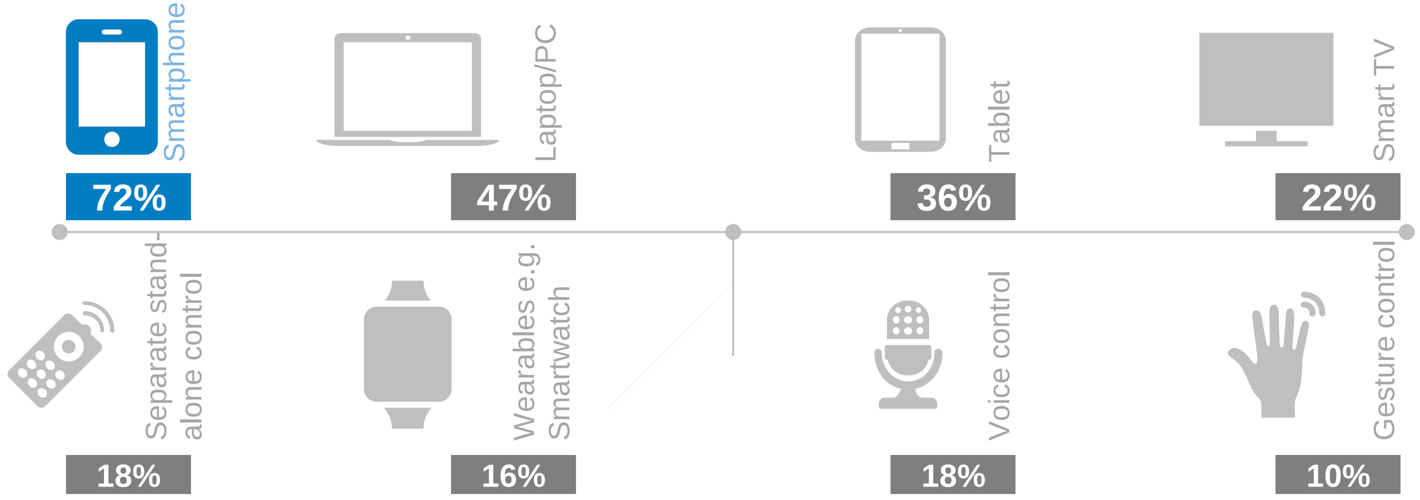


Base: D05. To what extent do you agree with the following statements? Base:All markets=7149. T2B Scores: ‘Agree Strongly’ or ‘Agree Slightly’

Controlling the smart home: Key devices

The smartphone is the stand out device considered to control smart home products and services although close to half would consider using their laptop/PC. Those who own a tablet / smart TV also show interest in using them as devices for smart home control. The expectation of using smartphone is reflective on current ownership levels and the familiarity of usage that consumers have – the reality of having products in the home may well result in consumers needing to have multiple options for control.

Devices/technologies considered to control smart home products/services

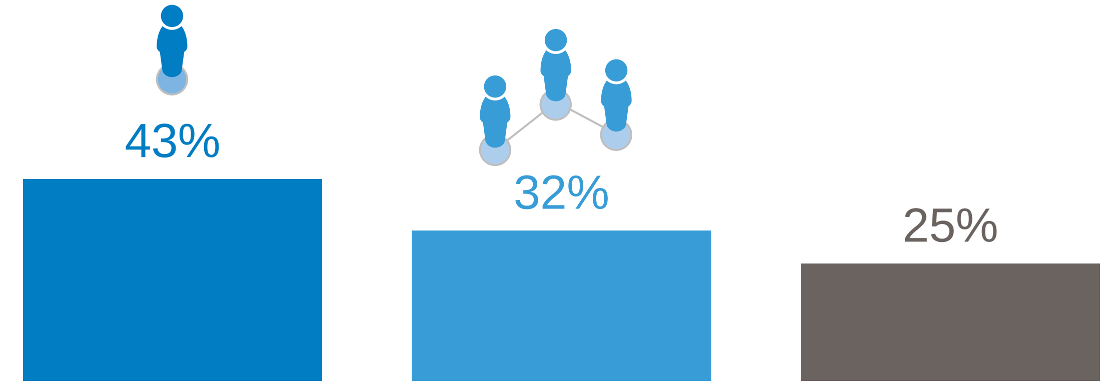


P06. Most of the smart home products or services that we have looked at would be remotely controlled via an app or website. Which of these devices / technologies would you consider using to control products or services within your home? Base:All markets=7149

Delivering smart home
Attitude towards a single vendor providing all smart home technology

Although many consumers would prefer a single vendor to supply all of their smart home technology, there remains considerable interest to purchase from a number of suppliers. One quarter do not have a preference, once again showing a large proportion of consumers who are simply unsure of their preference – reflecting a lack of understanding on how the smart home may work.

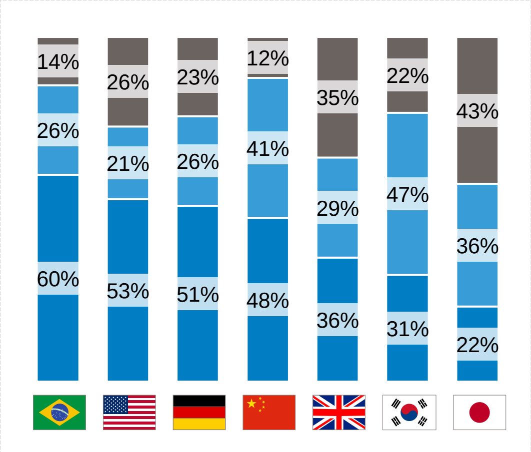
Attitudes towards a single vendor providing all smart home technology



Prefer a **single vendor** supplying all smart home technology

Prefer to purchase smart home technology from **a number of suppliers**

I have **no preference**



P03. Which of the following statements best describes your attitude towards a single vendor providing all your smart home technology? Base:All markets=7149

Delivering smart home

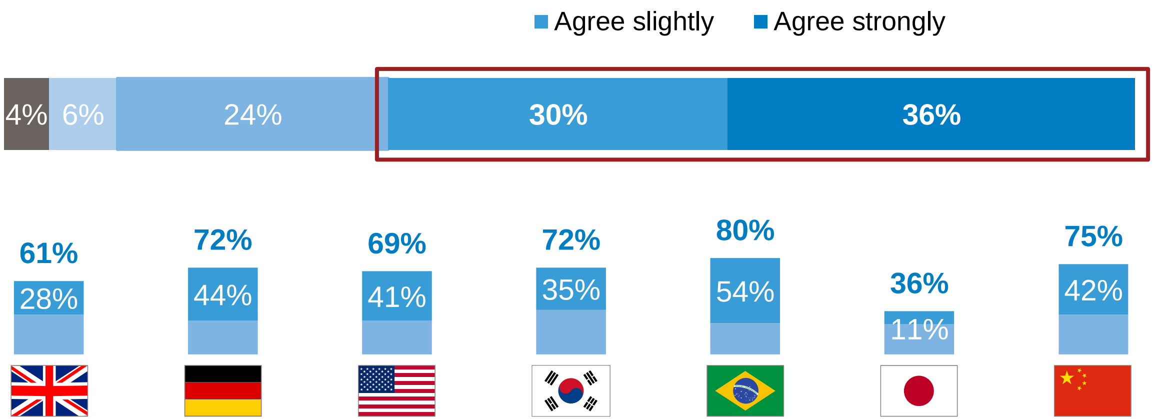
Expectation for devices to communicate

The idea of devices made by different vendors communicating with each other resonates with most consumers. Most expect the ability for communication between devices made by different vendors but around one quarter are neither in agreement or disagreement. This reflects that consumers have a strong expectation for seamlessness with smart home devices – which underlines the need for simplicity in the home around the smart home offer.

Expectation for device communication (by different vendors)

66% expect devices made by different vendors to be able to communicate with each other

The expectation is greater among those who already own a Smart device – **78% +12%**



P07. To what extent do you agree with the following statements? Base:All markets=7149. *T2B Score: 'Agree Strongly' or 'Agree Slightly'*

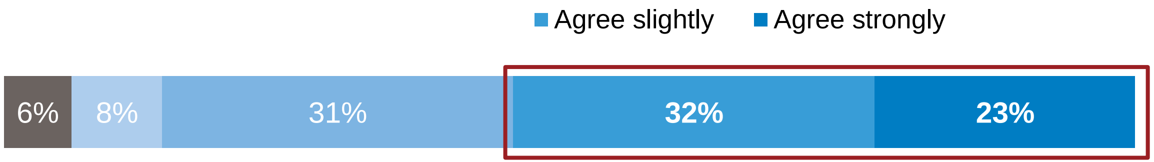
Delivering smart home

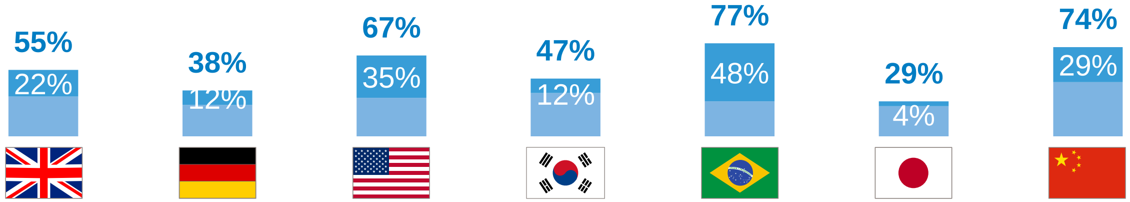
Likelihood to pay for a single app to control all smart home devices

Around half of consumers say they would be likely to pay for a single app to control all of their smart home devices. Many show uncertainty over whether they would, likely due to the lack of a tangible reason as to why they would need to. Few don't see themselves paying for a single app so overall the idea has broad appeal and again reflecting the desire for simplicity.

Likelihood to pay for a single app to control all smart home devices

55% would be likely to pay for a single app to control all smart home devices





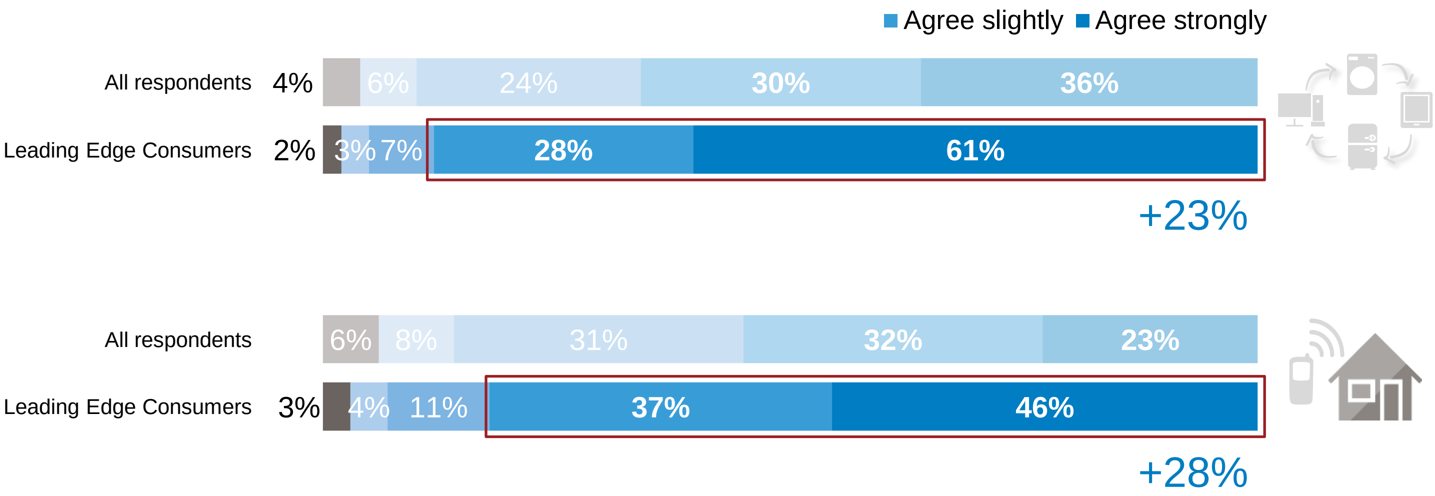
This likelihood is greater among those who already own a Smart device – **72% +17%**

P07. To what extent do you agree with the following statements? Base:All markets=7149. *T2B Score: 'Agree Strongly' or 'Agree Slightly'*

Delivering smart home
Leading Edge Consumers

Leading Edge Consumers simply expect simplicity in their smart home delivery – communication between devices made by different vendors and a single app for smart home device control. There is much less uncertainty among LECs and very few do not have these expectations which is likely to be a key driver of adoption amongst this key target group

Device communication and likelihood to pay for a single app



Expect devices made by different vendors to be able to communicate with each other

Would be likely to pay for a single app to control all smart home devices

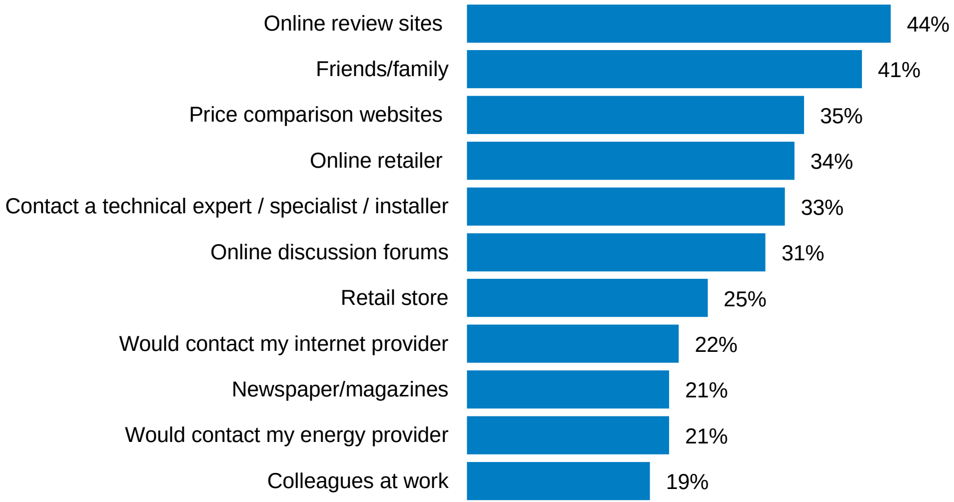
Base: P07. To what extent do you agree with the following statements? Base: All markets=7149, Total Leading Edge Consumers=1189. *T2B Scores: 'Agree Strongly' or 'Agree Slightly'*

Delivering smart home

Sources used to research purchasing smart home technology

When researching purchasing smart home technology, many sources are considered. Consumers are most likely to use online review sites and speak to friends/family. Over one third would use price comparison websites and online retailers. One in five would contact their energy provider.

Sources expected to use to research purchasing smart home technology



Top three sources for Leading Edge Consumers.

1	**Online** review sites	59%	+15%
2	**Online** discussion forums	52%	+21%
3	**Online** retailer	48%	+14%

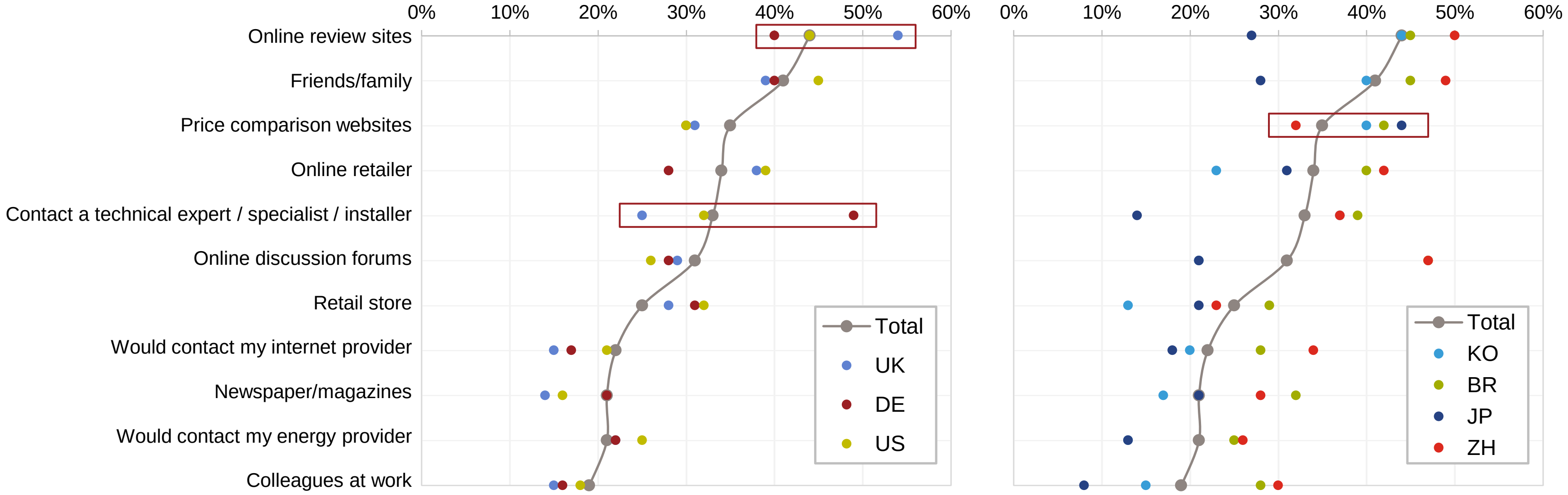
D07. Which, if any, of the following sources would you use if you were to research purchasing smart home technology? Base: All markets=7149, Total Leading Edge Consumers=1189.

Delivering smart home

Sources used to research purchasing smart home technology

Consumers in Germany are most likely to contact a technical expert / specialist / installer when researching purchasing smart home technology. UK consumers are most likely to use an online review site. Across all markets, price comparison websites see the highest anticipated use among consumers in Japan – with other sources much less relied upon in this market.

Sources expected to use to research purchasing smart home technology – By market



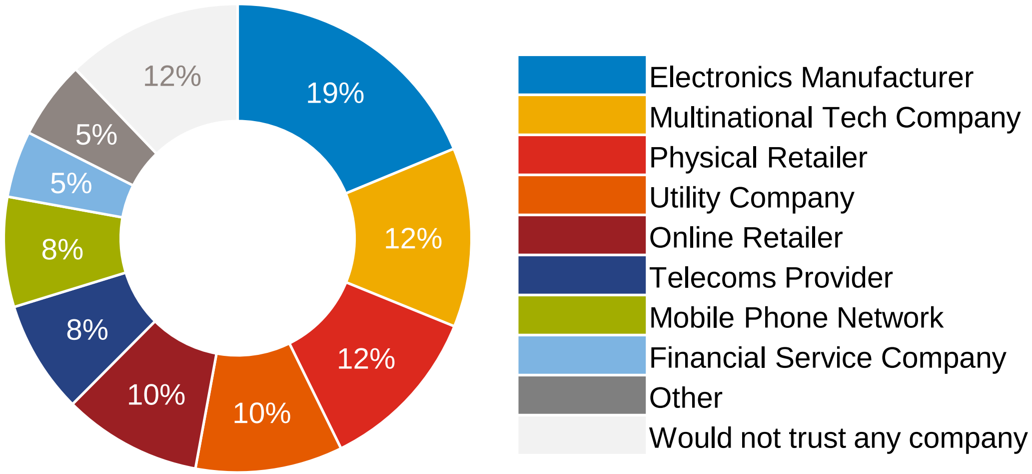
Q.D07. Which, if any, of the following sources would you use if you were to research purchasing smart home technology? Base: All markets=7149

Delivering smart home

Type of company most expected to offer smart home services

A mix of organisations are trusted to deliver smart home services. When looking across categories, electronics manufacturers are the type of company most expected to deliver smart home services. Multinational technology companies and physical retailers follow but there is a level of expectation across all types of company which reflects the opportunity for a number of brands around smart home products and services.

Types of company most expected to deliver smart home services



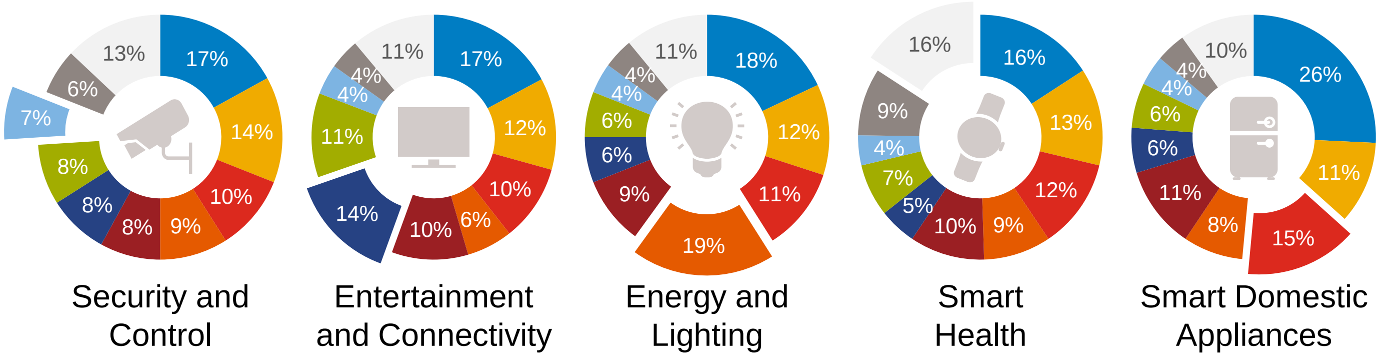
P01. Thinking about the various categories of services that can be part of a 'smart home', what type of company would you most expect to offer each service? Base: All markets=7149

Delivering smart home

Type of company most expected to offer each category of service

Unsurprisingly, utility companies are most expected to provide smart energy and lighting services. After electronics manufacturers, telecoms providers are the second most considered supplier for smart entertainment and connectivity. Physical retailers are second to electronics manufacturers for smart domestic appliances and interestingly financial services come into consideration as a secondary supplier for security and control applications.

Types of company most expected to deliver specific categories of services



P01. Thinking about the various categories of services that can be part of a 'smart home', what type of company would you most expect to offer each service? Base: All markets=7149

Appendix

Appendix
Product use case summary: Smart Domestic appliances

We tested ownership, intention to purchase and interest of 36 use cases across 5 categories. For reference we have listed each use case we have covered, the data for which is presented earlier in this report.

Smart toothbrush	Lets you monitor the health of your gums and teeth e.g. viewing the parts of your teeth you have already cleaned.
Smart Kettle	A smart kettle boils exactly the amount of water required for a specific task like making a cup of tea, or enough for cooking in a large pot. Will save water and energy costs in the long-term.
Smart coffee maker	Use your coffee maker through a timer, and control its functions from a distance, via an app.
Smart air conditioner	Power your air conditioner and determine the temperature from a distance, via an app.
Smart refrigerator	Monitor the expiration dates of products, keep track of stock and have your refrigerator automatically order your groceries (or for a specific meal), via an app.
Smart washing machine	The machine recognises the type of load (wool or cotton) and adjusts the washing program to the material. You can also start or pause your wash cycle via an app.
Robot vacuum cleaner	Creates a virtual map of the physical space it is cleaning and navigates itself around. You can start/stop the cleaner and set cleaning programs via an app.

Appendix
Product use case summary: Smart Entertainment & Connectivity

Streaming multi-room audio	Play music from your smart phone or tablet (via an app) on various speakers in your home.
Smart TV	A television connected to the internet on which you can install apps (e.g. Facebook / Youtube, etc), and your smart phone can function as a remote control.
Smart set top box	While the box is still owned by your cable/satellite TV provider, you can pay for smartphone control in your subscription. This control will allow you to set up or start the recording of television program via an app.
Smart tuner/Amplifier/Receiver	You can play music on speakers, or stream video to screens from various devices in your home, via an app.
Home Plugs	Once plugged into your socket/electrical outlet, connect devices to the Internet and one another using your home's existing electrical wiring.
Routers	A device that sends the data signal from a Local Area Network (LAN) to other devices.
Repeaters	An apparatus that extends a wireless signal further so devices can access the signal from a greater distance.
W-LAN sticks	A USB adapter you can plug into your computer so as to make a direct internet connection.

Appendix
Product use case summary: Smart Energy & Lighting

Smart thermostat	Remote controlled thermostat, with customizable programmes through an app that can also recognise unique smart phones, and set a preference per user.
Energy manager	Provides insight into the energy consumption of appliances (e.g. lamp, refrigerator and television) in the home.
Smart control radiator	From a distance, monitor and change the temperature of the heating on a room-to-room basis inside your home.
Smart meter (energy meter)	As part of your subscription to your provider, the smart meter sends a meter reading automatically to your mobile network operator; via an app you can gain hourly insights into your current, gas and energy consumption.
Monitoring of boiler at a distance	You will be alerted/ warned via an app of any minor failures or inconsistencies in your boiler, allowing you to act before facing any serious problems with your boiler.
Smart lighting (smart lamps)	Use a remote app to control the lighting in every room, from powering on/off and adjusting the level of dimming, to changing the colour of the light itself.
Smart light control	Plugging your lamp/light power source into an additional device (which is plugged into a socket) allows you to control your current lights via an app.

Appendix
Product use case summary: Smart Security & Control

Smart blinds or shutters	Blinds that can be controlled either remotely through the use of app, or automatically through use of sensors e.g. blinds would open with increasing daylight.
Alarm system	Through an app, turn on your home alarm remotely or alter settings such as the time given between someone entering your residence and the alarm going off.
Motion sensors for doors and windows	An automatic message would be sent to pre-determined phone numbers/devices when a door or window is opened in your residence.
Smart detectors (for smoke and gas leak)	Sounds a loud alarm when a detector in any room senses smoke/gas leakage, while sending a message notification via SMS or through an app to pre-determined phone numbers/devices.
IP Camera (for security)	Through an app, view a live feed or record the footage from any of the cameras you have installed around your residence or elsewhere (for example a motion sensor that will pick up and feed any activity from the home when you are away via your smartphone)
Access (digital keys)	Send one-off digital keys for the opening of your front/porch door, so guests can enter your residence or deliveries can be dropped off without you being present.
Smart doorbell	Using wide angle lenses, Wi-Fi connectivity and motion sensors a smart doorbell would alert you via your smartphone and enable access for deliveries/visitors when you are away from your home wherever you may be in the world
Smoke alarm and air quality sensor	A connected sensor monitors air quality in terms of humidity, dust, pollen count in the home and picks-up emergencies (such as carbon monoxide, fire etc.) and sends reports that can be accessed via an app on your smartphone

Appendix
Product use case summary: Smart Health

Personal scale	After recognising the person standing on the scale through a previously-assigned profile, the scales will display graphs, statistics and take automatic measurements (e.g. weight, BMI, etc.) all via an app.
Blood pressure monitor	Keeps track of blood pressure over time and alerts you to any spikes or low periods while issuing general medical advice based on your current blood pressure.
Fitness and activity tracker	Through an app, keeps track of your daily movement activity and history, and provides fitness tips after a long period of inactivity. Also monitors sleep quality when you are resting.
Baby monitors	Offers the option to monitor your child remotely via audio and video through an app. Automatic monitoring can also include the use of motion sensors with an alarm function to alert you of the child's movement.
Medication monitor/reminder	Receive notifications through SMS / an app that reminds you when to take your medication and what you should be taking.
Disease activity monitor	A device that provides insight into the stages of a disease and identifies likely periods of intensity or difficulty, so you can plan in advance.