

# *Smart home, seamless life*

## Unlocking a culture of convenience

*Consumer  
Intelligence Series  
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Your alarm rings. You hit the snooze button a second time, triggering your coffee pot to start brewing and your lights to turn on gradually. You didn't sleep well; your mattress senses this and signals your coffee pot to select espresso.

Finally out of bed, you pad barefoot to the bathroom, your soles savoring the heated tiles. They're programmed to warm up when the alarm rings and outside temperatures have dropped below 50 degrees. Out of the shower, you grab wool pants and a heavy sweater, an outfit recommended by your closet based on the information that it's cold outside and you're tired from a bad night's sleep.

Dressed, you enter the kitchen, grab your espresso, and quickly prep for the day. What a relief your refrigerator notified your husband yesterday to pick up eggs, the only food your picky 3-year-old daughter Susie will eat. You scramble to get her clean, dressed, and at pre-K on time. Her favorite music, already playing in her bedroom, motivates her to get going.

Back in the kitchen, your refrigerator beeps. Oops, that chicken you bought a few days ago will spoil unless you cook it soon. The refrigerator recommends recipes based upon ingredients you already have—that extra \$20 per month you pay for this feature is paying off, you think. You select a slow-cooker recipe and toss everything in. Your phone will remotely turn it on when it's time.

Yikes, it's 7:15am—go time. Your car turns on, pre-heating. Your garage door opens. Your home's thermostat drops to 62 degrees while everyone's out, and the TVs in every room turn off automatically.

By 7:30am, you and Susie are in your toasty, pre-heated car, with your GPS system activated to select the best route to avoid construction and congestion. Susie's favorite music from her bedroom is now playing in the backseat, and as you drive away, you marvel at how you ever functioned before your house and car were smarter than you.



A fully automated home evokes a scene from *The Jetsons*, the animated sitcom envisioning a world of flying cars and self-propelling space suits in 2062.

For now, we have wearable computers, vacuuming robots, and smart refrigerators—and at least 45 more years to make our cars fly.

The internet of things is driving headlines and IoT prognostications are everywhere. Though still in their infancy, IoT and smart homes are increasingly gaining traction in homes around the country. By 2020, Gartner Research forecasts approximately 20.8 billion IoT-enabled devices, while IDC projects a \$1.7 trillion global IoT market.

Early growth was led primarily by devices and connectivity: robot vacuum cleaners and internet-connected thermostats. Today, we have an array of Wi-Fi enabled products for every room in the house.

What do consumers really think about these devices? Are they ready to embrace smart homes? To find out more, we asked them.

## Survey design

Through PwC's ongoing Consumer Intelligence Series, we gain directional insights on consumer attitudes and behaviors in the rapidly changing technology and media landscape. In this installment, we delve into consumer attitudes and experiences with the connected home.

We surveyed a representative sample of 1,000\* respondents, ages 18–64. The survey was conducted by a leading global research firm from October 12, 2016 to October 17, 2016. This report summarizes key findings from the online survey, in addition to in-depth focus group discussions with consumers held in Atlanta.

### Questions we focused on:

- *To what degree do consumers understand the concept of IoT and the smart home?*
- *Are consumers receptive to/excited about smart technology in the home?*
- *What motivators and benefits will encourage adoption of smart home technology?*
- *How hesitant are consumers to try this technology? What's holding them back?*
- *What smart home benefits command the highest price? What's most valuable?*
- *How satisfied are current consumers with their smart home devices and corresponding mobile apps?*
- *From what companies would a consumer be most excited to try a smart home product?*
- *What would a consumer want if they could design it?*
- *How does the future look for the smart home?*

### Defining the connected home: How we define smart devices and the connected home

*We use the term to refer to everyday objects and devices that connect to the internet and to each other; not computers, smartphones, or tablets. Smart devices often connect to apps on mobile devices, allowing users to control them remotely. Examples include a Wi-Fi-equipped car, a home thermostat that can be controlled remotely via smartphone while on vacation, or even a medicine bottle with a Wi-Fi-enabled cap to remind a user when to take a pill.*

\* n=1000

US Residents / 50% Male / 50% Female / Age 18–64 (50% 18–34; 50% 35–64) / Census ethnicity (16% Hispanic, 13% African American, 71% All other) / Must have internet access in the home. Post-fielding, data was weighted to represent a gen-pop, online consumer universe.

## Summary of findings

Smart home adoption has been slow to gain traction among consumers. Just now are we starting to see increased consumer interest, more so with a select handful of individual smart devices rather than a true connected home consisting of multiple smart devices working together.

We are far from the latter; there is a significant difference between consumers adopting individual devices (e.g., a smart thermostat) and consumers signing up for and/or graduating to a connected life.

Companies are trying to create their own walled garden home solutions/echo systems while consumers are only now coming to terms with smart home devices. The former offers a connected network of smart devices and unique value propositions that consumers can't even begin to comprehend yet.

### What can consumers comprehend? What do consumers want?

#### *Here's a snapshot of what we learned:*

- The majority of consumers are familiar with smart home technology.
- One in four US internet users currently own a smart home device.
- Device adoption results from four main motivators: savings, safety, convenience, and control.
- Price is currently the number one purchase barrier.
- Security around one's data is a concern but often overlooked when the value of a product is proven.
- A payment plan for smart home devices would be a persuasive offering.
- Smart devices focused on safety command the highest price.
- Consumers are willing to spend on additional services and features after purchasing a smart home device—enhanced security features top the list.
- The majority of consumers say they are excited about the future of smart technology in their home.

## There's a lot of information to digest. Below is a guide to help you navigate:

- 05** The current state of today's smart home
- 07** What smart home device owners told us about why they buy
- 08** What factors would motivate a smart device purchase for those who don't currently own one?
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## The current state of today's smart home

Our focus groups revealed that younger consumers are undoubtedly better able to imagine a smart world. They had an easier time brainstorming new ideas, products, and applications that would enhance their quality of life at home. They had a harder time with applicable real-life implications, however.

Conversely, older consumers were largely able to apply smart technology to their current lifestyles while having a harder time imagining new applications and uses.



**Older consumers are grounded in real-life application.  
Millennials are better at imagining what's to come.**

The industry term “internet of things” is largely unfamiliar; yet, the idea of things being “smart” is a concept most understand. Moreover, when we spoke with consumers directly, it’s a concept the majority felt they were already experiencing in their everyday lives.

## What is “smart”? Smart is...

“The ability to collect/  
monitor data and  
project future usage  
for efficiency.”  
—Christina

“Something that helps  
out with everyday life  
and makes it simpler.”  
—Rachel

“Working  
together.”  
—David

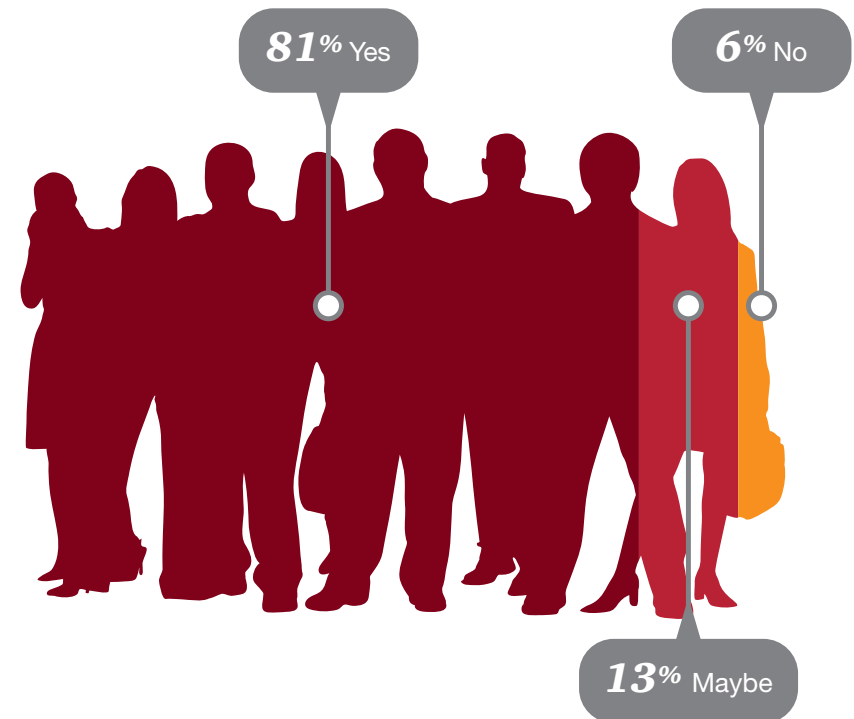
“Does more than  
its intended, flat  
function.”  
—Miley

“The ability to  
connect to other  
devices.”  
—Shaun

## How familiar are consumers with smart technology?

Eighty-one percent of US internet users are aware of the concept of smart devices and the connected home after being given a description. Most likely, this level of awareness can be attributed to smart TVs, wearables, and other smaller connected devices that have been gaining traction with consumers over time.

## Are you familiar with the concept of a smart home device?








Base: Total—Q10. Are you familiar with the above concept?

What does the smart home environment look like today?

Roughly one in every four (26%) US internet users currently owns a smart home product or device—from an internet-connected home alarm system to a smart meter or smart refrigerator. Even a smart doorbell or garage door.

Consumers with a household income of \$100K+ are statistically more likely to interact with smart home devices (43%), followed by men (32%). Conversely, consumers above the age of 50 are least likely to interact with smart home devices (13%).

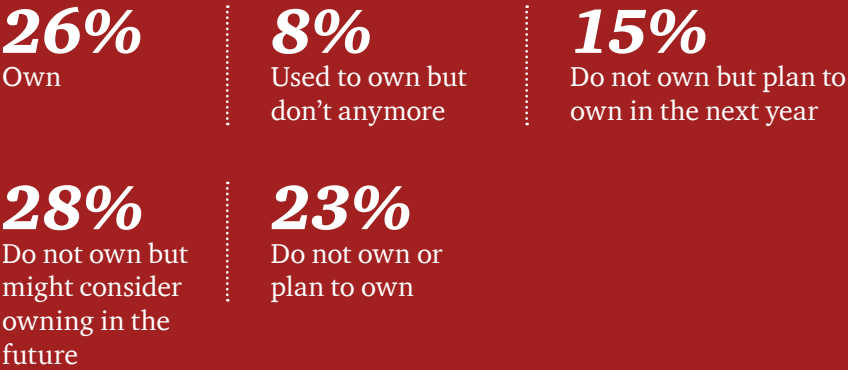
Who's more likely to adopt smart home technology?

	 Male	 Female	 18-34	 35-49	 50-64
Own	32%	20%	29%	35%	13%
Used to own but don't anymore	11%	6%	13%	6%	4%
Do not own but plan to own in the next year	19%	10%	18%	13%	12%
Do not own but might consider owning in the future	22%	34%	26%	27%	32%
Do not own or plan to own	16%	30%	14%	19%	39%

Base: Total—Q11. Please tell us your current relationship with smart home devices.



Smart home devices: Room for growth



## What smart home device owners told us about why they buy

One in four current smart home users (26%) say they bought their first device to either increase overall convenience, improve their quality of life, or help them be more productive. Meanwhile, 10% wanted to make their home safer, and another 10% cited affordability.



Base: Currently own smart home device (n=259)—Q23. Of the following possible reasons for why someone might purchase a smart home device, which is the one that best describes why you bought your first product?  
\*All answers not shown; does not add to 100%

Convenience wholly resonated with participants in our focus groups. A handful of current smart home consumers likened a device to a “personal assistant” that has the “ability to remember/do things they forgot to do.”

Directional differences emerge across demographics on further analysis. The main motivating factor for initial smart home adoption by demographic underscores what’s most important to each group:

- **Men:** *I thought it would make my home safer and more secure*
- **Women:** *Convenience*
- **Ages 18–24:** *I thought it would help me be more productive*
- **Ages 25–49:** *Convenience*
- **Ages 50+:** *It was affordable and I wanted to try it out*
- **White:** *I wanted better control of the functions in my home*
- **African American/Hispanic:** *I thought it would improve my quality of life*



We also heard that mornings represent a pain point for many consumers, especially those with children; they viewed smart home devices as “*an extra set of hands for when things get crazy.*”

Interestingly, only 6% of current smart home device users ranked energy savings as a motivator for purchase. This represents a sizable disconnect from non-users, who told us that saving money would hugely motivate them to future purchase. We believe the disparity stems from lack of communication, not a lack of desire. Cost savings represent compelling motivation; however, if not communicated clearly, the benefit might well be overlooked.



Energy-efficient smart devices rack up cost savings on monthly utility bills. Once consumers recognize this advantage, they are eager to sign up. Educate consumers so they understand *the long-term benefits of energy-efficient smart devices.*

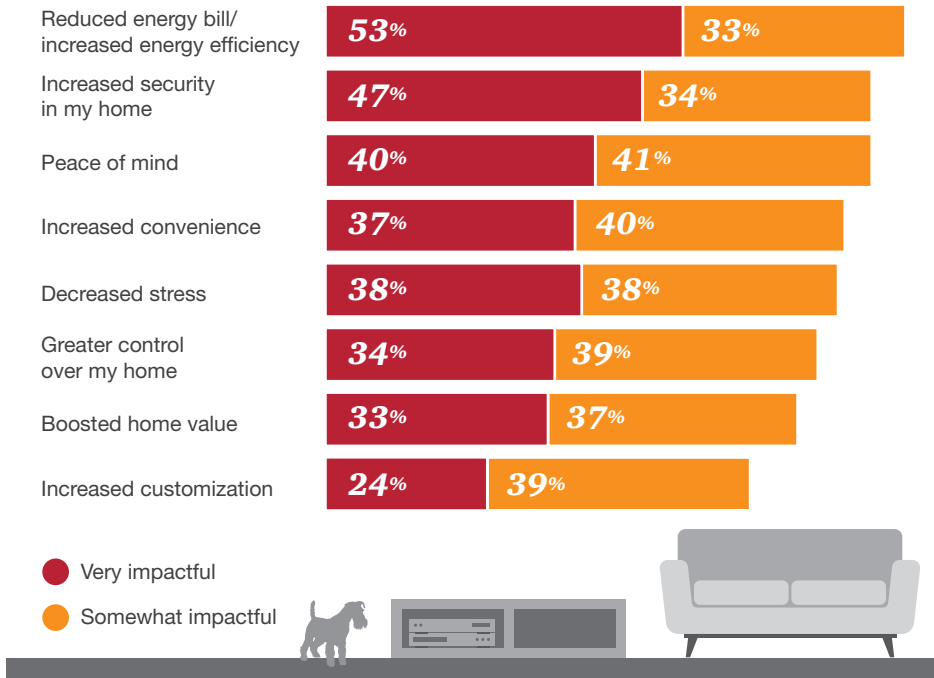
What factors would motivate a smart device purchase for those who don't currently own one?

Our data suggests that future and current adoption of the smart home lifestyle results from the same motivators. For consumers who are *not* current smart-device users, the motivation to buy a smart device converges around four main themes:

1. Savings    2. Safety    3. Convenience    4. Control

What's in it for me?

Perceived benefits of smart device purchase (among current non-users)



Base: Not currently own smart home device (n=741)—Q17. Below is a list of potential benefits that come from purchasing a connected home product. How impactful is each on your decision to have a connected home device, either now or in the future?

Savings on utility bills—more specifically, on monthly energy bills—are the most impactful benefit of a smart home device in the eyes of current non-users. Eighty-six percent say reducing their energy bill or increasing energy efficiency affects their decision to own a connected home device in the future.

What if we said your smart home device were to...?

Perceived benefits of a smart home device and top purchase motivators go hand-in-hand in the eyes of a potential consumer. They want to save money, ensure the safety of their home (and those in it), and make their lives easier.

Top motivations for purchase	Least motivating factors for purchase
1. Be more affordable (53%)	1. Allow me to see what's going on in my home while not there (29%)
2. Save me money on house bills (50%)	2. Become more mainstream (28%)
3. Guarantee to keep my home safe (42%)	3. Be simpler to use/understand (25%)
4. Make life easier/more efficient (38%)	4. Be simpler to install (23%)
5. Have more easily understood benefits (34%)	5. Be controlled by multiple people in my home interchangeably (19%)

Base: Not currently own smart home device (n=741)—Q16. Please rate how strongly the following would impact your decision to purchase a smart device, product, or appliance in the future. (Top box)

Motivations for purchase are consistent across all age groups with a few exceptions: Millennials (adults 18–34) are more likely to be motivated by all the reasons we surveyed.





Many millennials are in college, live with parents, or rent an apartment with roommates. However, they are clearly **primed for early adoption of smart home** devices once they purchase their first homes.















Conversely, consumers above age 50 are least likely to buy smart home devices. Unlike digital natives, they often need a nudge to try new technology. The data shows they may be more comfortable once the technology becomes more widely available, and they clearly understand the benefits.



In-home smart technology is a potential solution to aging in place. Of consumers above age 50, 71% said the “**increased ability to both comfortably and safely continue to live in my home as I age/face possible choices around assisted living**” is an impactful benefit of smart home technology.

Best of all: This group cares least about affordability, given that they typically command more discretionary income than younger consumers.

#### I would be much more likely to buy a smart home device if it . . .

	 18–34	 35–49	 50–64
 Were more affordable	64%	56%	39%
 Saved me enough money annually on household bills	59%	47%	42%
 Guaranteed to keep my family safe/more secure	52%	44%	29%
 Made my life easier and more efficient	49%	37%	26%
 Allowed me to understand all the benefits so I felt I was getting my money's worth	43%	31%	28%
 Could control all of my smart products from one single platform rather than individually	41%	32%	24%
 Could see what's going on in my home while I'm not there	41%	30%	17%
 Allowed me to better understand how efficiently my home operates	39%	25%	23%
 Helped me be more productive with my personal time	38%	37%	17%
 Worked seamlessly with other tech devices	37%	31%	20%
 Became more mainstream/more widely available	34%	31%	20%

Base: Not currently own smart home device (n=741)—Q16. Please rate how strongly the following would impact your decision to purchase a smart device, product, or appliance in the future. (Top box)

### What's holding non-owners back?

Price, not security or privacy, is the number one purchase barrier for smart home devices. As with the respondents from our [wearable technology survey](#), privacy and security aren't the reasons for lack of adoption.

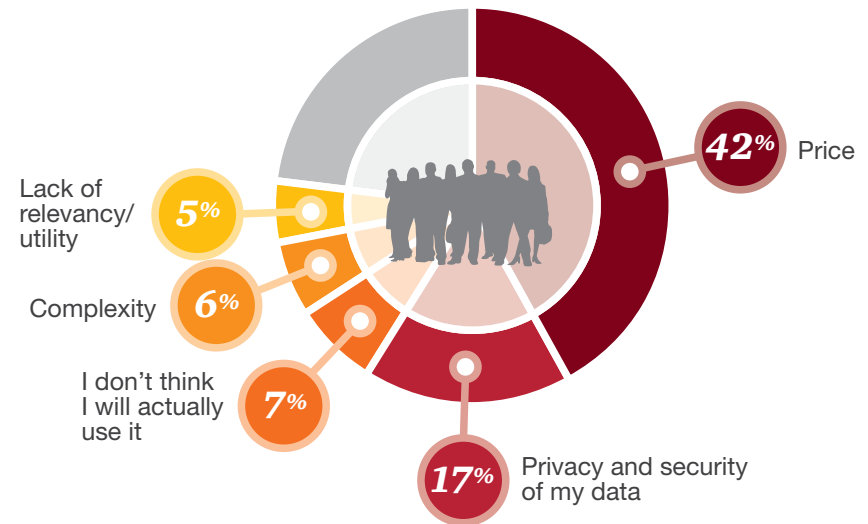
Our focus group participants spent a substantial portion of their time discussing the benefits associated with a smart home. Yet, the majority had not adopted the technology. When asked by the moderator what was holding them back, money was the overwhelming reason for their reluctance. Our survey respondents agreed, with nearly half of non-users (42%) listing price as their biggest hesitation.

In fact, 23% of respondents said they wouldn't consider a smart home device, even down the road, because it was too expensive. Among those who don't own a smart device—nor plan to own one in the future—more than half (57%) list cost as the primary reason holding them back.



### What's your biggest hesitation?

(Among current non-users)



Base: Not currently own smart home device (n=741)—Q14. What is your biggest hesitation with purchasing a smart home device? What's holding you back?



**Adoption barriers differ between individual smart devices and smart home solutions.** For the former, the main hesitation is the value for price. For the latter, the main barrier is complexity and lack of understanding.



*For a 53-year-old male focus-group participant, the switch from music CDs to a subscription streaming service represented a “low opportunity cost of reallocating funds, while also making my life simpler and more convenient.”*

Bottom line: Clearly demonstrate the value proposition for consumers rather than experiment with pie-in-the-sky features.

### Consumers with no plan to buy a smart home device down the road

Main reason why? Too pricey

- 57% Too expensive
- 24% Concerned with security issues
- 23% Concerned about privacy with data
- 19% Unsure of the benefits
- 17% Unsure of which device would be useful
- 16% Unsure if I'd know how to install and/or use them
- 14% Technology can break, and my home is too important to risk
- 11% I wouldn't want to have to control multiple products
- 10% Too confusing
- 8% I don't think I can rely on this type of technology
- 7% Too intimidating
- 5% I'm afraid if I buy something now it will become quickly outdated

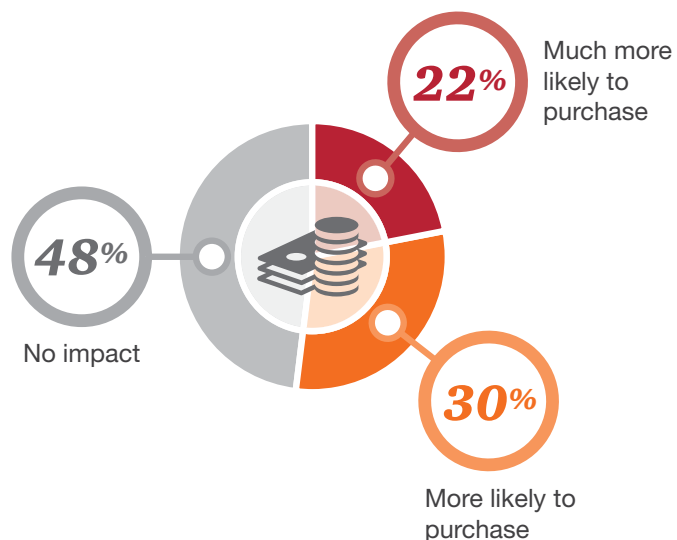
Base: Not currently own/do not plan to own smart home device (n=229)—Q13. You've told us that you don't currently own any smart home devices nor do you plan on purchasing any within the future. Why don't you own nor plan to own any smart devices, products, or services for your home?



Though price represents the number-one hesitation across demographics, **men are less likely to be cost-conscious about smart home technology (49%)** than women (62%).

The upshot: Unless the product meets a specific need, solves a problem, or smooths over a major inconvenience, consumers can't justify the purchase—especially for the big-ticket items like a smart refrigerator. This means the potential loss of opportunity to experiment with smart home devices, and a larger need to demonstrate legitimate value.

How would a payment plan impact your decision to buy a smart home device in the future?



Base: Price is biggest purchase hesitation (n=310)—Q15. You just told us that price is your biggest hesitation with purchasing a smart home device. What if financing a device was easy; for example, the manufacturer of your product offered you the ability to make monthly payments rather than pay one lump sum upfront. So really, you'd be paying for your device over time. How strongly would this impact your decision to purchase a smart device, product, or appliance in the future?

But what if financing a device was easier? Especially with a big-ticket item, what role could financing play? Monthly payments, for example, rather than full price up-front. Half (52%) of the consumers who listed price as their biggest barrier said they'd be more likely to purchase a smart home device if offered a payment plan.



**A payment-plan option has higher appeal for younger consumers aged 18–29 (73%) and men (65%); both demographics say it will further motivate them to adopt smart home technology.**

## Smart devices may make your home safer, but do they open your home up to security breaches?

*Many consumers in our focus group told us that they first purchased a smart device to make their homes safer. Which concurred with what we heard from our survey respondents.*

*Ironically, a security breach was top of mind for most consumers in our focus groups as a potential disadvantage.*

*The source of the threat varies across generations. Millennials are more overtly uncomfortable with the idea of the government and private companies tracking their behaviors and habits. Meanwhile, baby boomers are more likely to feel vulnerable to criminal hackers.*

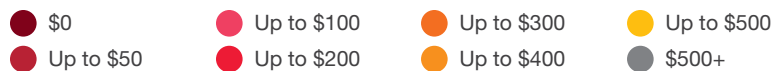
*Regardless, security issues don't inhibit purchase intent if consumers value the smart home product or service.*

## What's it worth?

We correlated price sensitivity with purchase rationale, given the volume and variety of smart home products available to consumers. Which benefit commands the highest price?

Interestingly, more consumers will buy a money-saving product. However, more of them are willing to *spend more* for safety.

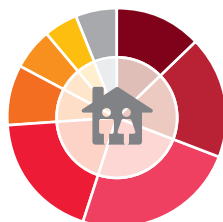
### How much would you spend if a smart home device...



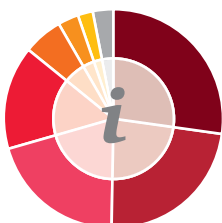
Saved you money each month on your utility bills



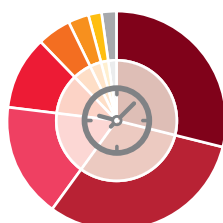
Made your home (and those in it) safer/more secure



Tracked information that was important to you



Gave you back an hour of your time each week



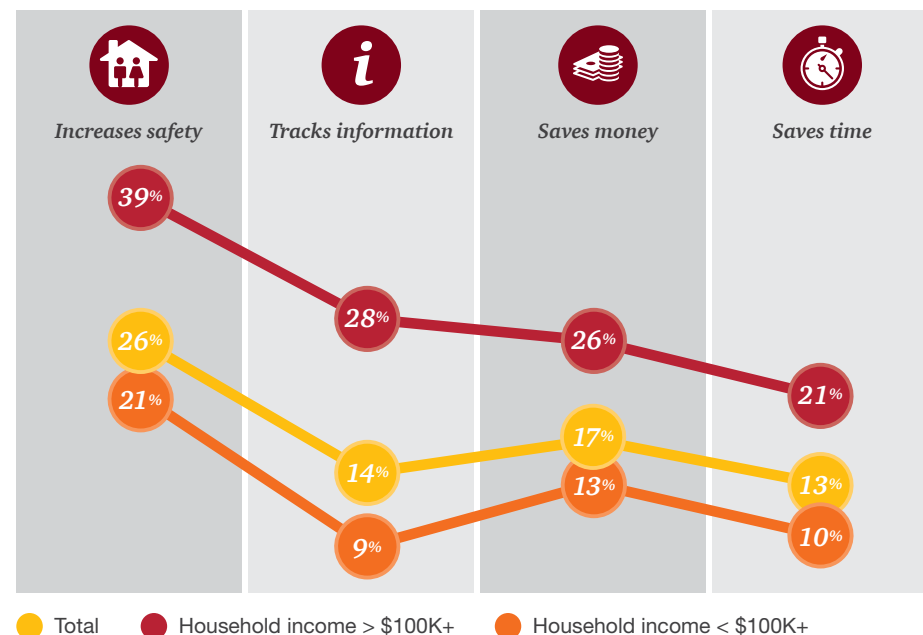
Base: Total—Q19. How much would you be willing to spend on a smart home product/device if it . . .

Safety and security—peace of mind—commands the highest price among consumers. More than one in four (26%) respondents would spend upwards of \$200 on a smart home device to safeguard their homes and the occupants in it. Cost savings followed, but at a gap of almost 10 percentage points.

And regardless of income, our survey respondents told us increased safety is worth more to them.

### Willing to spend \$200+ on a smart home device

Rated by benefit



Base: Total—Q19. How much would you be willing to spend on a smart home product/device if it . . .



High-income households (\$100,000+) are **less concerned about cost savings**. A high proportion of them believes that an information-tracking device that can analyze their data would necessarily **command a higher price**.



### ***What about additional benefits and services beyond the initial purchase?***

A key feature of smart devices is their ability to track and analyze information at various levels of sophistication.

A health monitor, for example, tracks steps at the basic level. For \$10 a month, however, consumers have access to a premium account with enhanced monitoring and tracking capabilities—such as individually tailored goals. And connectivity with other users, which has proven to help further motivate activity and fitness.

Several enhancements already exist for smart home devices; we anticipate more in the near future. To the right is a sampling of potential enhancements companies can offer:



#### **Enhanced security features**

- Grant or deny access to your home remotely—depending on who wants access.
- See who is at your door and communicate with the person. Again, remotely.



#### **Access to discounts and rewards programs**

- Receive insurance discounts for owning a smart security system.
- As winter approaches, smart home sensors detect poor insulation and notify the utility provider. In response, the utility provider offers discounted insulation services in exchange for an extended contract.



#### **Enhanced functionality**

- Set up different preferences—per room or per individual—within a home.
- Mobile device alerts.
- The ability to control a home remotely; for example, open or close the front door via smartphone.



#### **Personalized customer service**

- Round-the-clock customer support.
- Personalized customer care with a designated representative.



#### **Enhanced analytics**

- Comparable data with neighbors in a particular zipcode or region.
- Room-by-room monthly analysis.
- Remote access to historical data as needed.



#### **Cost saving recommendations**

- A leaky bathroom pipe, for example, triggers a recommendation for a local plumber.
- Home-efficiency recommendations after an initial period of data gathering and analysis.



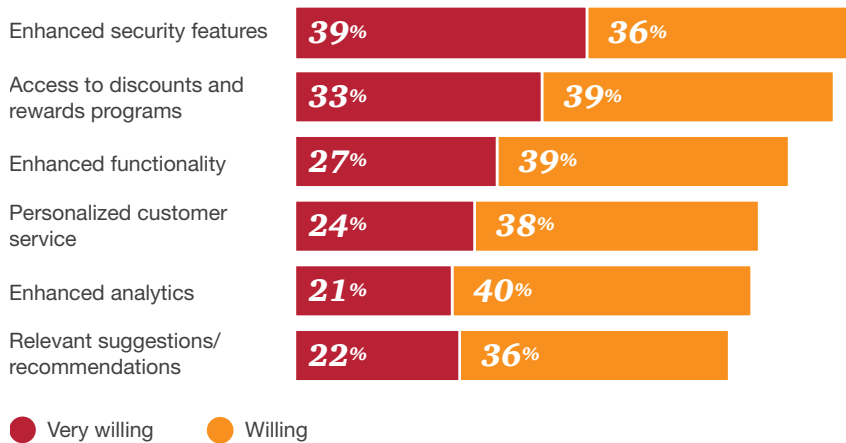
### Which features would a consumer be willing to pay for?

Enhanced safety features are most popular: 75% of consumers are willing to pay more—per month or per year—for extra security.



Consumer reaction to this concept can be likened to buying or leasing a car: base model plus additional trimmings for more money. But *the base model has to suffice on its own*. As a 28-year-old female focus group participant said during a discussion of security add-ons: “Why would I buy a less-secure device in the first place?”

#### Enhanced security tops the list of add-on features consumers are willing to pay extra for after purchasing a smart home device



Base: Total—Q20. Below are types of enhanced features/capabilities that can be tacked on to an existing smart device or product for an added fee (sometimes monthly, sometimes annually). Please tell us which of the following you'd be willing to pay additionally for.



Women and consumers over age 50 are least willing to pay more for enhanced features. Yet, *security still outranked other features*: 73% of women and 58% of consumers aged 50-64 are willing to pay more for security extras.

Most focus group participants reacted with displeasure at the prospect of paying extra for enhancements. However, they conceded that certain add-ons would warrant the costs.

A 64-year-old man with a smart doorbell said the extra \$30 per year for a digital record of visitors to his front door was worth the cost. Recent break-ins in a neighboring town had him worried; this “added benefit provides comfort.”

A 34-year-old woman—not yet a smart home adopter but considers herself “in the market”—would like comparative energy use analysis of her community; she would “happily pay extra for this visibility.” The analysis would make her “more conscious of her behavior” and could “even save her family money.”



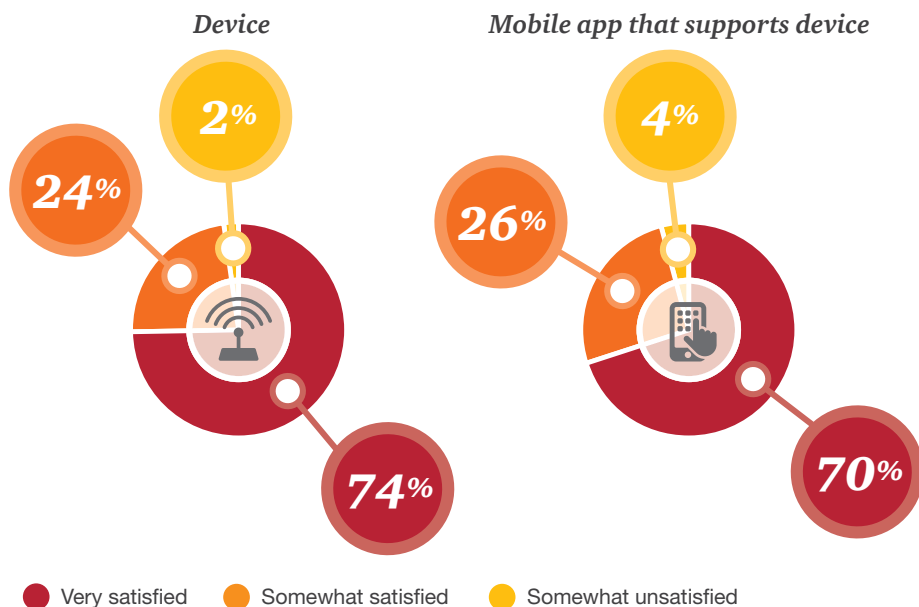
*Convenience* is top of mind for women: A smart device represents another set of hands, one less thing to remember on a long list of family responsibilities. And 60% of women said they'd pay extra for *personalized customer service*, which ranked second behind security among add-on features at additional cost.

*65% of internet of things users are fine receiving ads on their devices, according to a new IAB report. What's more, 44% are willing to watch them if they receive a coupon in return.*

## How satisfied are current smart home consumers?

Satisfaction levels in the 90th percentile clearly illustrate that current smart home users are more than satisfied—not only with their smart home devices, but also with the supporting mobile apps.

### Current users love their smart home devices



Base: Currently own smart home device (n=259)—Q24. Thinking of your smart home device(s), how satisfied are you? Please think of only the device, not any accompanying apps or remotes that you might use with it. Q27. How satisfied are you with the mobile application(s) that supports your smart home device(s)? Please think of only the app(s), not the device itself.

Increased control of home functionality is a key motivator of smart home device purchases. And an easy-to-use integrated app is essential to maximizing that functionality as well as usage.



We found a strong correlation between smart home device use and connectivity with an app: **74% of respondents say they use their smart home devices more frequently because it connects to their mobile device.**

We asked the less than 10% of unsatisfied consumers why they're not happy with their smart home devices. Their responses often landed on internet connectivity.

### Top 3 reasons driving low satisfaction of:

#### Device



1. The device is not as helpful as I thought it would be.
2. The connection is often spotty.
3. I forget to use the device.

#### Mobile app



1. The connection is often spotty.
2. The app isn't easy to navigate.
3. The app is slow.

Despite overwhelming satisfaction rates across the board, one demographic stands out as somewhat of an outlier: Consumers aged 50-64 are significantly more dissatisfied, both with the device (15%) and with its supporting mobile app (19%). We probed further for underlying reasons.



*“Even setting up my voice-activated digital assistant, I had to call my 26-year-old son because I didn’t understand some of the words.”*  
—Jamie, 49

Their lack of satisfaction stems from the following:

- They believe they aren’t getting the most out of their device; they’re missing the point of all the hype.
- The device has malfunctioned one too many times.
- Their internet connection is spotty.

They don’t know how to fix these problems; therefore, they aren’t enjoying the device and don’t believe they’re getting their money’s worth.

Clearly, the data tells us that there’s room for improvement in making smart home devices more user-friendly for this demographic.



41% of consumers over age 50 are willing to spend more on **personalized customer service**; for example, a one-time flat fee for a service that includes up to **10 post-purchase check-ins**—thus alleviating frustration while **increasing overall customer satisfaction**.

On a positive note, consumers over age 50 are far less likely—if at all—to forget to use their device (0%) or to think the device isn’t working as promised (2%).

### Dissatisfied with your smart home device?

Tell us why:

	Age 50–64	Total
I feel like I’m not getting the most out of it.	35%	13%
It’s not as fun as I thought it would be.	34%	14%
I’m still concerned about the overall protection of my data.	33%	12%
It’s malfunctioned a few times.	32%	16%
The connection is often spotty.	29%	22%
It’s not as helpful as I thought it would be.	7%	37%
It doesn’t do exactly what I thought it would do.	2%	12%
I forget to use it.	0%	19%
I don’t use it as often as I thought I would.	0%	12%

Base: Not very satisfied with device (n=66)—Q25 Below is a list of potential reasons that might explain any dissatisfaction you might have. Please select all that apply to you, and/or tell us in your own words why you’re not completely satisfied. Not very satisfied with mobile application (n=72)—Q28. Below is a list of potential reasons that might explain any dissatisfaction you might have. Please select all that apply to you, and/or tell us in your own words why you’re not completely satisfied.

## A peek into the smart home of the future

Companies looking to transform today's homes into tomorrow's smart homes are well advised to consider consumer perception. Would people be excited to try your product? Would they trust you to protect their information?

### From what companies do consumers want to see a smart home product?

Younger consumers tend to be more excited about new technology; the smart home is no exception. Millennials (ages 18–34) are most excited to try a smart home product from a wide range of providers. Men, meanwhile, are significantly more excited than women.

Interestingly, consumer *excitement* doesn't always correlate with consumer *trust*. While consumers trust their home insurance providers more than their home security providers, for example, they are more excited by smart home technology from their home security provider than from their home insurance provider.

Yet, in certain cases, excitement does correlate with trust: internet service providers, cellphone providers, and home appliance manufacturers.



**Consumers below age 30 are more trusting** than average consumers of their home insurance providers (42%), internet service providers (39%), cellphone providers (35%), and car manufacturers (20%).

## Tech companies rank highest as purveyors of smart home products


How excited would you be about a smart home product from your . . .

	Total	Male	Female	18–34	35–49	50–64
Tech company/ manufacturer	33%	33%	33%	44%	35%	16%
Internet provider	33%	36%	29%	38%	40%	18%
Home security provider	32%	33%	31%	43%	35%	16%
Cellphone provider	30%	35%	25%	39%	33%	15%
Car manufacturer	30%	32%	28%	40%	30%	18%
Pay TV provider	28%	32%	25%	38%	33%	11%
Auto insurance provider	28%	21%	15%	25%	20%	9%
Home appliance manufacturer	26%	27%	24%	35%	30%	11%
Entertainment provider	24%	27%	21%	35%	28%	7%
Home insurance provider	23%	27%	19%	33%	23%	9%
Doctor	21%	22%	20%	25%	25%	19%
Retailer	20%	22%	17%	27%	23%	8%


Base: Total—Q31. If the following introduced their own smart home devices, how excited would you be to try them? (Top box)



**For smart home devices, excitement does not always equal trust**



Excitement		Trust
33%	Tech company/ manufacturer	22%
33%	Internet provider	31%
32%	Home security provider	48%
30%	Cellphone provider	29%
30%	Car manufacturer	16%
28%	Pay TV provider	22%
28%	Auto insurance provider	18%
26%	Home appliance manufacturer	27%
24%	Entertainment provider	11%
23%	Home insurance provider	39%
21%	Doctor	48%
20%	Retailer	13%



Base: Total—Q31. If the following introduced their own smart home devices, how excited would you be to try them? (Top box); Q33. Which companies would you trust to protect your information through your connected home?

*Would you assume that the seller of your smart home product has access to your personal information?*

**76%** Yes **24%** No



## How would consumers design their very own smart homes?

We asked consumers to create their ideal smart homes from the bottom up. What features would it have? How would it function? What devices would they imagine?

They told us data encryption is the most essential asset a smart home device can offer. Round-the-clock customer service would also rank high on their list, as would a simple, easy-to-use platform.

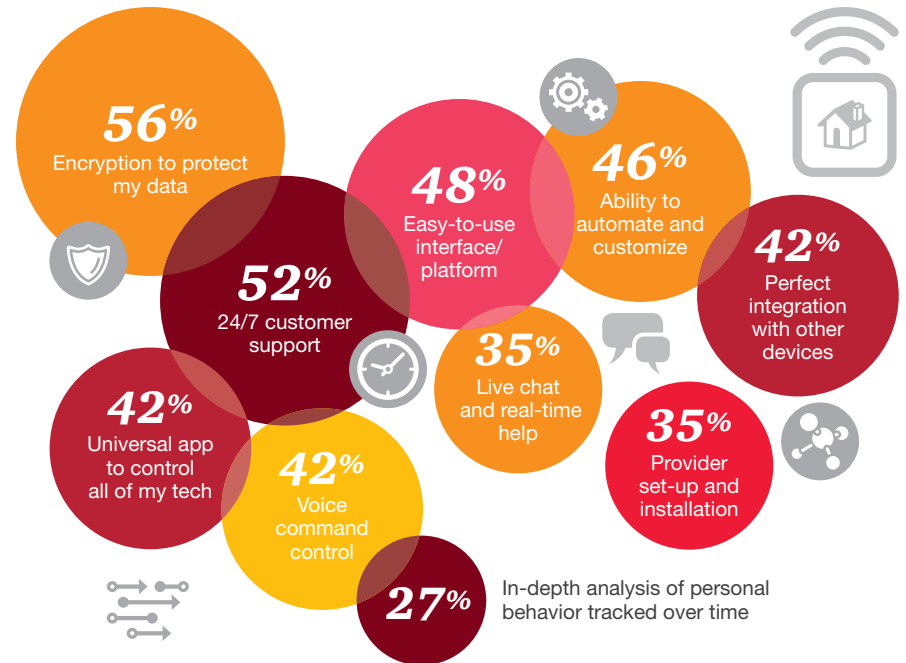
 **24/7 customer support** ranks higher for **millennials** (56%) and **high-income households** (60%) than for consumers overall.

In-depth behavior analysis was least popular with our respondents: 30% said they could do without it. Consumers view smart home devices primarily as a convenience to ease their busy lives rather than a tool that gathers data they can analyze. Ultimately, once set-up is complete, they want a device that functions on its own, not one they have to keep fine-tuning. In keeping with this perspective, they're not interested in decoding enhanced analytics from their smart home devices. What they prefer instead is a device that analyzes their behavior—and recommends solutions.

Desires and preferences around smart home devices show looming consumer confusion. **The most-valued features are often not the real drivers of value**—some are mere necessities while others are table stakes—and consumers can't seem to articulate which features are truly novel.

This indicates a lack of understanding among consumers and tell us that providers of smart home products/solutions need to improve consumer education and outreach.

## Creating your very own smart home What characteristics would you choose?

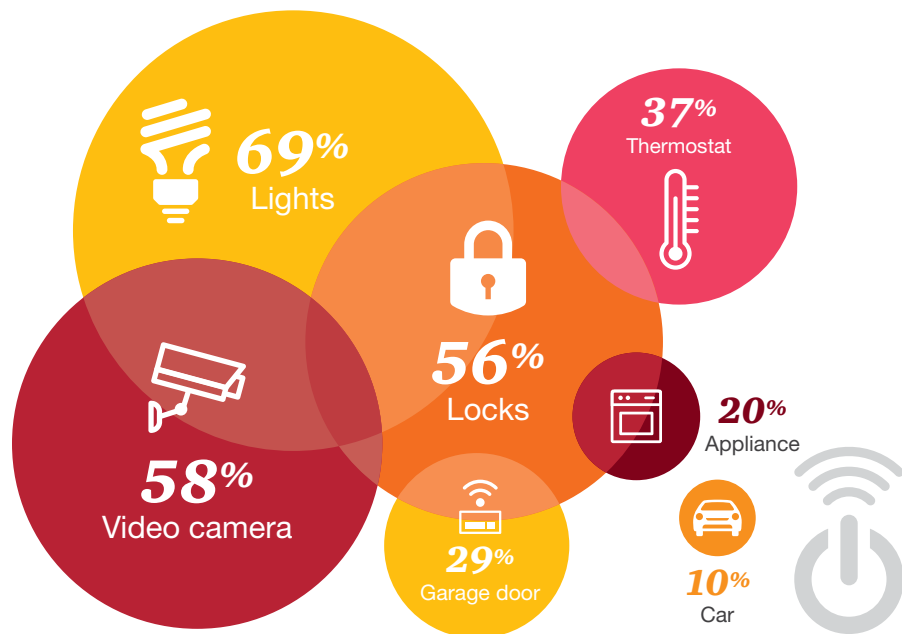


Base: Total—Q30. If you could create your ideal smart home device/product/appliance, what would it involve? How would it function? How would you use it? Below are some possibilities we thought of—please indicate how useful each would be to you. (Top box)

## Which technology ranks highest?

In a universe of unlimited smart home device options, consumers began zeroing in on value. They told us smart lights top the list, most likely due to their lower price point and ability to save money while increasing home efficiency. This was followed by smart video cameras and locks, which correspond with security, an essential consumer priority—and one that commands the highest price.

### Consumers prefer low-price, high-value devices

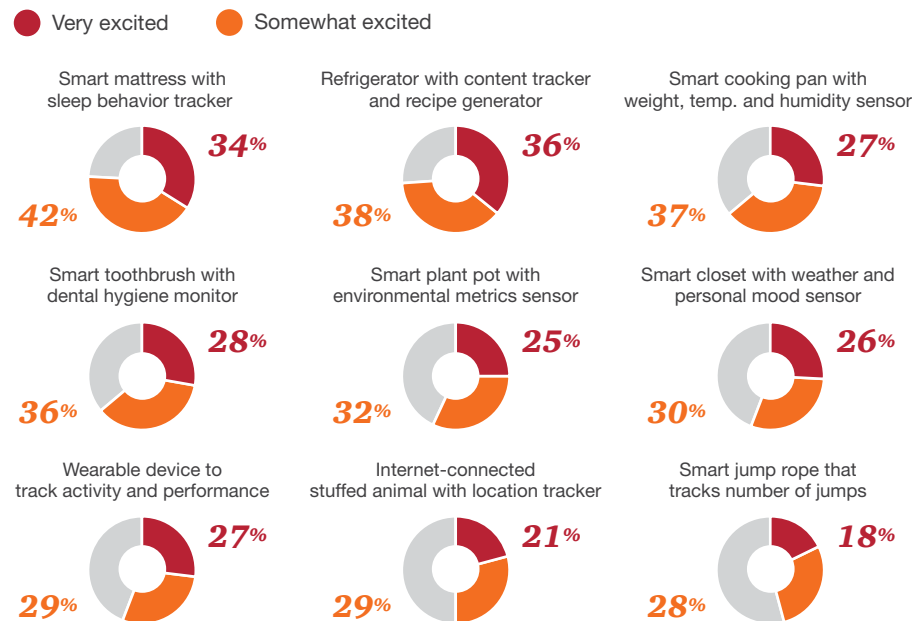


Base: Total—Q18. We want to hear from you what matters most to you in your home. Assuming all of the below devices were “smart” and could therefore connect to the internet and be controlled from wherever you are, please rank them in order of highest to lowest priority.

## How about new possibilities for smart technology?

We asked consumers about more futuristic smart home devices to gauge interest and excitement. Products that fundamentally improve quality of life and overall health are most exciting to consumers across the board—and are perceived as “need to have” rather than “nice to have.”

### Smart home devices that improve quality of life, overall health rank highest



Base: Total—Q36. Below are some examples of smart devices that might sound “out there,” but either actually exist or might exist at some point in the near future! Would you be interested in owning any of the following?

It comes as no surprise that consumer interest in smart products increases dramatically after they’ve purchased and used one—since the majority of smart home adopters told us they are satisfied with their purchase.

**Smart product owners say, “Give me more!”**

Interest in future smart home products correlates with current ownership

	Aware of IoT	Owns any smart device	Owns smart home device
Smart mattress	78%	82%	86%
Smart refrigerator	75%	83%	89%
Smart cooking pan	67%	72%	81%
Smart toothbrush	65%	75%	82%
Smart plant pot	60%	67%	74%
Wearable device for sports players	60%	66%	80%
Smart closet	57%	63%	75%
Internet-connected stuffed animal	51%	59%	72%
Smart jump rope	46%	54%	71%
Smart toilet	46%	55%	68%

Base: Total—Q36. Below are some examples of smart devices that might sound “out there,” but either actually exist or might exist at some point in the near future! Would you be interested in owning any of the following? (Top 2 box)



*Early adopters of smart home devices are eager for more.*



# The consumer has spoken.

Our focus group participants shared with us their ultimate smart home vision.

*"Start the coffee pot from the shower . . ."*

*"Smart bed that will automatically rise when I'm snoring."*

*"A refrigerator that alerts you when food is expiring and provides recipes to use that ingredient."*

*"A service to help track when I fall asleep and 'calm' the house—dim the lights, lower TV volume, etc."*

*"Fingerprint entry for my home so I don't have to worry about losing my keys."*

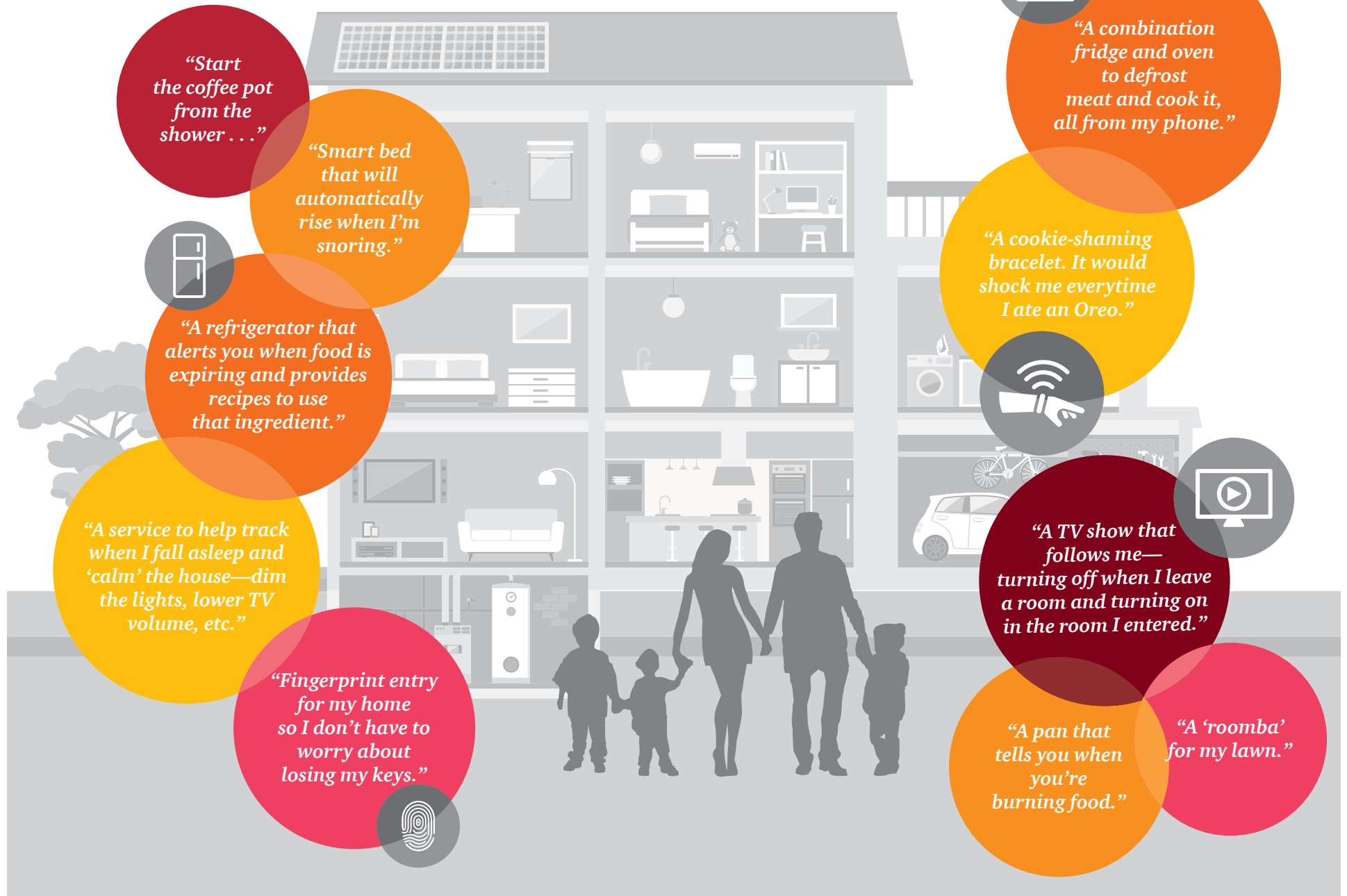
*"A combination fridge and oven to defrost meat and cook it, all from my phone."*

*"A cookie-shaming bracelet. It would shock me everytime I ate an Oreo."*

*"A TV show that follows me—turning off when I leave a room and turning on in the room I entered."*

*"A pan that tells you when you're burning food."*

*"A 'roomba' for my lawn."*





## What's the future forecast for the smart home?

Consumers can readily see the benefits of smart home devices. However, several factors might well constitute near-term bumps in the roads.

A number of our focus group consumers, particularly those over age 50, used the phrase “too much of a good thing” to describe the smart home movement. Consumers also feel these devices can be, in their own words, “invasive” and “far too complex.”

Regardless, consumers are looking forward to a smart future: 65% are excited about the future of smart technology as a part of their everyday home life.

Excitement is highest among men, consumers aged 18–24, and high-income households.

*“Sunny with rain clouds.”*

—The one-year projected forecast for smart home devices, described by Jenny, 33

*“Where do we draw the line?”*

Robert, 52

*“There’s always a new iPhone every year. I’d imagine it’d be the same for smart home alarm systems? Except this time they’re toying with the security of my home.”*

—Jasmine, 27, on tech products quickly becoming obsolete

## Excited about the future of smart home tech in your daily life?

	Very excited	Somewhat excited	Neutral	Somewhat concerned	Very concerned
Total	32%	33%	25%	4%	6%
Male	36%	33%	22%	3%	6%
Female	27%	32%	30%	6%	5%
18–34	42%	34%	17%	4%	3%
35–49	38%	35%	21%	3%	3%
50–64	17%	22%	45%	6%	10%
Household income >\$100K+	49%	27%	16%	4%	4%
Household income <\$100K+	28%	34%	28%	4%	6%

Base: Total—Q34. How do you feel about the future of smart technology as a part of everyday life in your home?

## Just how smart are today's smart homes?

Our focus group consumers believe smart devices in the home still have a ways to go. As one consumer said, “When I think of ‘genius,’ I think of a device thinking for itself . . . most of these things now need commands.”

# Digging deeper— understanding the four consumer segments

Demographics don't always tell the whole story. In this instance, a more illuminating analysis emerges if we look at consumers' attitudes toward their home and technology as a whole.

- Male
- Middle-aged (ages 30–49)
- Married with kids
- Higher household income
- Technology enthusiasts
- Typically the first of their friends to try new tech products
- Feel strongly that they spend way too much time taking care of their home
- Feel they rarely have enough time in the day to do all they need to

**26%**  
**Current users**



- Male
- Young (ages 18–29)
- Find it important to have the latest technology, but feel technology can be overwhelming
- Values the importance of doing research before buying products or new technology
- Feel they spend way too much time taking care of their home
- View price as number one purchase inhibitor—much more likely to adopt with payment plans
- A universal platform to control all technology products would be a primary purchase motivator



**23%**  
**Considerers**

**28%**  
**Acceptors**



- Female
- Older (ages 50–64)
- Technology is a necessary evil, but they occasionally indulge
- View price as number one purchase inhibitor—payment plan marginally effective
- Would be motivated to purchase if smart home technology was more affordable, and if it saved money on bills
- Device and app set-up/installation handled by the provider or brand would be hugely beneficial



**23%**  
**Rejectors**

- Female
- Older (ages 50–64)
- Less likely to have kids in the home
- Lower household income
- Hesitant about technology overall
- Typically wait for a few years after new technology comes out before purchasing
- Not worried about how much time they spend taking care of their home
- Though price is the number one purchase inhibitor, a payment plan has little-to-no-impact on future purchase

# For your consideration

1.

*When unlocking the door of tomorrow's smart home, age does matter.* Younger consumers are excited about the technology but may not be in the position to utilize it at this stage in their life. However, they are primed for early adoption once they purchase their first home. Engage them now for later.

2.

*Conversely, older consumers may have the house but are more likely to feel intimidated or frustrated with the technology.* This age group also tends to have a higher disposable income, so cost is less of a deterrent. Reach these consumers by highlighting the inherent benefits of smart home tech and how it can help them age in place, and offer extra customer service to lessen frustration and increase peace of mind.

3.

*The main motivating factors for initial smart home adoption converge around four main themes: savings, safety, convenience, control.* For women—who often run the household but tend to be less interested in this technology—convenience is the most compelling reason to adopt smart home tech. Rather than push devices, push a lifestyle—offer reminders so there's one less thing to remember, or an extra set of hands for when life gets crazy, etc.

4.

*Price represents the largest purchase barrier for the smart home today.* Privacy/security of one's data is a concern but not large enough to inhibit purchase. This means consumers are less likely to experiment with the technology “just because” or buy a smart home product out of curiosity. Prove legitimate value and advertise long-term cost savings upfront.

5.

*Safety commands the highest price in today's smart home—*more consumers will buy a money-saving product; however, more of them are willing to *spend more* for safety.

6.

*With heightened consumer interest, we're already seeing a smart home market saturated with devices.* As a differentiator, companies should focus on selling products that offer a return on investment or a service built around the connected device. Consumers are willing to pay extra after the initial device purchase, especially for services that enhance security or save them even more money in the long run.

7.

*A disconnect exists between what consumers want right now (individual devices) and what companies are pushing on them (smart home solutions).* For now, companies either need to re-position their offerings to deliver a superior value in standalone smart devices or find ways to interest consumers in larger smart home solutions.

8.

*The door remains open for more smart tech in the home, with the majority of consumers saying they are excited about its future.* As awareness and education increase, so, too, will consumer understanding and excitement.

## **Contacts**

*For more information on this research, the PwC Consumer Intelligence Series, or how digital transformation is shaping the entertainment, media, and comms industries, please contact one of our specialists:*

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