

# Smart Home – Market, Trends, Outlook

Erik Ackner

Mercku, Director of Growth

# Hello, I'm Erik!



startupweekend™  
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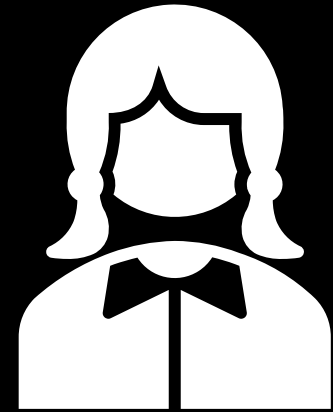
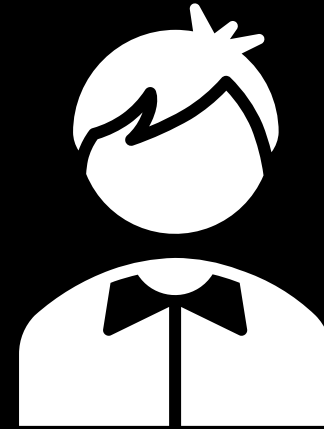
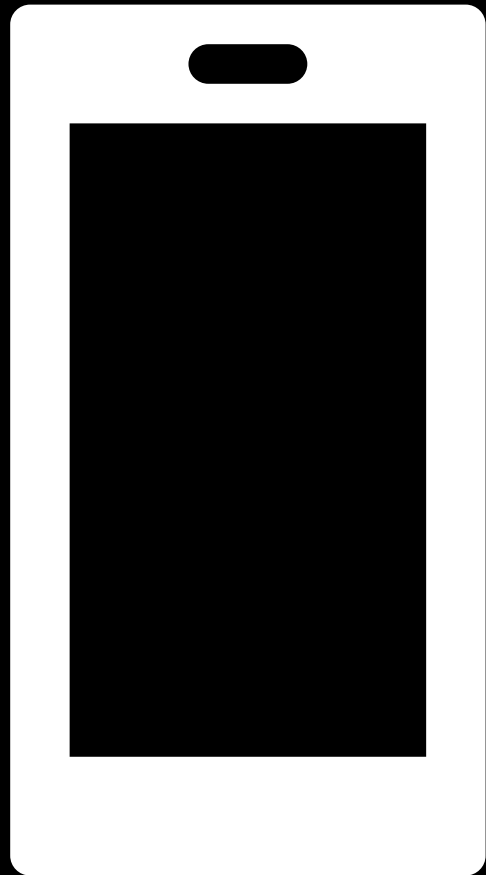
Hochschule für  
Wirtschaft und Recht Berlin  
Berlin School of Economics and Law



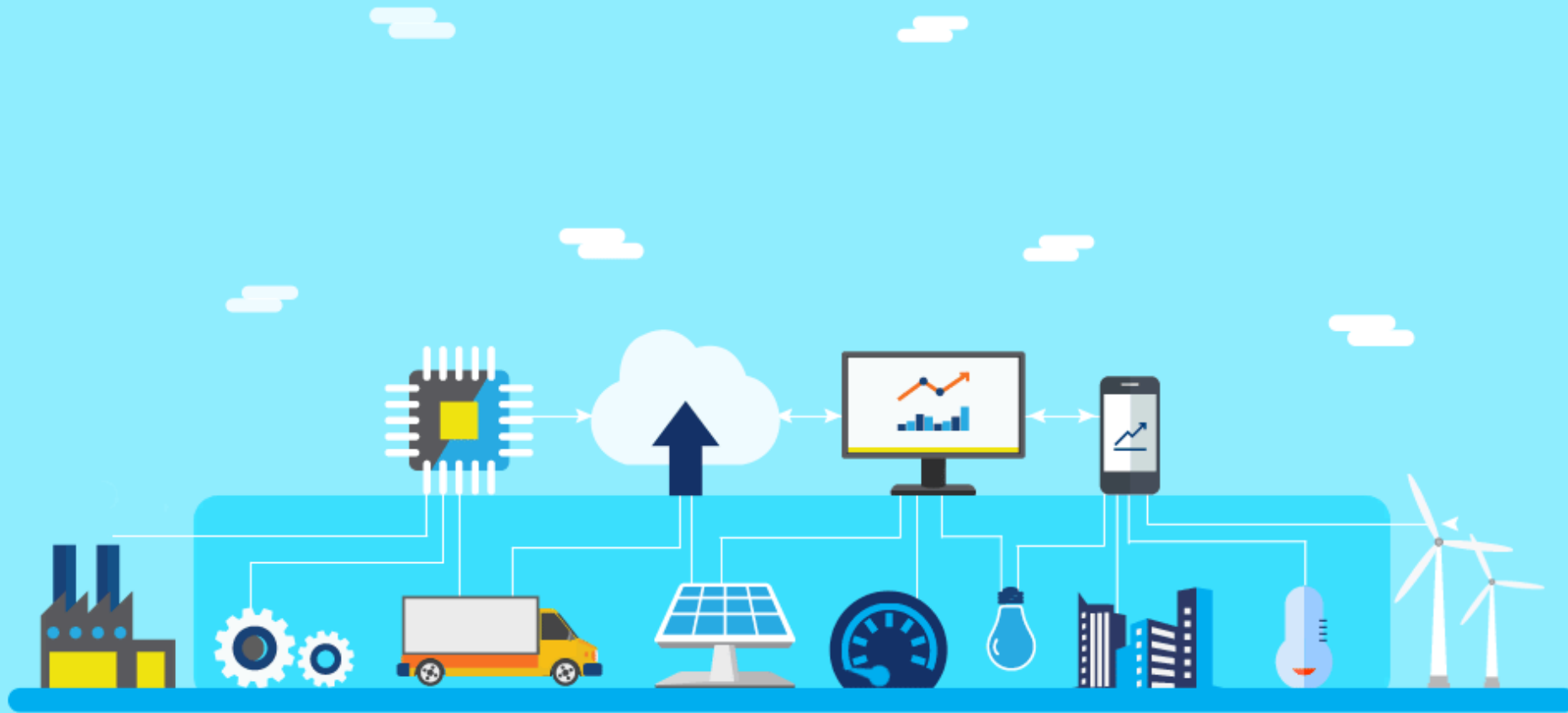
**Let's do a little experiment**



# Your identity



# Final wave of digitization



# We are living in a smart world



# Driving smart cars



# Work on our smart phones





**And smart  
computers**



Get a “smart” coffee




# Enjoying our smart lights



# And getting a smart hair brush!





**There is one thing in our life  
that is still not smart...**

...our homes



We spend **90%** of our time indoors, in places that are not smart...

Manual controls

Manual processes

Inefficient systems





400w  
120 VAC  
60Hz

DW6HD  
600W INC  
2.5A 300W LED  
2.5A 300W CFL  
120 Vac 60Hz

smart™  
LEVITON  
Works with  
My Leviton  
App

TP-LINK

E

Desconecte la Corriente  
Turn Off Power Air Time In Coverage

LUTRON

MAC:149182503BA5

WION

WION

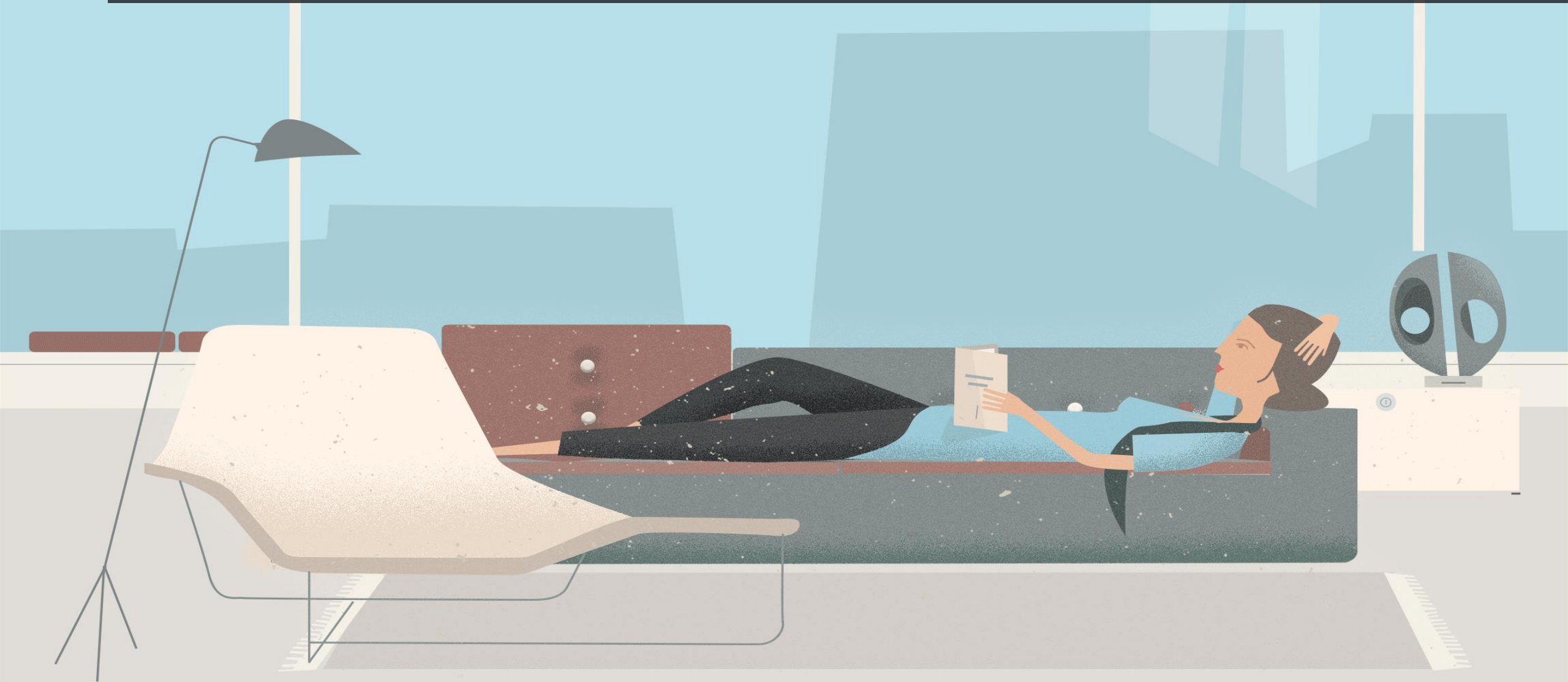




**Our homes don't  
have a brain, yet...**



**Think of your home as a tech-empowered oasis...**





SmartFridge



SmartMicrowave



SmartOven



SmartDishwasher



SmartBlind



SmartKettle



SmartSocket



SmartToaster



SmartSocket



SmartAirConditioner



SmartTV



SmartElectric Hob




SmartHUB




# Our homes will turn autonomous

**Level 0**




no autonomous features

**Level 1**



can handle **one task** at a time, like temperature adjustment


**Level 2 (connected)**




at least **two automated functions** (light, temperature, speaker)

World is here


**Level 3 (location-aware)**



handle **dynamic tasks** but might still need intervention


M3  MERCKU

**Level 4 (semi-autonomous)**



autonomous in **certain environments** (health, music, gardening, food, etc.)

**Level 5 (full autonomous)**



operate **entirely on its own** without any human presence



# Smart home market

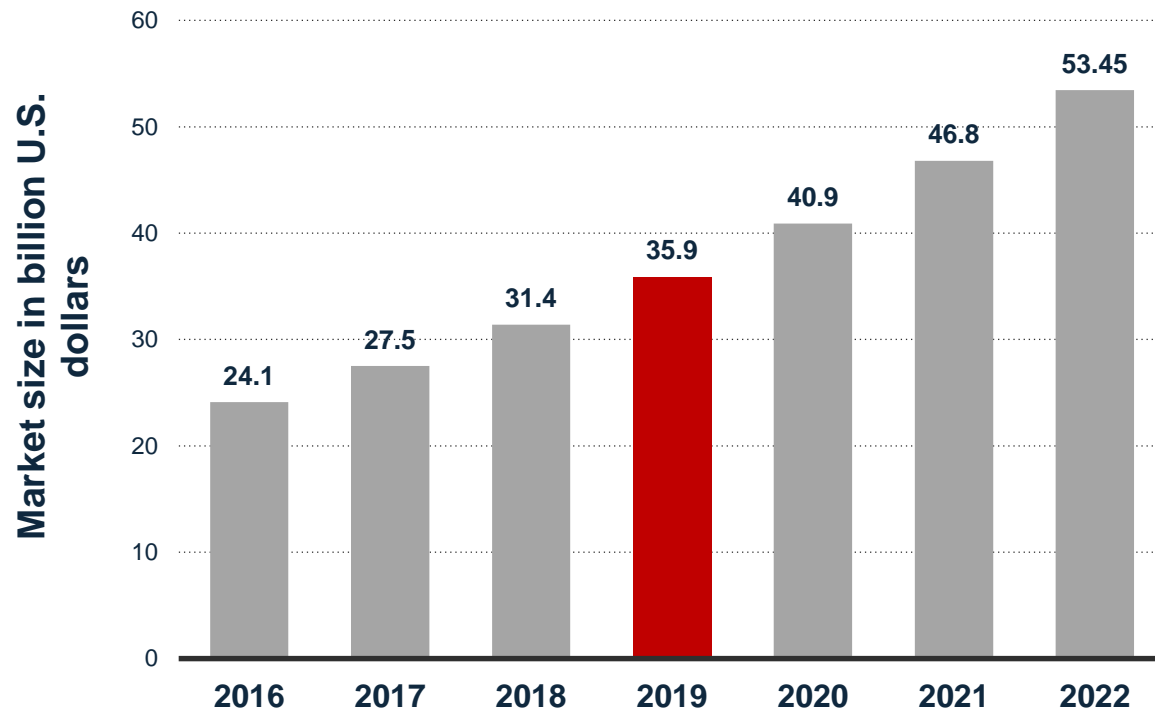
Overview, market numbers, users

August 2019

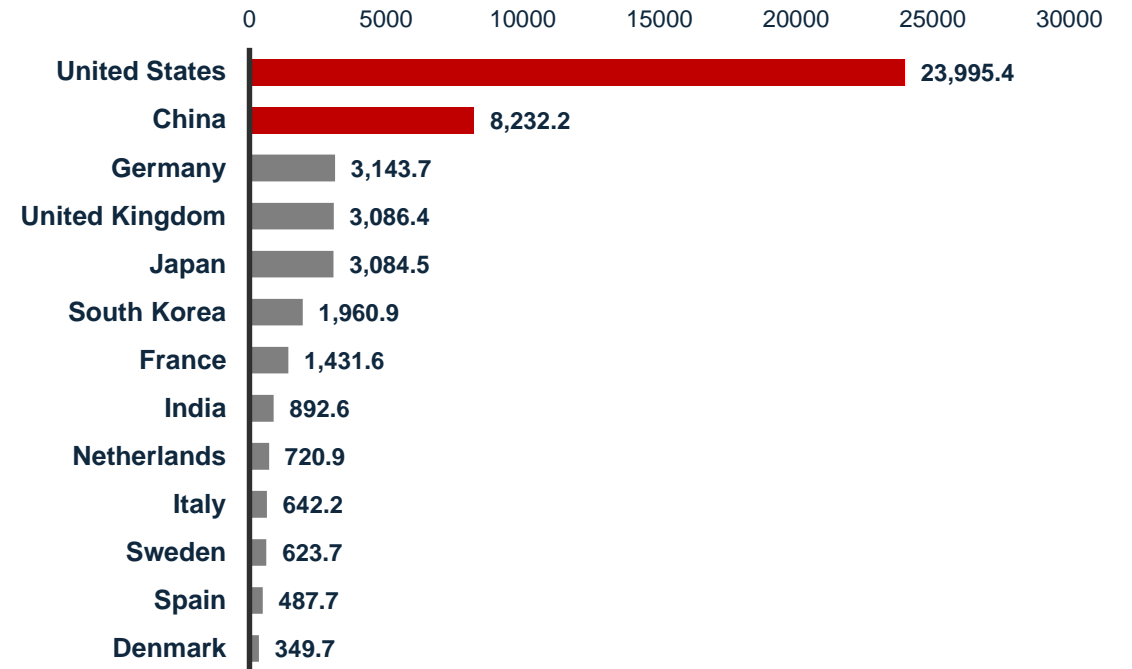
Erik Ackner

# Smart home market global revenue

Forecast global smart home market revenue  
2016-2022 (in billion U.S. dollars)



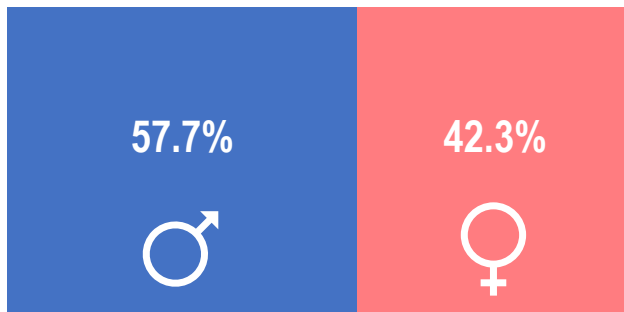
Smart Home revenue forecast for selected  
countries 2018 (in million U.S. dollars)



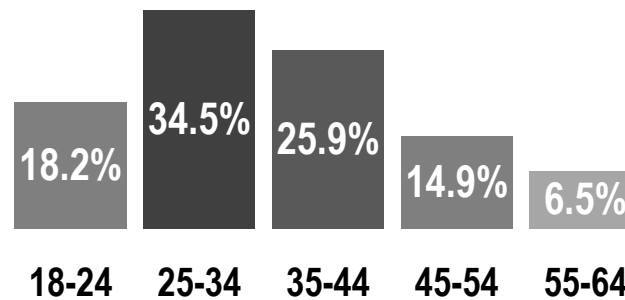
Source(s): Zion Market Research, Statista, 2018

# Smart home user demographics

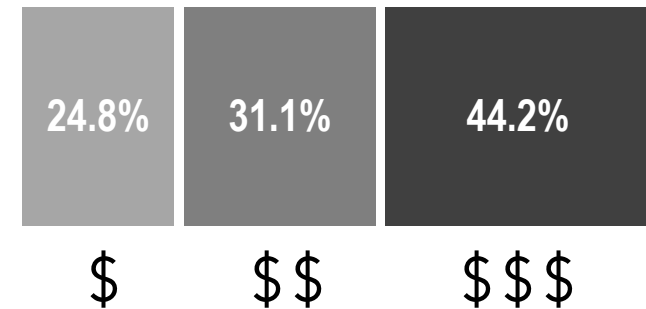
## Users by gender



## Users by age



## Users by income



Source(s): Statista Survey, 2018



# Main use cases of the smart home

## Control and connectivity



## Comfort and lighting



## Security



## Home entertainment



## Energy management

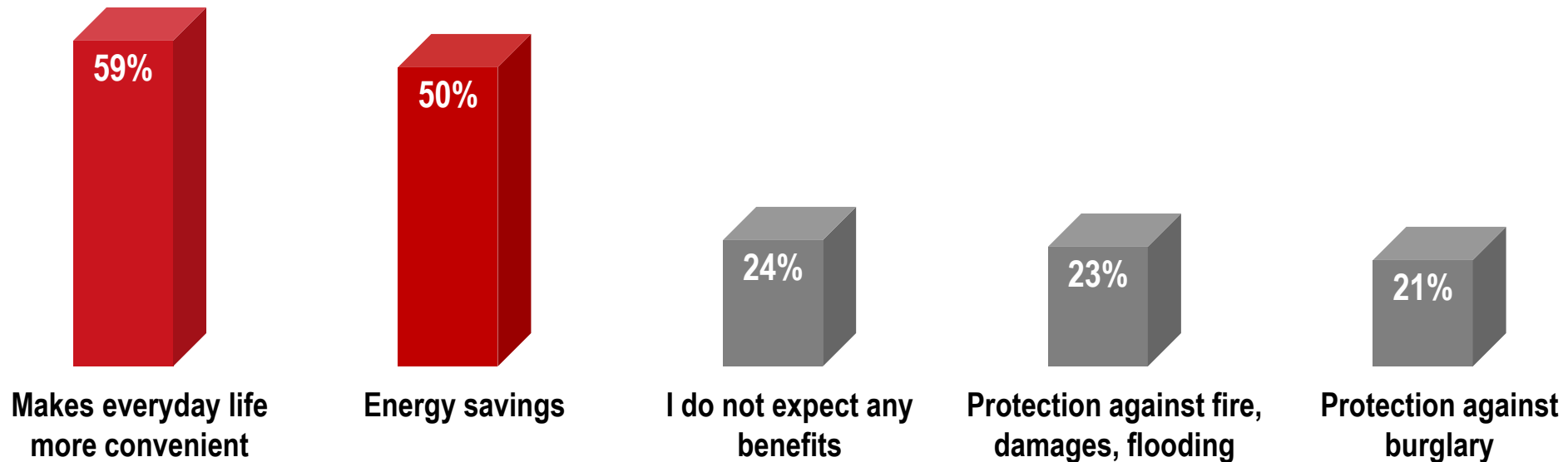


## Smart appliances



# Expected smart home benefits

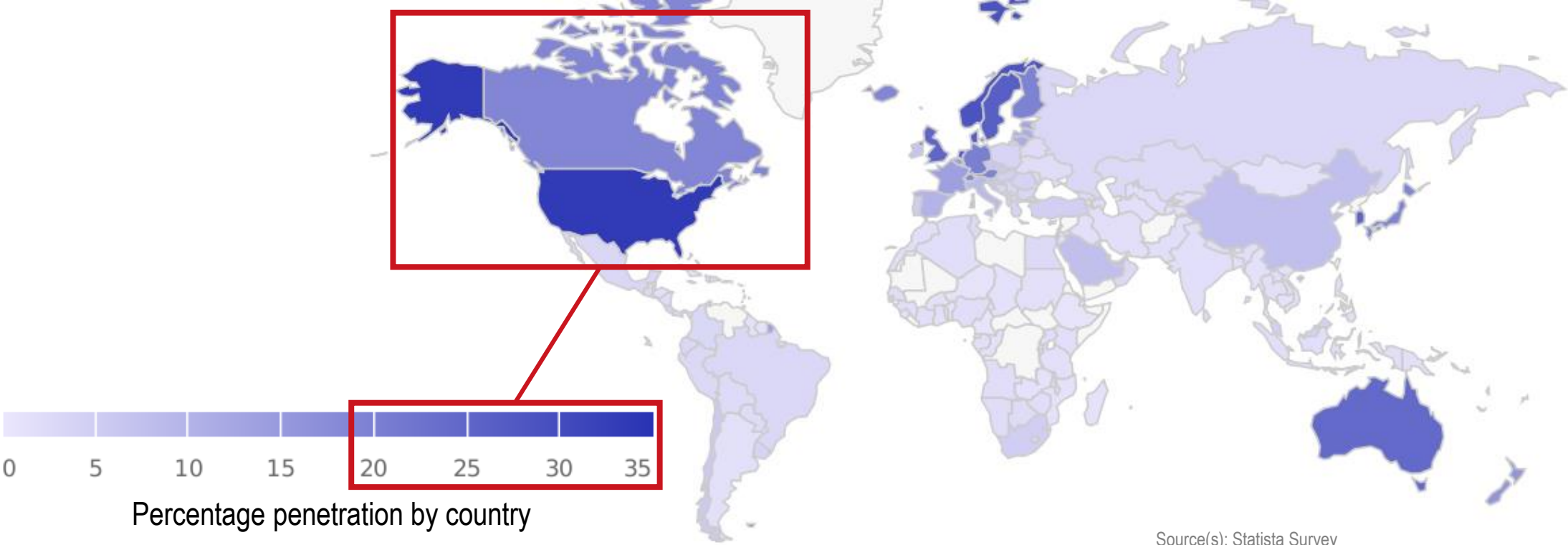
Benefits expected from connected/smart home appliances by US consumers, 2017



Source(s): Statista Survey, 2017 (USA)

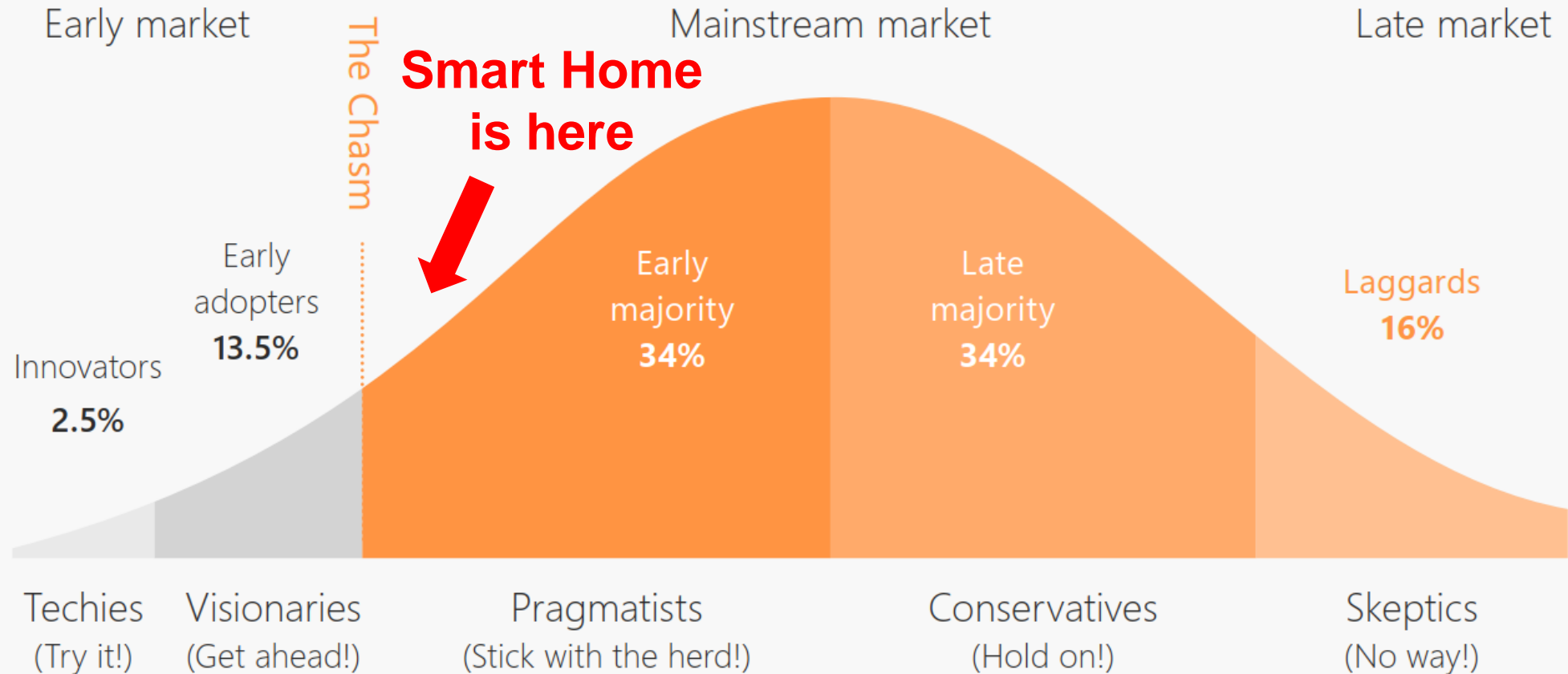
# Household penetration exceeding 20%

Household penetration in the global smart home market, in percent (worldwide)

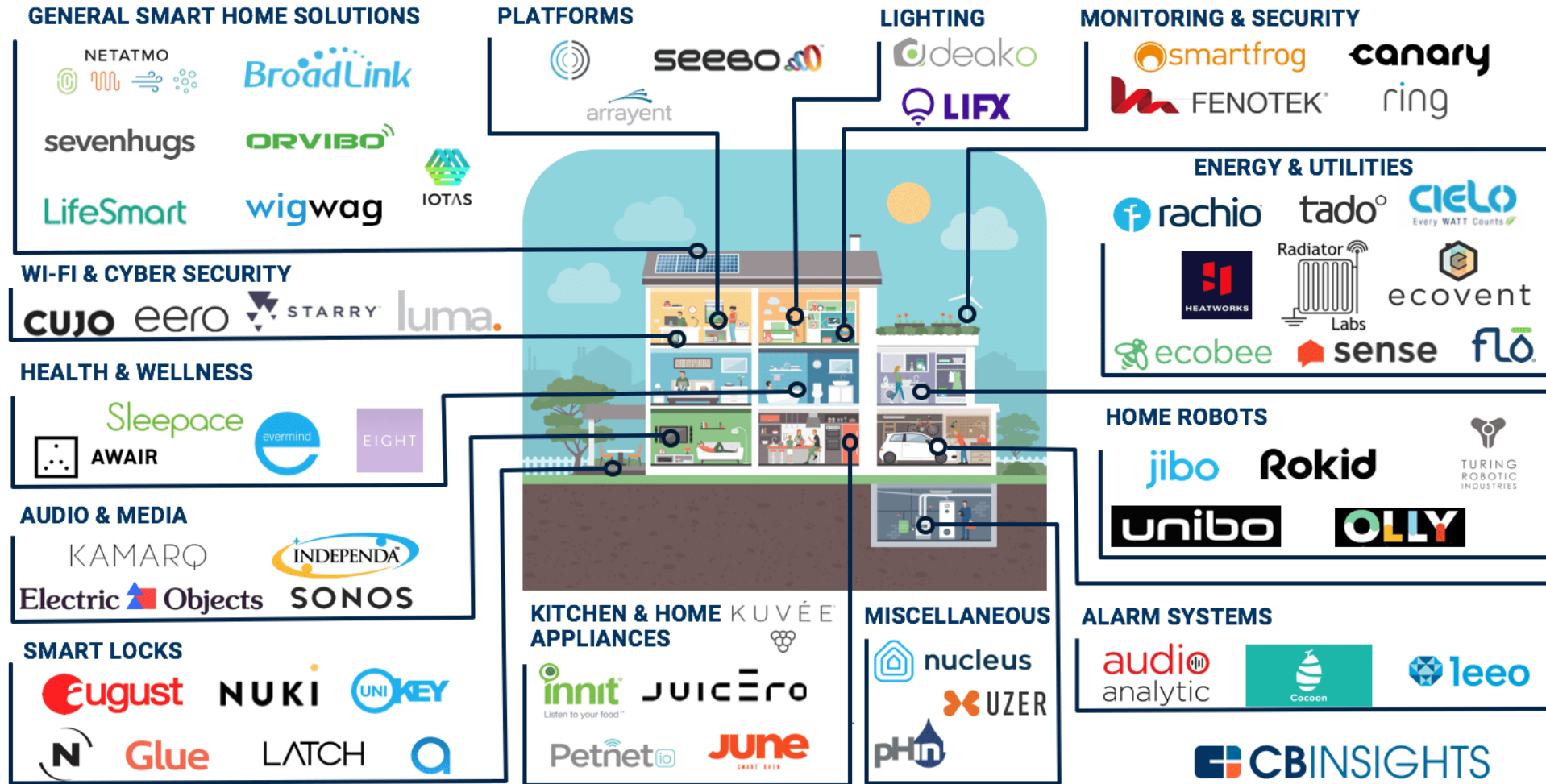


# Crossing the chasm

Technology adoption life cycle market



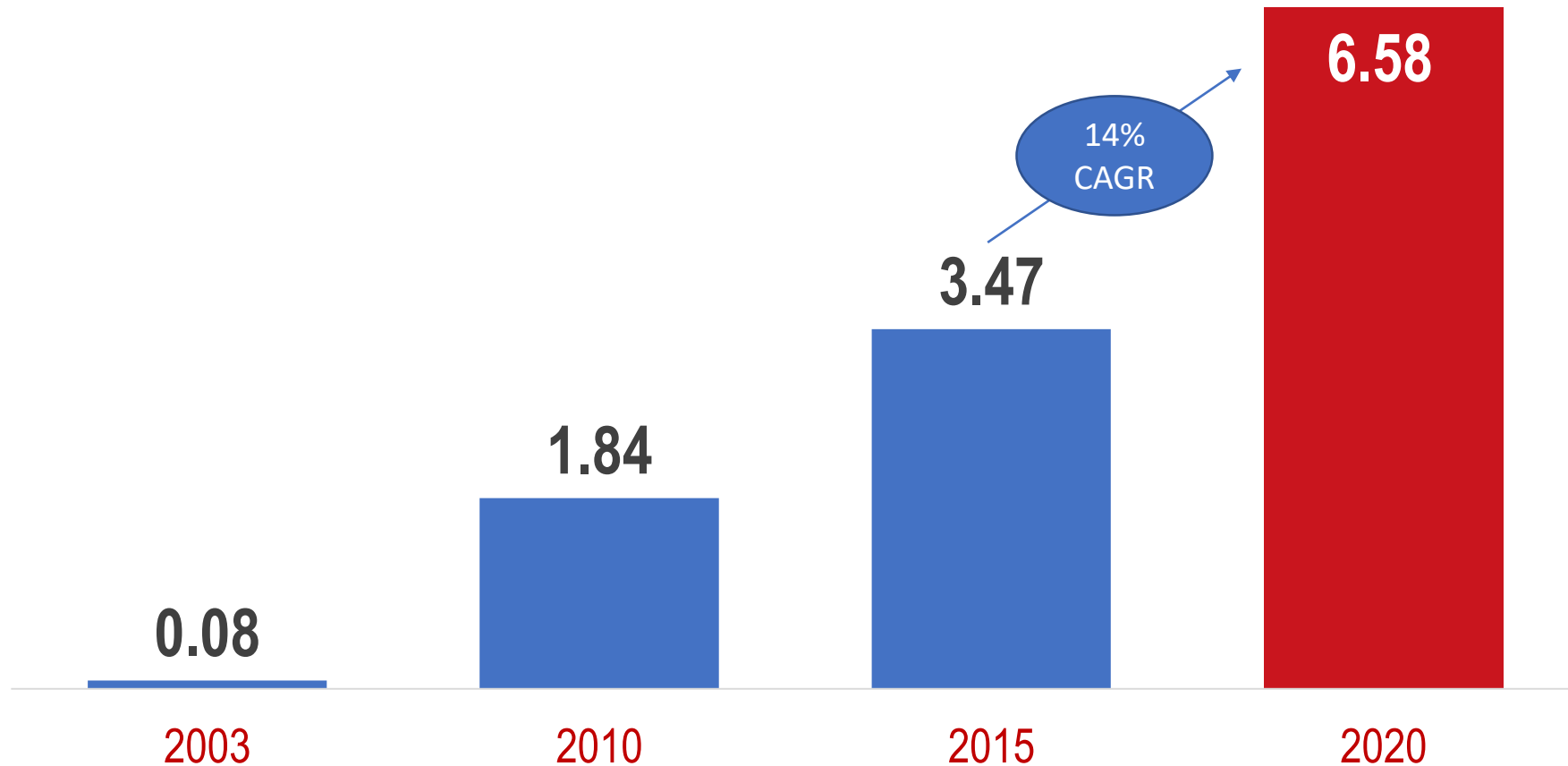
# Smart home market map



Source(s): CB Insights

# Connected device ownership

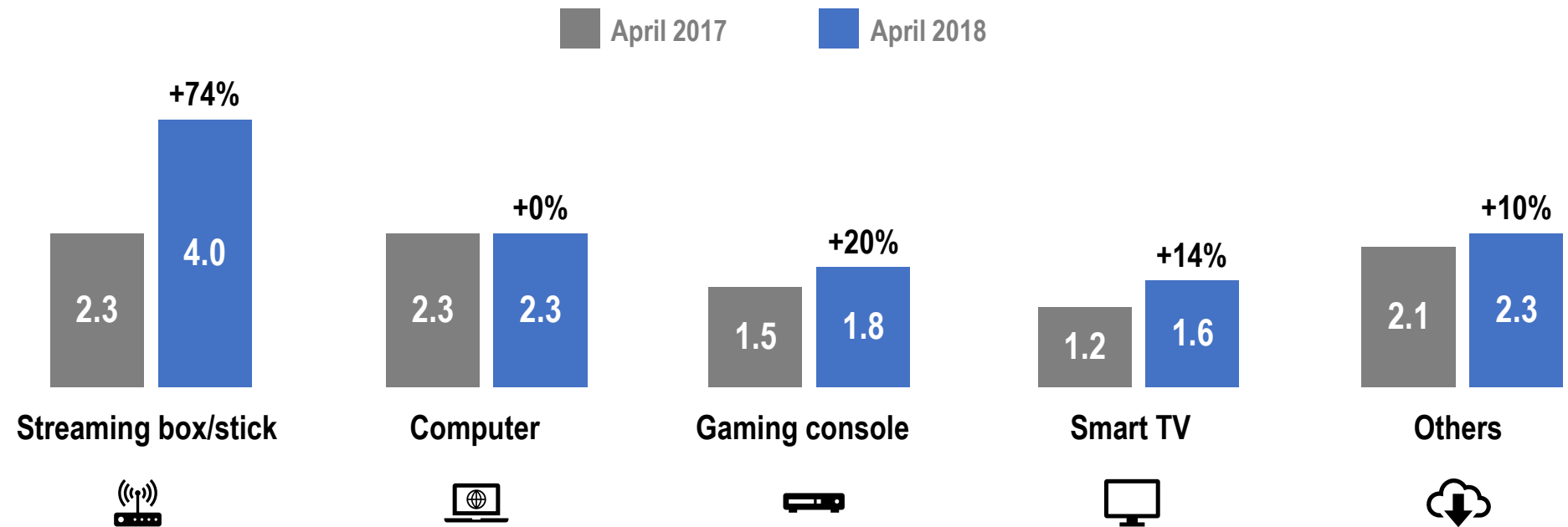
Connected device ownership per person in the household



Source(s): Statista Survey

# Connected devices consume massive data

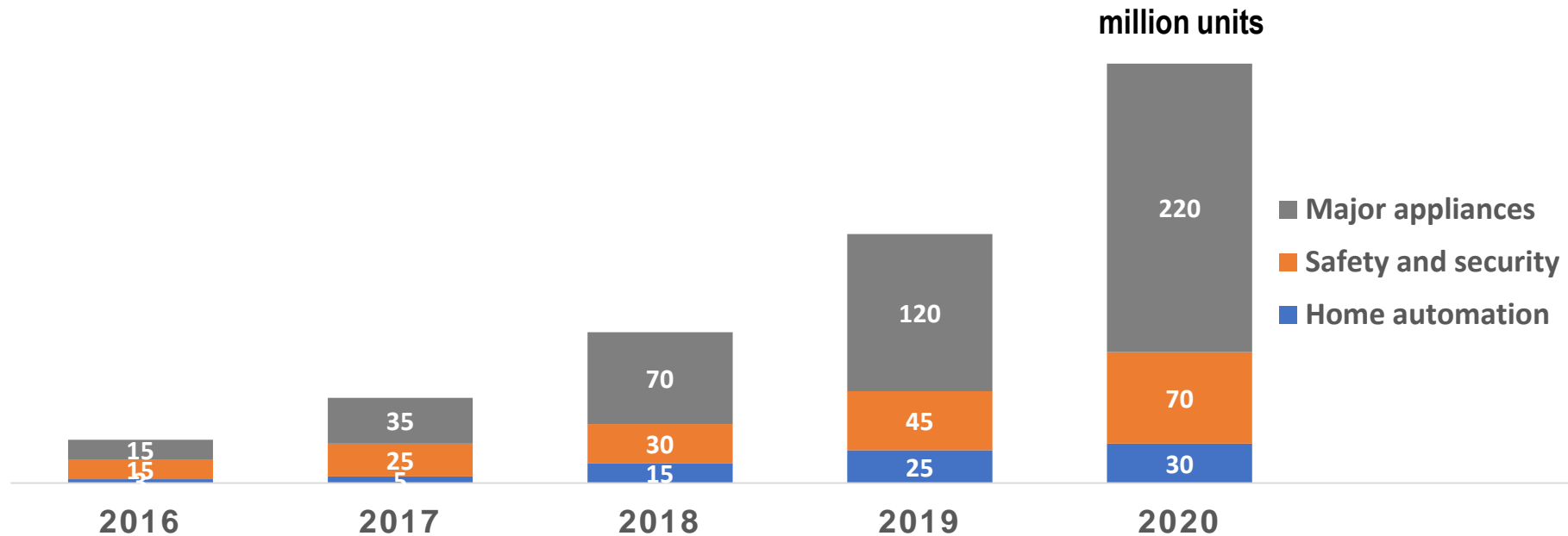
Aggregate amount of data received by all Wi-Fi households in the U.S., in billion gigabytes



Source(s): Statista Survey, 2018

# Wi-Fi enables smart home growth

Unit shipments of Wi-Fi enabled smart home devices worldwide from 2016 to 2020 (in millions)



Source(s): HIS, Statista Estimates



# 1 in 3 homes is not satisfied with their Wi-Fi

**~70%**  
Speed or  
performance

**~30%**  
Range or  
coverage

**~15%**  
Unresponsive  
customer support

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Smart home enhances our life, delivers safety and savings and drives the need for **better coverage**

 Security

 Temperature

 Lighting

 Entertainment

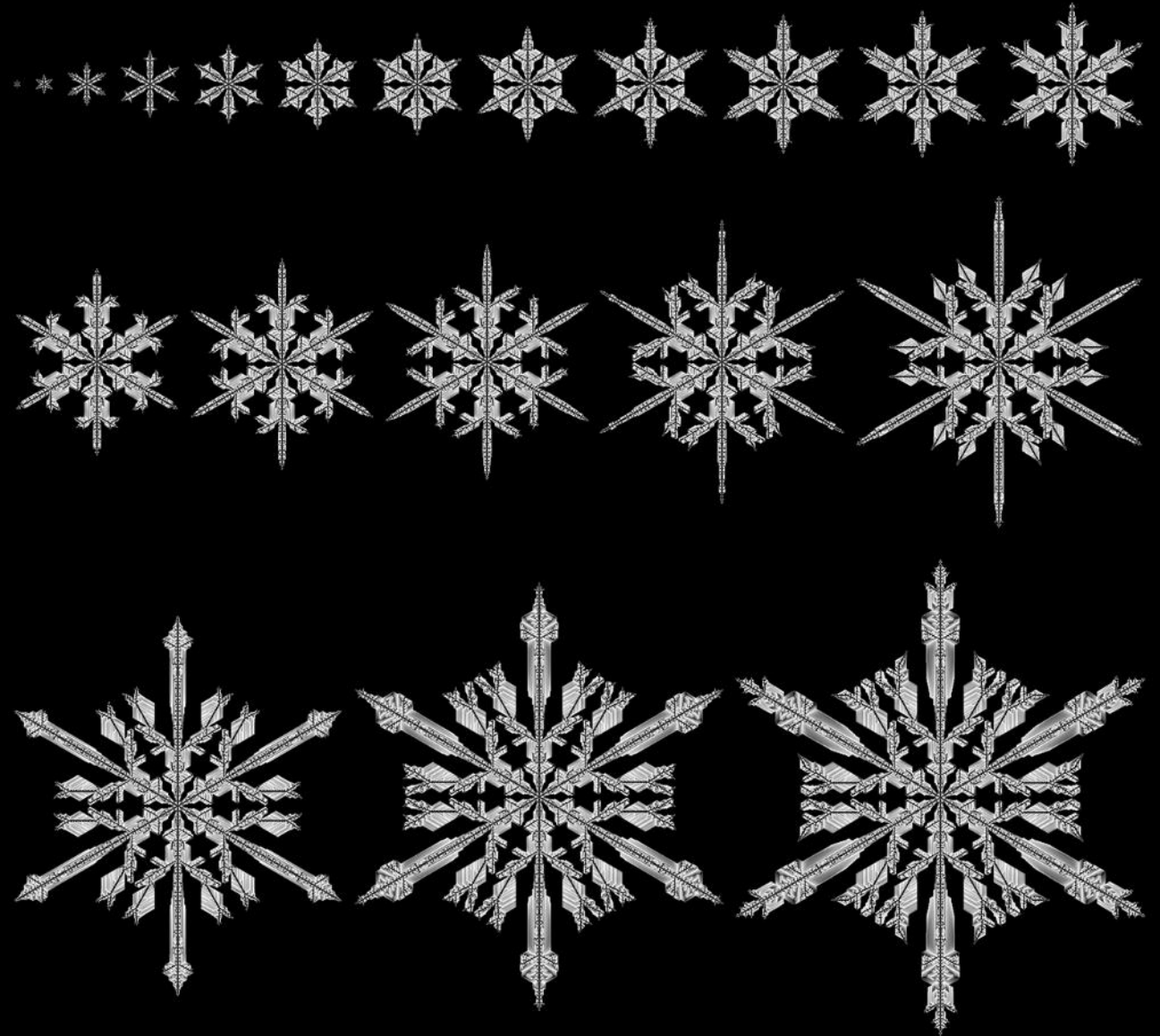
 Smart-locks

 Other smart devices

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Source(s): Parks Associates

Every home is  
unique, like a  
snowflake



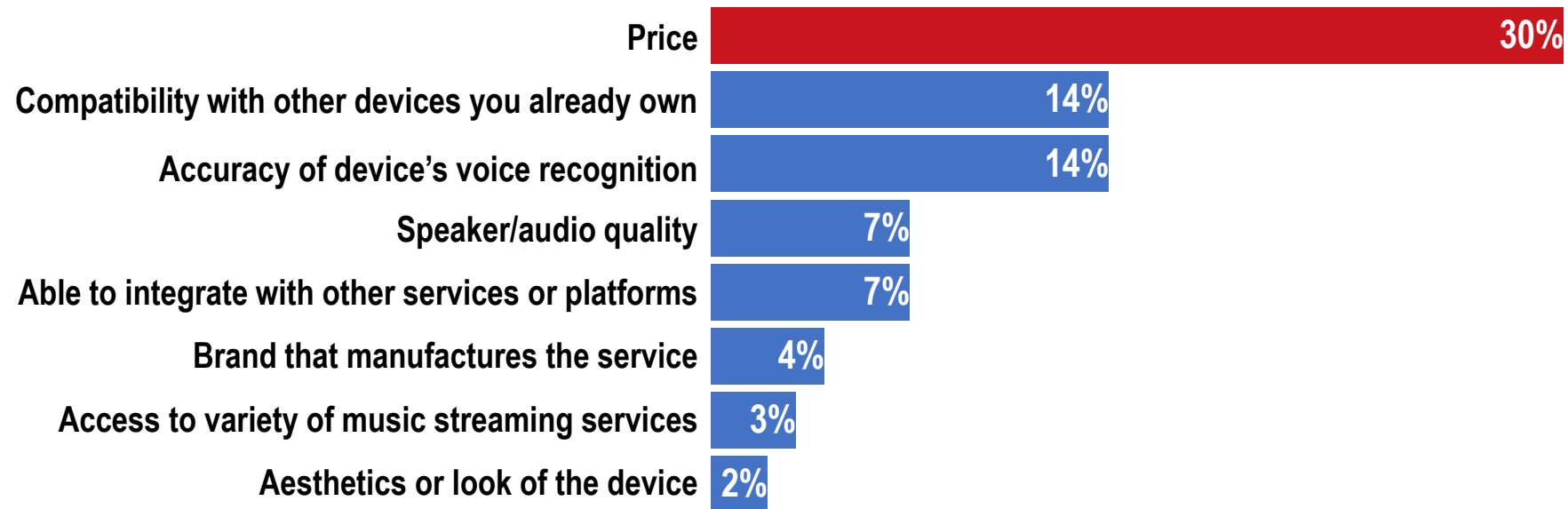


Home Floor Plan  
Wi-Fi configuration



# Purchasing factors

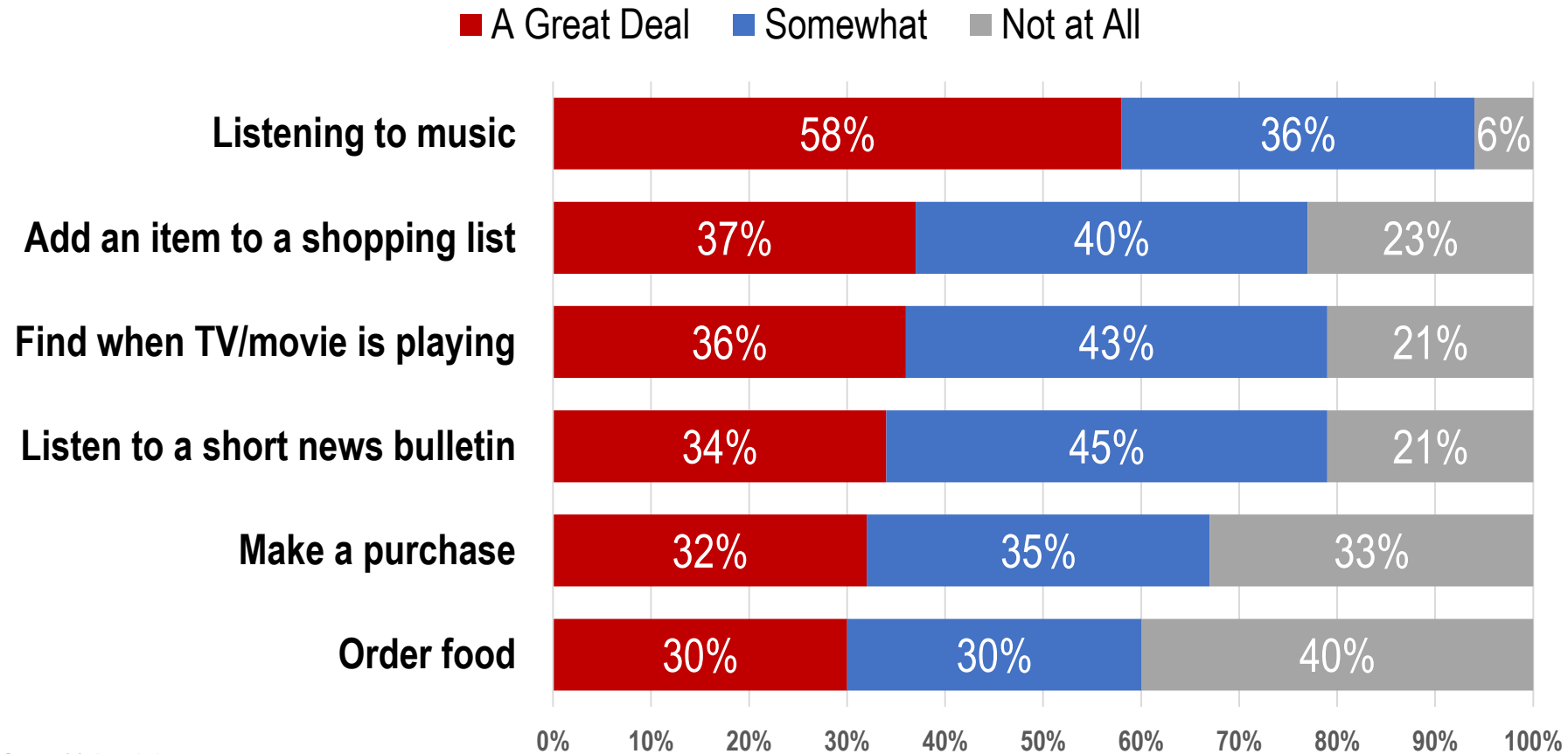
Smart home voice assistants' most important purchasing factors 2017



Source(s): Morning Consult, 2017 (USA)

# Smart home devices replacing the smart phone

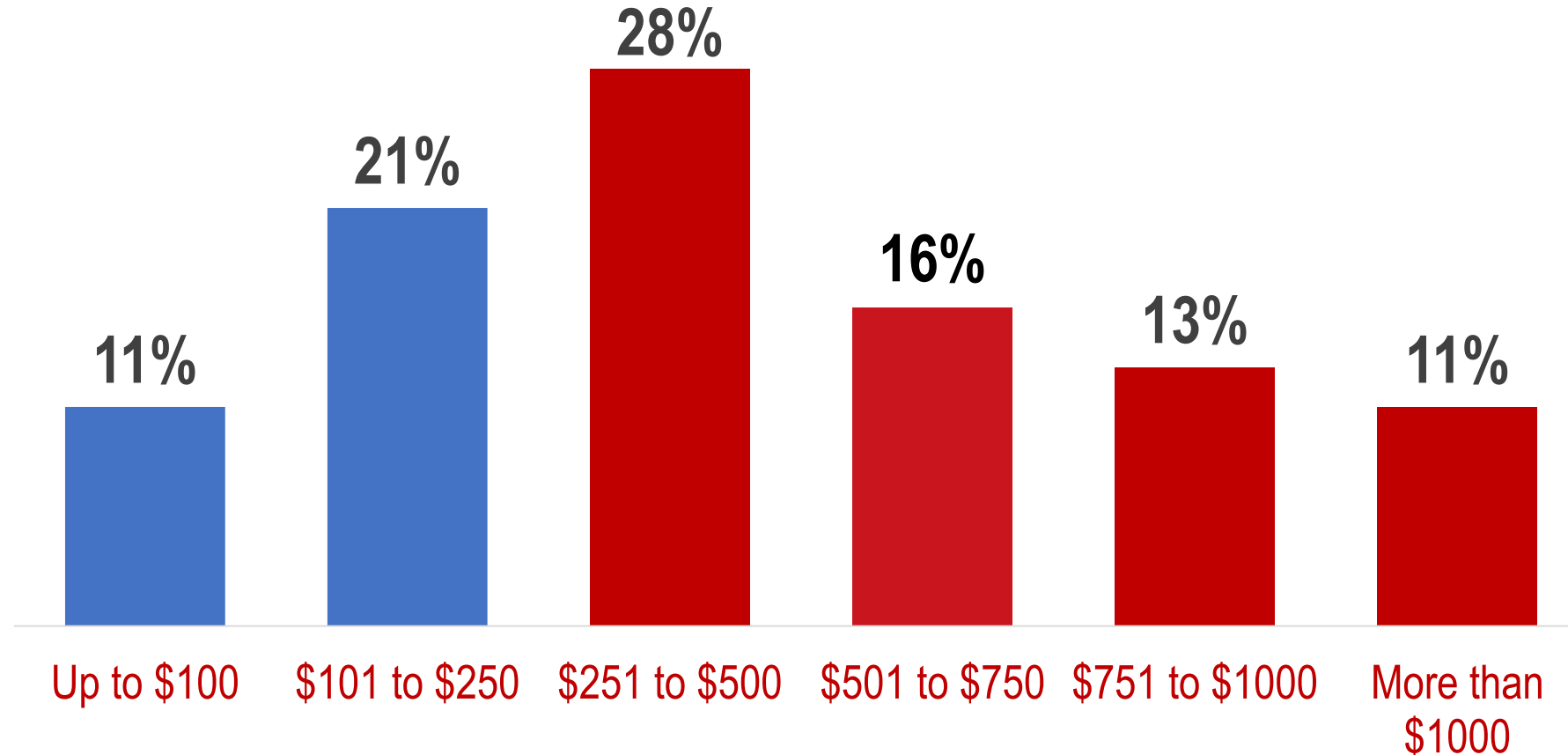
To what degree are smart home devices replacing smartphones in homes



Source(s): Localytics

# User smart home spend in next 12 months

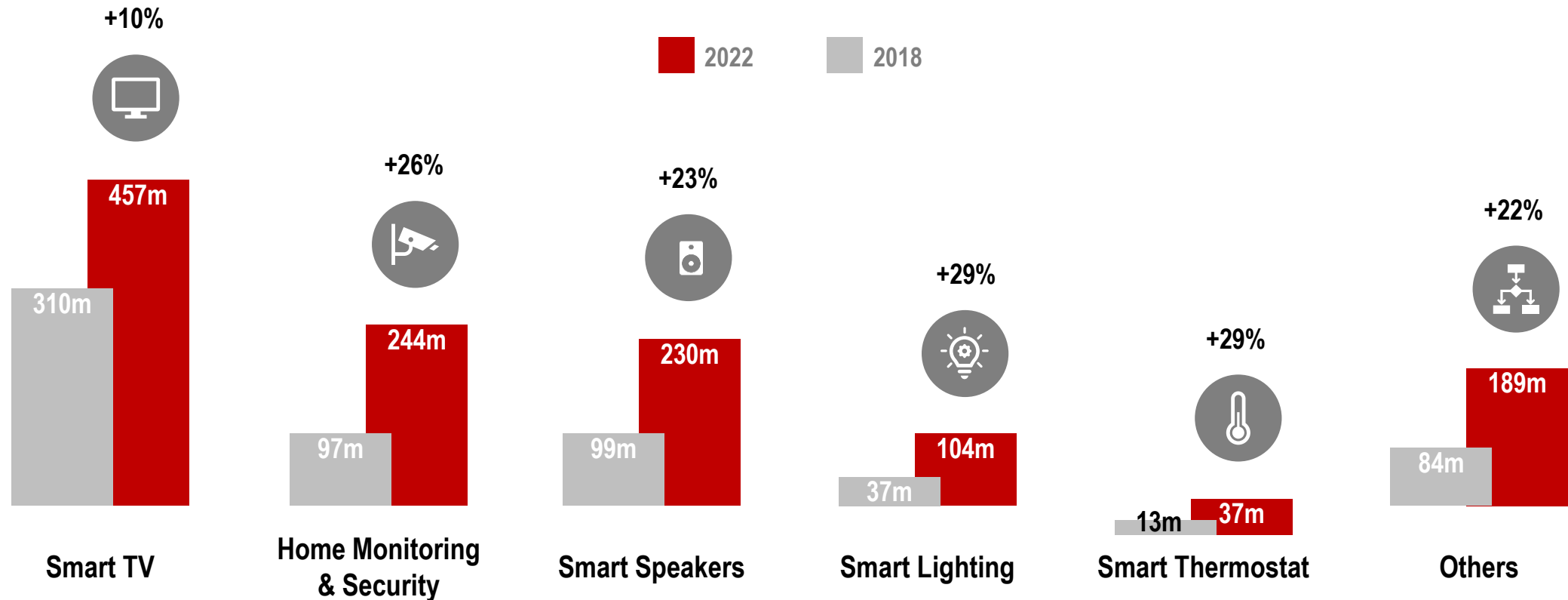
Over 42% of households are planning to spend \$500 or more in the next 12 months for their smart homes



Source(s): Statista Survey

# Growth across all smart home categories

Forecast of worldwide smart home device shipments, by category (in million units), 2018



Source(s): IDC, 2018

# Voice assistants deliver breakthrough use case



**Google Home**



**Harman Kardon Invoke**



**ecobee4 and Smart Light Switch**



**Amazon Echo Show**



**Apple HomePod**



**NVIDIA Spot**

Source: Park Associates, 2018



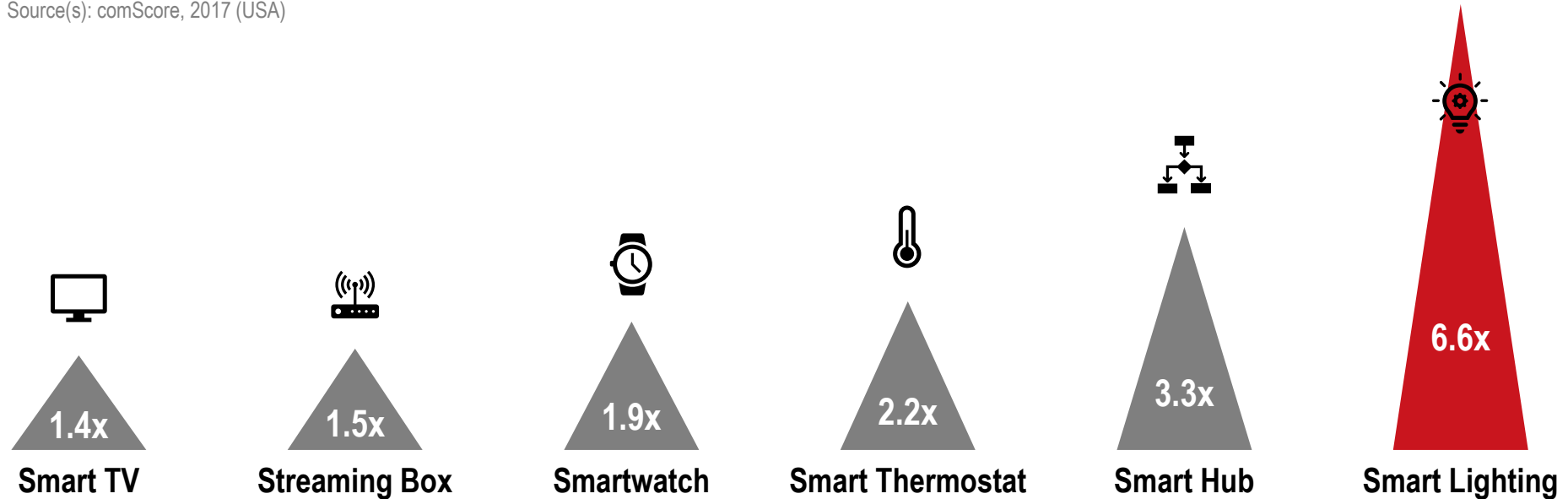
**The age of touch as the  
Primary user interface  
Is giving way to a new age  
Of voice and digital assistants**



# Smart speakers pave the way

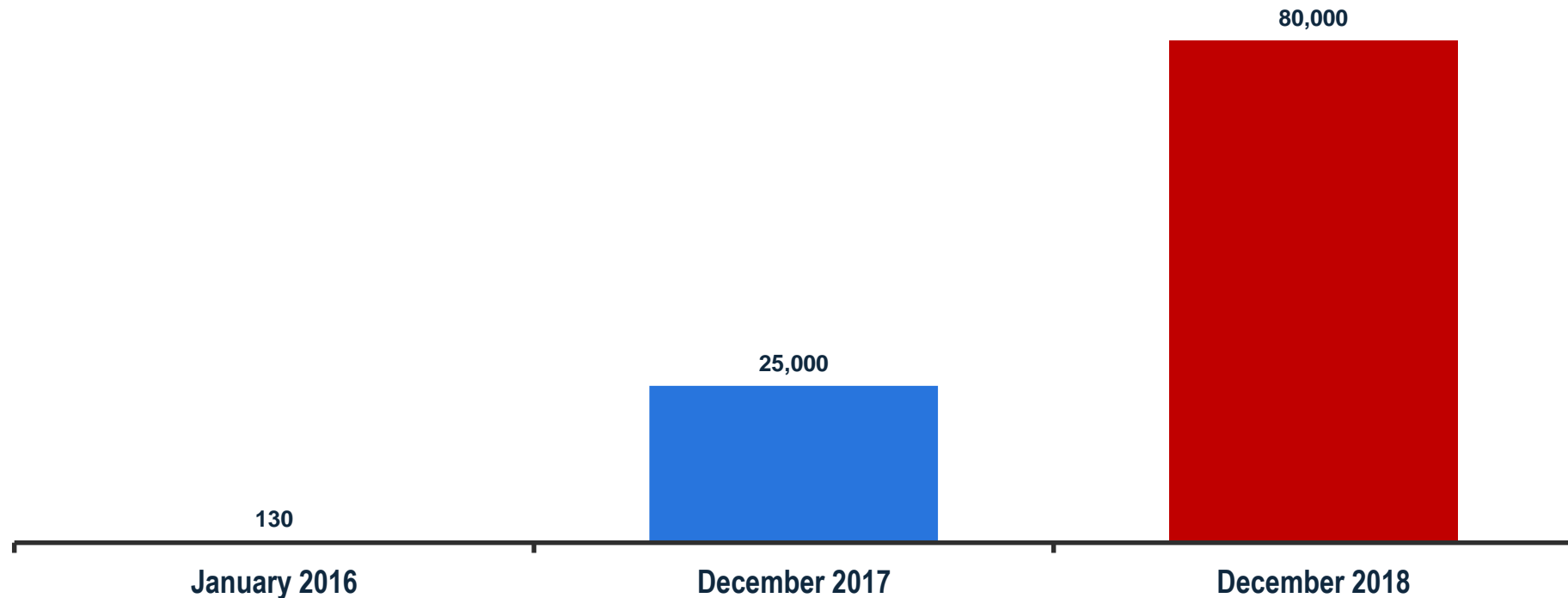
U.S. smart speaker households are X times more likely to also own a ...

Source(s): comScore, 2017 (USA)



# AI entering our homes

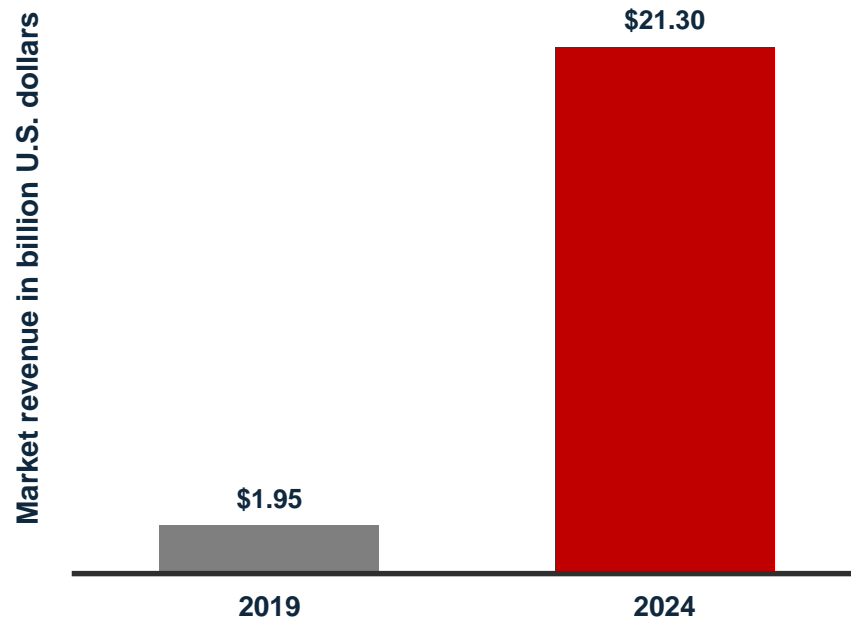
Total number of Amazon Alexa skills from January 2016 to December 2018



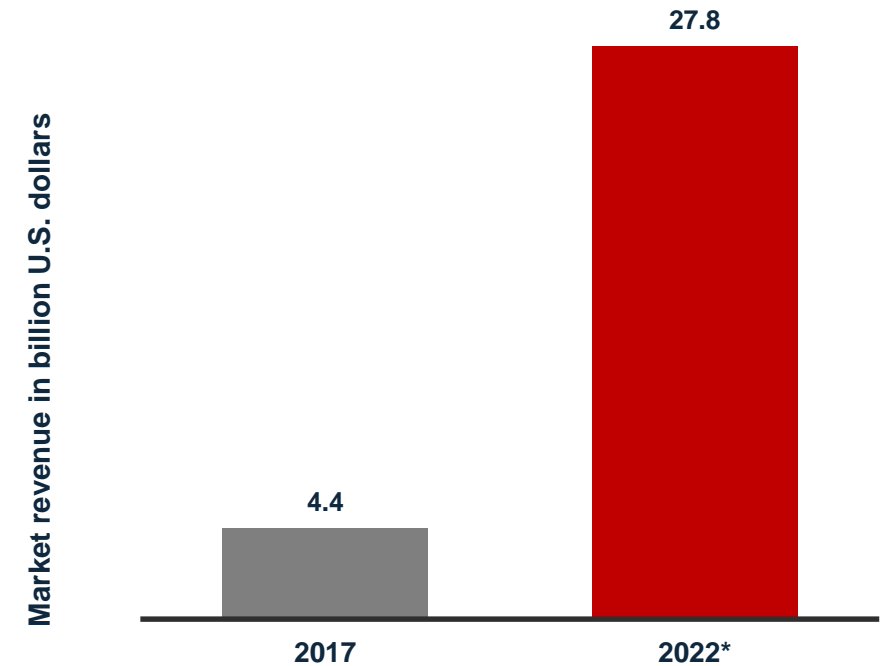
Source(s): Amazon; Fast Company; Voicebot.ai

# All devices will be connected in future

**Smart doorbell** market revenue worldwide in 2019 and 2024 (in billion U.S. dollars)

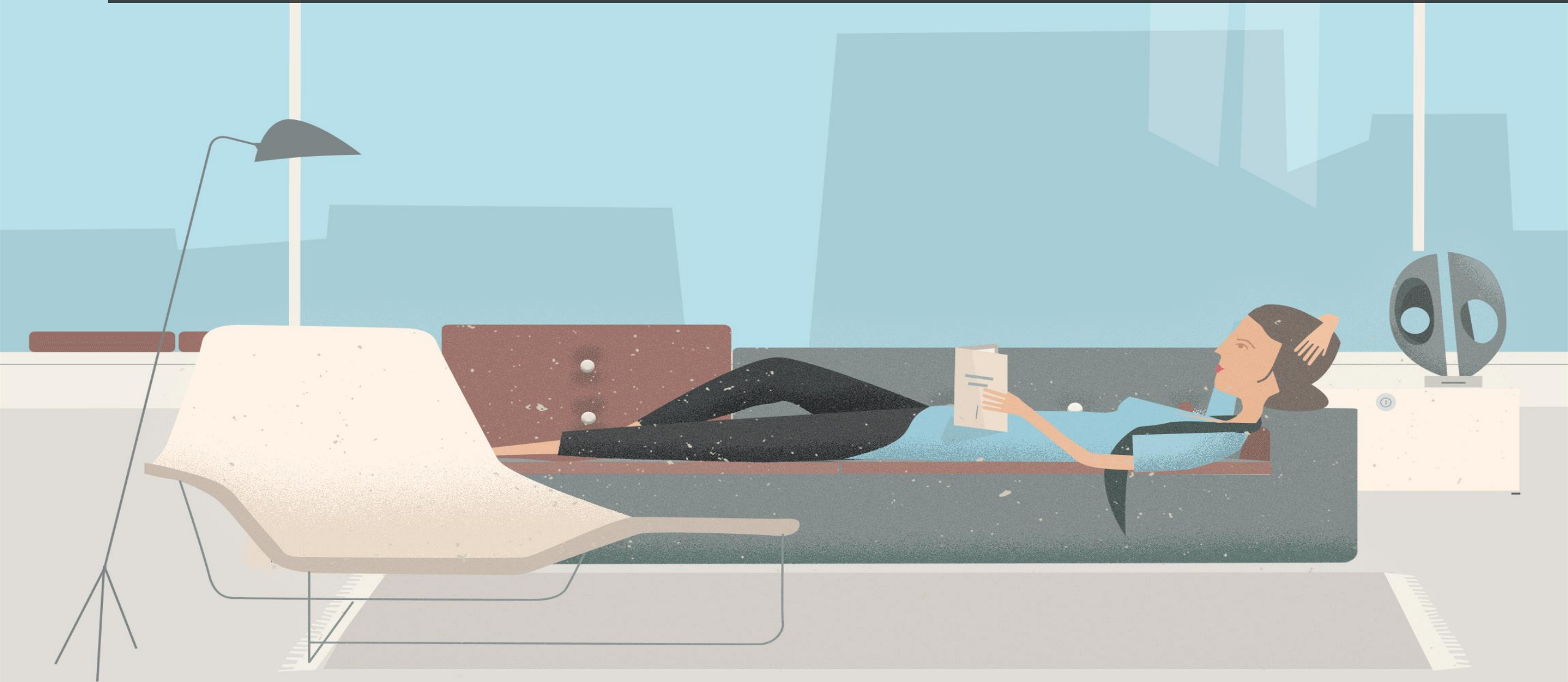


**Smart speaker** market revenue worldwide in 2017 and 2022 (in billion U.S. dollars)



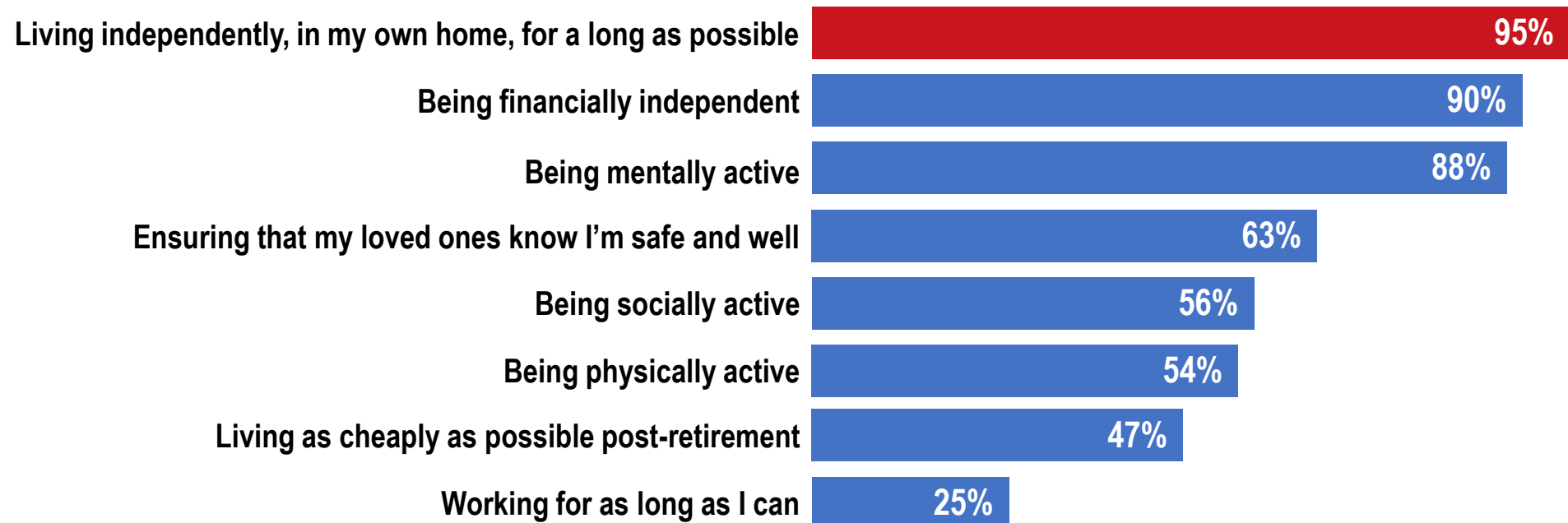
Source(s): Statista, Market Study Report 2019, IDC

**Think of your home as a tech-empowered oasis...**



# Important aspects of retired life

Among respondents ages 50 and older in UK broadband households, 2018



Source: Park Associates, 2018



What about the future?

# 6 smart home trends to look out for



**Consumer involvement  
from the get-go**



**Subscriptions &  
replenishments**



**A mobile lifestyle**



**The power of voice**



**Housewares are  
becoming connected**



**A safer smart home**

Source: International home and houewares show, 2018



# Hundreds of devices in our homes

**Kuri**



**Leka**



**Hub Robot**



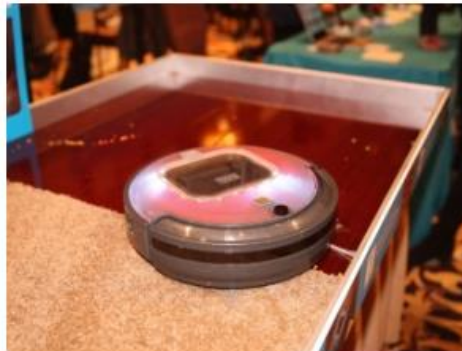
**Lawn Mowing Robot**



**Ubtech Lynx**



**Smartech Robot Vac**



**Airbot**

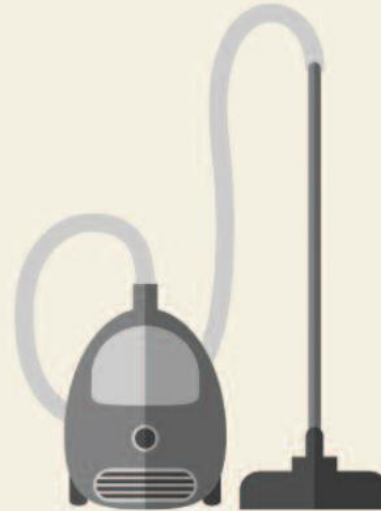
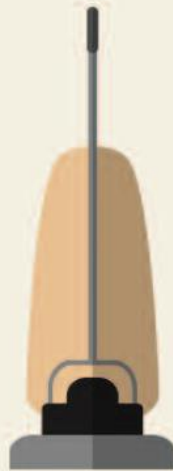


Source: CTA CES 2018 Technology Trends

# The robot works, you rest

Cleaning Up  
continued

## *EVOLUTION OF THINGS*



Source: International home and housewares show, 2018



**... even in your  
sleep!**

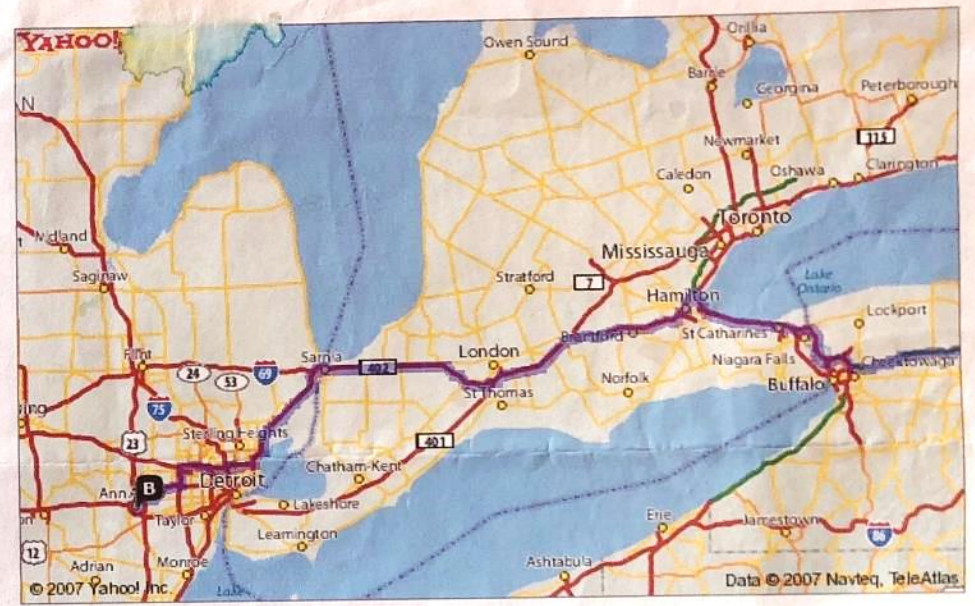


# Still, your home does not know who you are



1. Start at **37 UPLAND RD, MARLBOROUGH** going toward **STEVENS ST**
2. Turn **R** on **STEVENS ST**
3. Turn **R** on **UNION ST**
4. Turn **L** on **PROSPECT ST**
5. Turn **R** on **MAIN ST**
6. Bear **L** on **W MAIN ST(US-20)**
7. Turn **R** to follow **US-20**
8. Take ramp onto **I-495 S** toward **CAPE COD**
9. Take exit **#22/MASS. PIKE/BOSTON/ALBANY NY** onto **I-90 W** toward **SPRINGFIELD/ALBANY** (Toll applies)
10. Continue on **NEW YORK STATE THRUWAY W** (Toll applies)
11. Continue on **CASTLETON ON HUDSON BRG** (Toll applies)
12. Continue on **NEW YORK STATE THRUWAY W** (Toll applies)
13. Take the **ALBANY (I-90)/BUFFALO** exit onto **I-87 N** (Toll applies)
14. Continue on **I-90 W** (Toll applies)
15. Take exit **#50/NIAGARA FALLS** onto **I-290 W**
16. Take the **NIAGARA FALLS** exit onto **I-190 N** (Portions toll)
17. Continue on **QUEENSTON-LEWISTON BRG** (Portions toll)
18. Continue on **HWY-405 W**
19. Continue on **GARDEN CITY SKWY**
20. Continue on **QEW**
21. Continue on **JAMES N ALLEN SKYWAY BRG**
22. Continue on **QEW**
23. Take the **HAMILTON/BRANTFORD** exit onto **HWY-403 W** toward **HAMILTON/BRANTFORD**
24. Exit onto **HWY-401 W**
25. Take the **SARNIA** exit onto **HWY-402 W** (Portions toll)
26. Continue on **I-69 W** (Portions toll)
27. Continue on **I-94 W**
28. Take exit **#229/LANSING/11 MILE RD** onto **I-696 W** toward **LANSING**
29. Take exit **#1/GD RIVER AVE/TOLEDO** onto **I-275 S** toward **DETROIT/TOLEDO**
30. Take the **ANN ARBOR** exit onto **M-14 W**
31. Continue on **US-23 N**
32. Take **L** exit **#45/ANN ARBOR** onto **US-23-BR S**
33. Take exit **#3/DOWNTOWN ANN ARBOR**
34. Continue on **N MAIN ST(US-23-BR S)**
35. Bear **L** on **PACKARD ST**
36. Bear **R** on **S STATE ST**
37. Arrive at **1000 S STATE ST, ANN ARBOR**, on the **R**

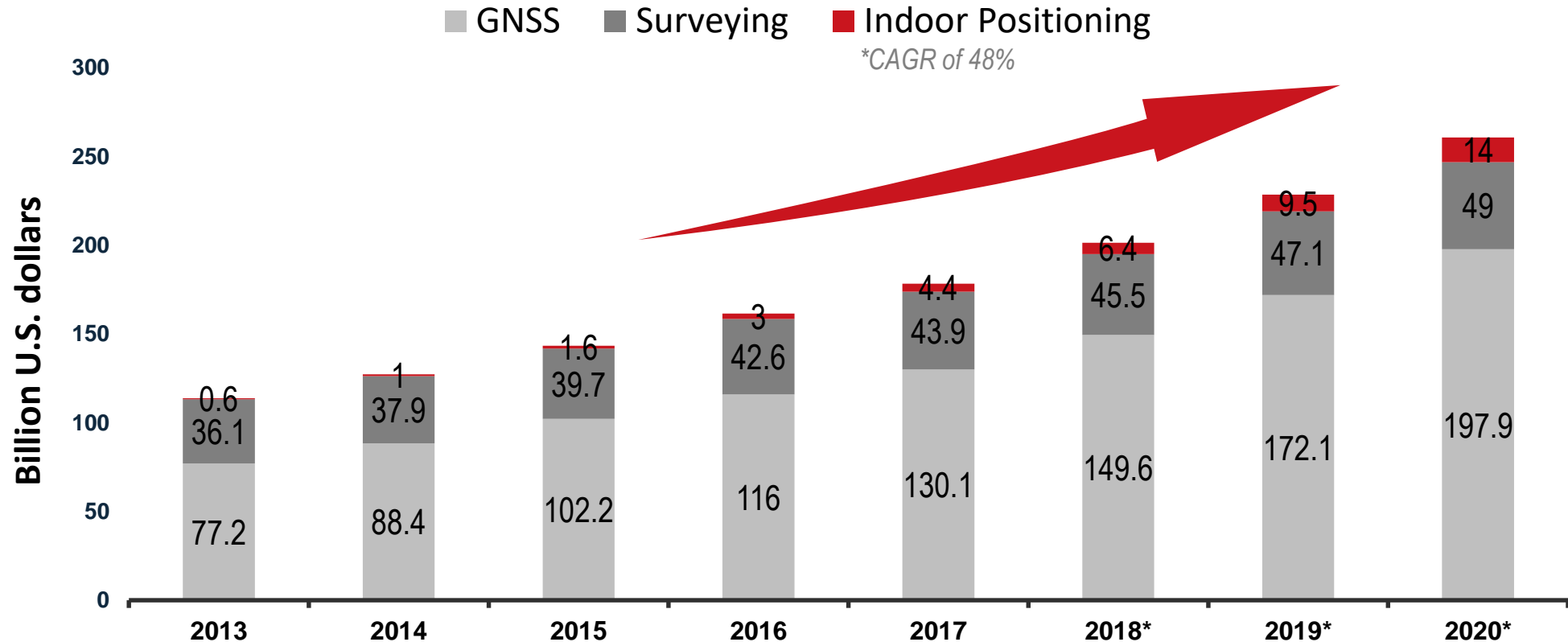
- go < 0.1 mi ✓
- go 1.0 mi ✓
- go 0.2 mi ✓
- go 0.6 mi ✓
- go < 0.1 mi ✓
- go 0.6 mi ✓
- go 0.9 mi ✓
- go 5.7 mi ✓
- go 124.0 mi ✓
- go 5.5 mi ✓
- go 0.6 mi ✓
- go 0.5 mi ✓
- go 15.3 mi ✓
- go 271.0 mi ✓
- go 9.8 mi ✓
- go 15.2 mi ✓
- go 0.5 mi ✓
- go 6.9 mi ✓
- go 1.9 mi ✓
- go 30.1 mi ✓
- go 2.9 mi ✓
- go 1.9 mi ✓
- go 51.6 mi ✓
- go 32.0 mi
- go 64.4 mi
- go 3.4 mi
- go 42.8 mi
- go 27.4 mi
- go 7.4 mi
- go 15.3 mi
- go 1.9 mi
- go 1.6 mi
- go 0.2 mi
- go 1.6 mi
- go 0.6 mi
- go < 0.1 mi



**No indoor "GPS"**

# Indoor positioning grows ~ 50% yearly

Global navigation satellite system (GNSS) & positioning market revenue worldwide from 2013 to 2020, by segment (in billion U.S. dollars)



Source(s): Geospatial Media and Communications; Satellite Industry Association; European GNSS Agency; MarketsandMarkets; StatCan; IBISWorld; Orbis Research

# Multiple technology trends driving IPS adoption

## We live indoors

People spend **80-90%** of their time **indoors**

## IPS grows fast

Global IPS market to grow at a **CAGR of 58.90%** (2017-2021)

## Maps, maps, maps

**Mobile mapping** to grow from \$10.28B to **\$26.60B** (2015-2020)



## The rise of the beacon

Global indoor LBS to grow at a **CAGR of 43%** (2016-2020), set to reach **€7.7 B in 2020**

## Targeted mobile ads

Over **\$15 billion** spent on location targeted mobile ads in 2018

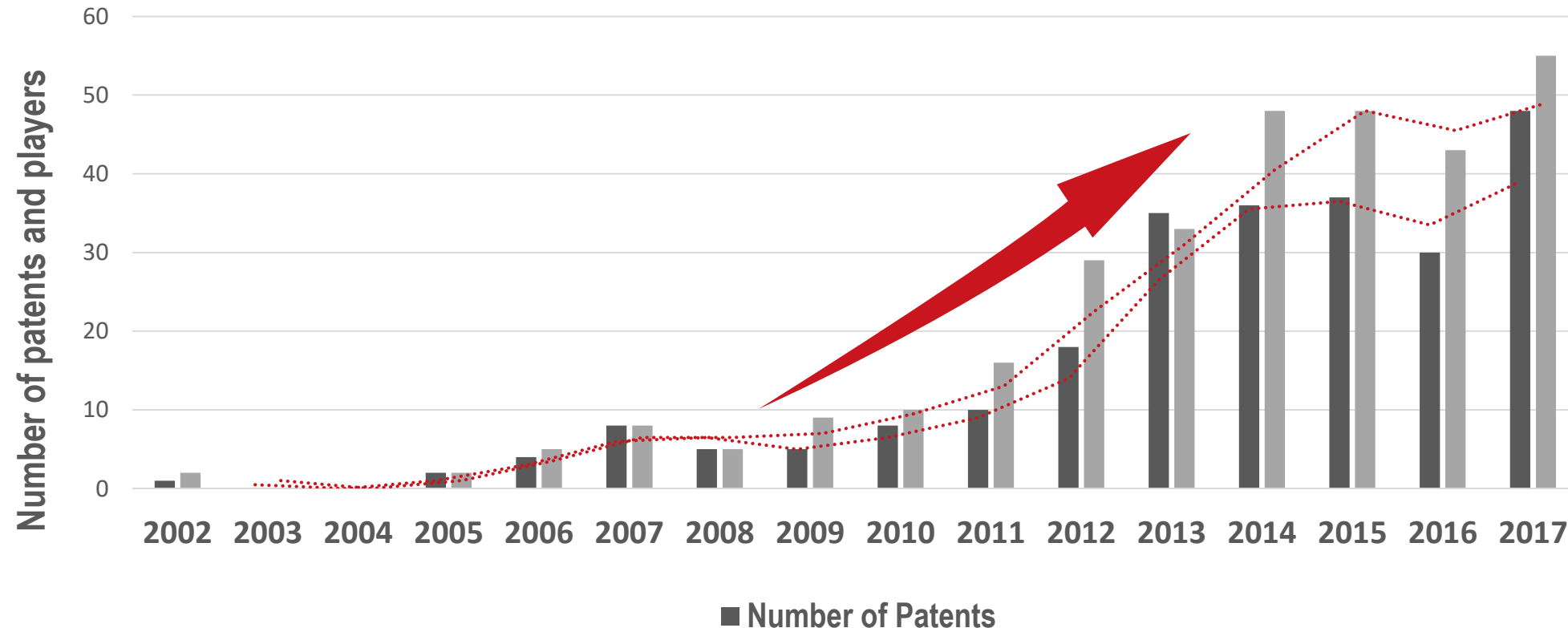
## Context-aware apps

Context-awareness will hit **€30.6 B by 2019**, up from €11.7 B in 2015

Source(s): European GNSS Agency, Strategy Analytics, MarketsandMarkets, eMarketer, Opus Research

# Number of indoor positioning patents, players

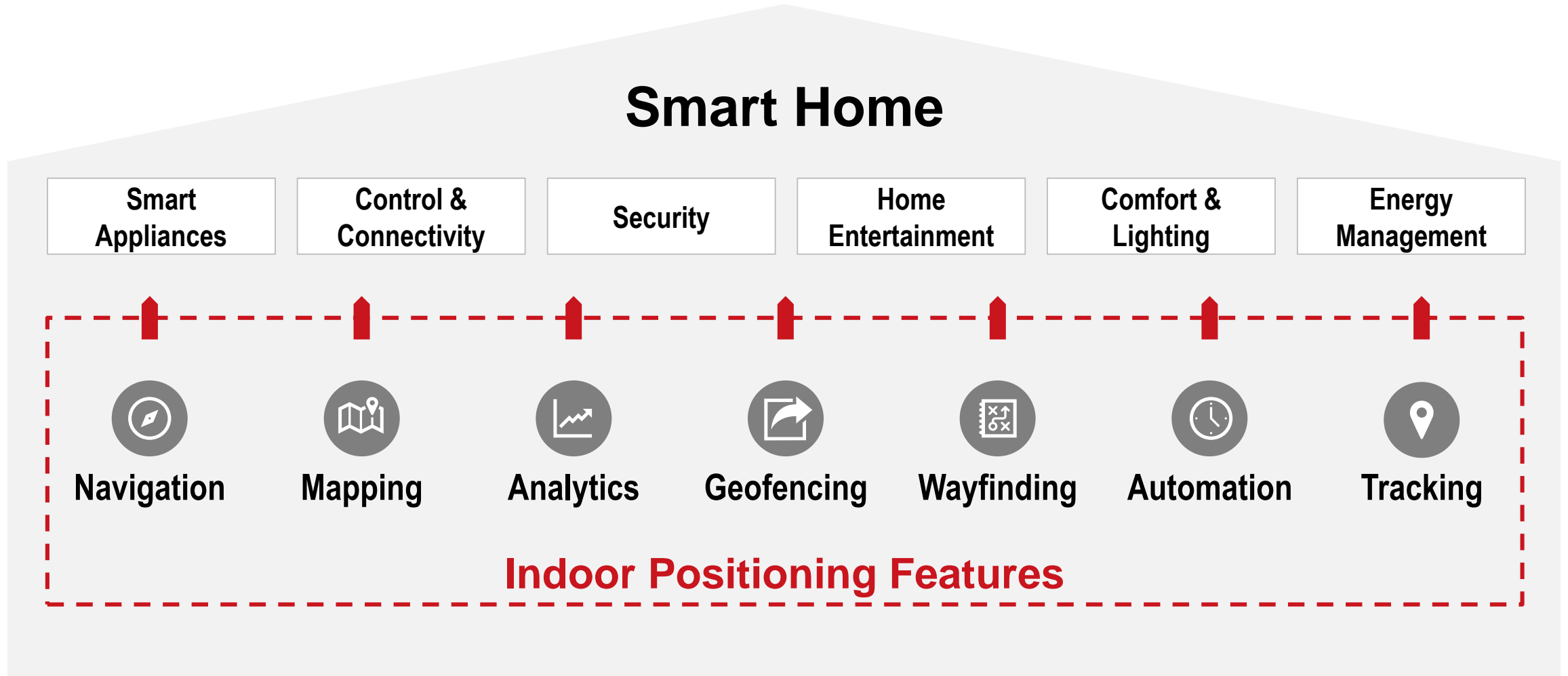
*Since 2011, there is a clear upward trend in the number of indoor positioning related patents and players on the market*



Source(s): CB Insights

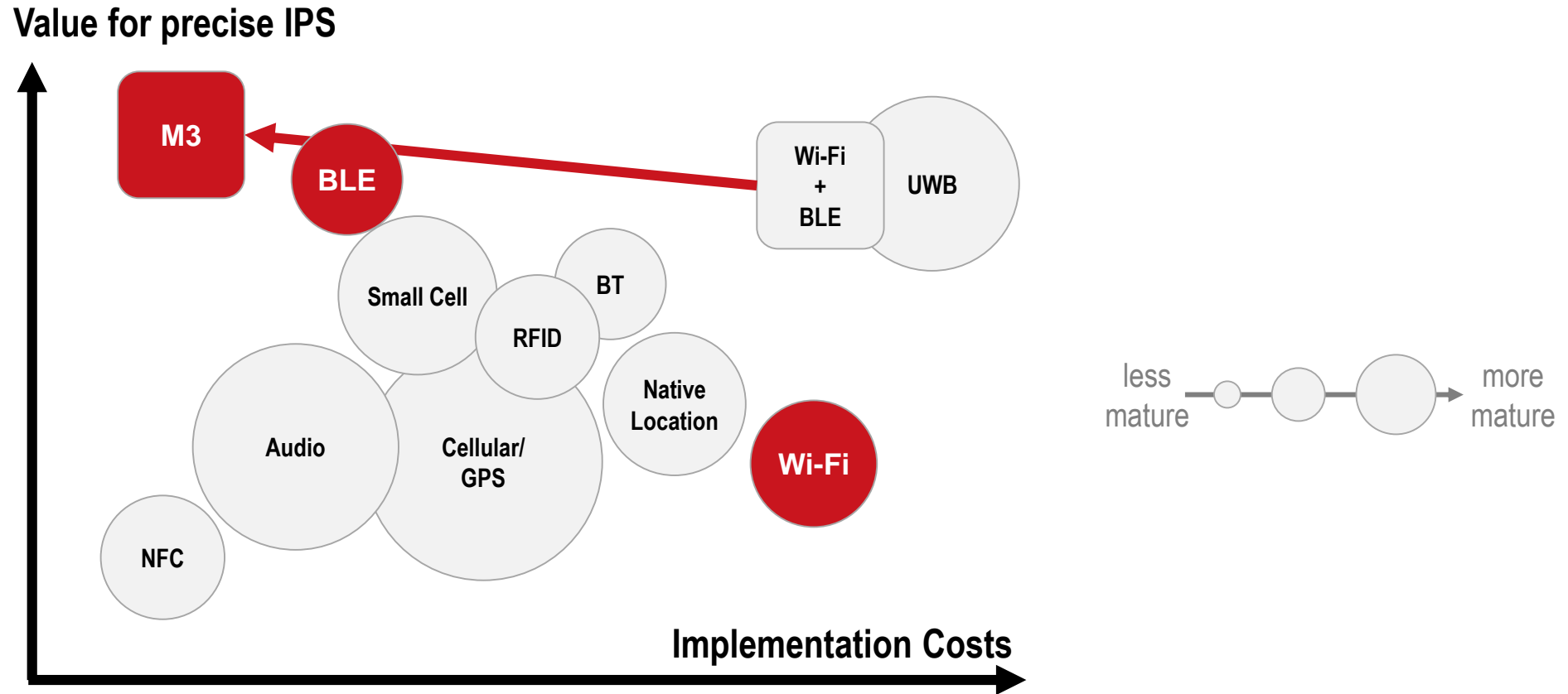


# Positioning empowers all smart home segments





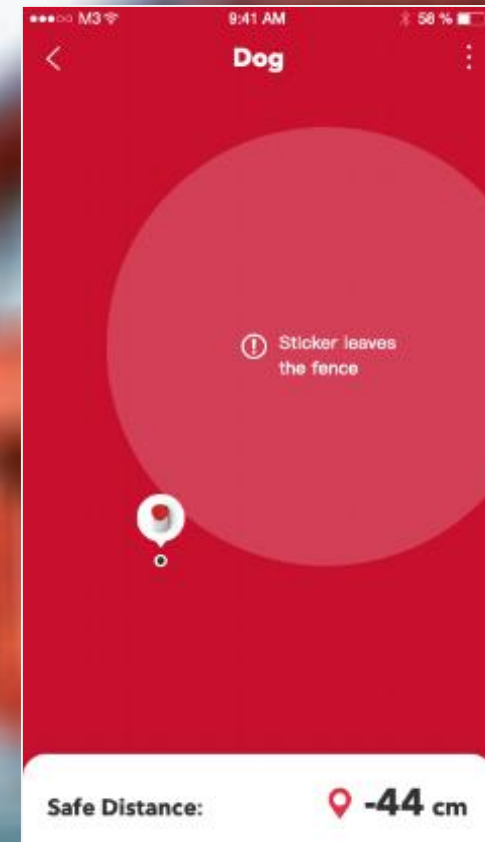
# Value of indoor positioning related to costs



Source(s): Research Gate, MW2015, ETH Zurich

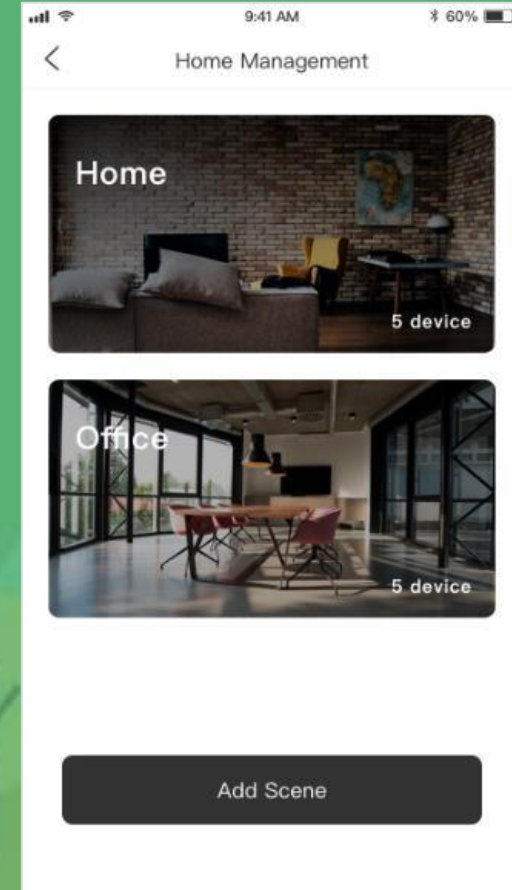
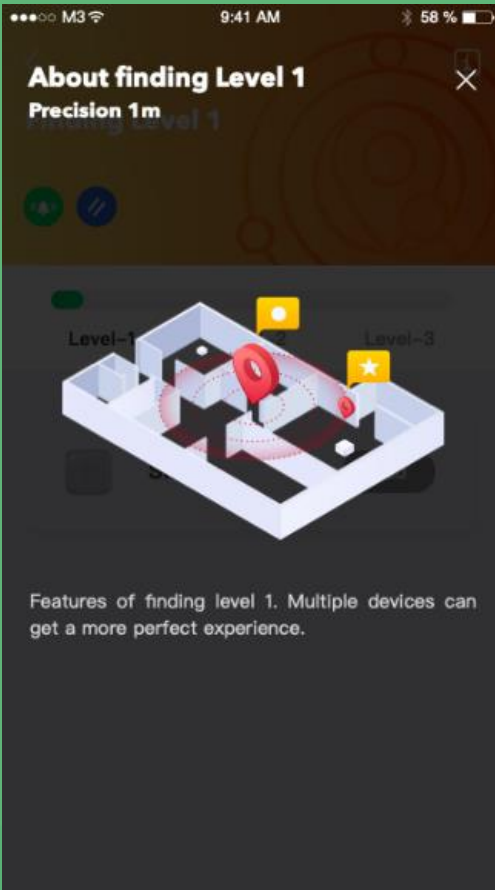
# B2C Use case #1: geofencing

Mark a location and push alert when something moves past



# B2C Use case #2: device tracking

Track location of devices relative to houses and the environment



# B2C Use case #3: notification system

Program notifications to respond to certain tasks and updates, depending on location



**Beacons** can trigger the lighting change, as elements move around – can also use geofencing (child returning home late)



**Inside house:** Can use notifications from phone programmed to lights  
**Outside house:** Can allow external controllers to connect by lights



**Smart lighting** that changes color based on notifications

# B2C Use case #4: data collection and reporting

Data collection and report generation for better understanding of the home and its users









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