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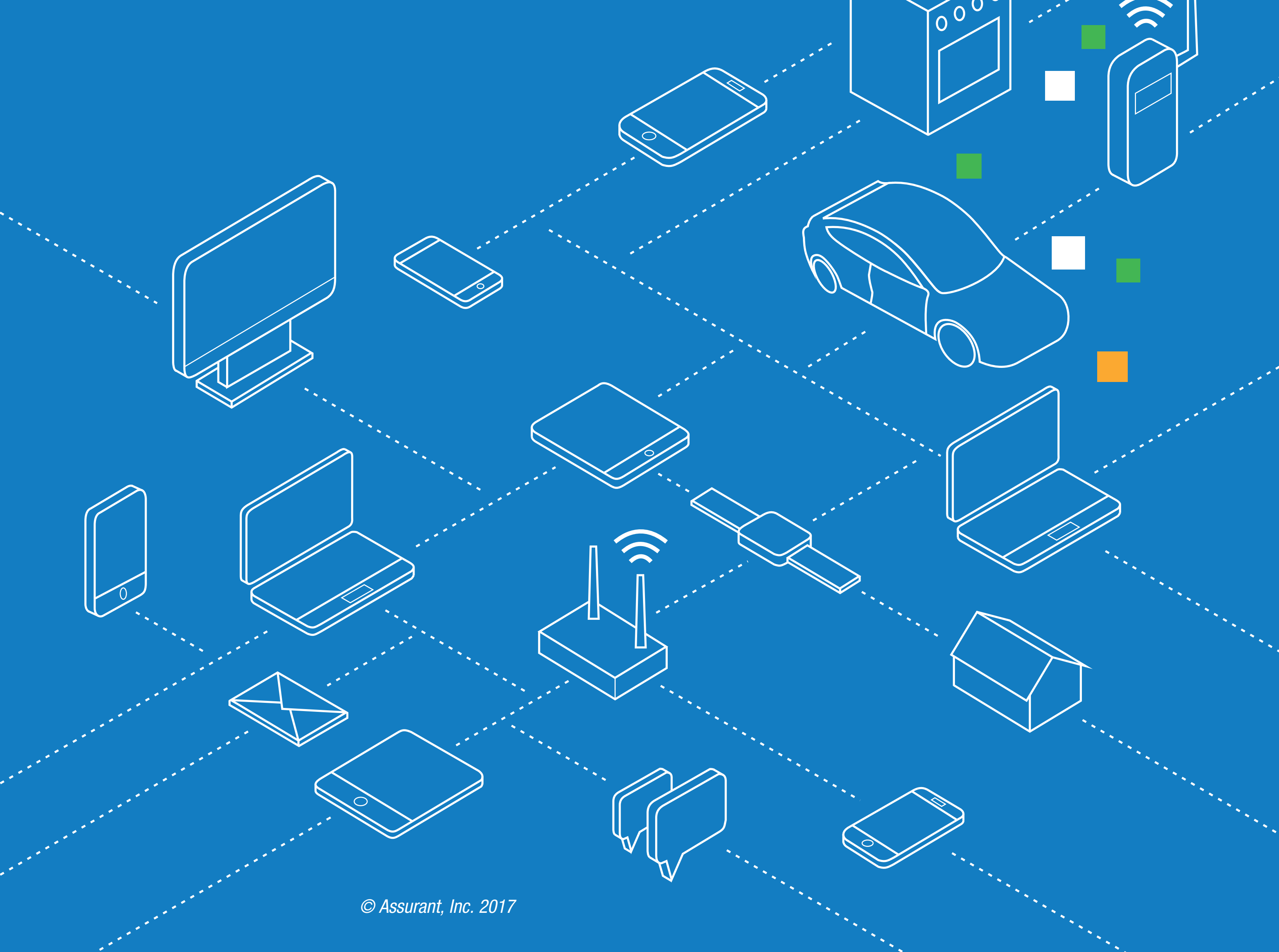
The Connected Future

Navigating Promise and Risk

Special Report, January 2017



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About this report | The research featured in this report is based on consumer surveys that were fielded on behalf of Assurant.

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Introduction

Where does the "connected economy" end and the rest of the broader U.S. economy begin?

Sensors now stitch together whole swathes of our economy - even those industries not traditionally defined in terms of technology. Innovation is pushing out in all directions to measure, automate, or augment every aspect of our waking, and even our sleeping lives. The frontier of progress extends as far as human ingenuity, but that progress will move at the whim of consumer needs and fears. In this report our research shows a fascinating mix of satisfaction, optimism, and fear.

In the months running up to our survey a series of headlines threatened consumer optimism towards connected technologies. Among these news items were: a distributed denial of service (DDoS) attack on a major Domain Name System (DNS) provider using tens of thousands of compromised connected consumer devices; a global recall of smartphones after reports of combustible batteries; the first known fatality of a driver whose vehicle was piloting itself completely autonomously; as well as a variety of email hacking incidents.

And these stories have been set against a backdrop of depressingly commonplace security breaches enabling identity and credit card theft at scale.

Nonetheless our representative sample of the attitudes of more than 2,500 Americans revealed that the country remains broadly optimistic on issues relating to their use of connected technologies. In fact, two-thirds of respondents said that the benefits of connected technologies outweighed the negatives.

Key Report Themes

Beyond the headline that U.S consumers are broadly satisfied, a few other themes emerged from our survey:

Consumers are very aware of nearly every category of connected technologies.
Bluetooth door locks had the lowest awareness - still over 85%!

However, adoption rates vary widely by category according to different demographic traits.

5% of U.S. consumers comprise a "super buyer" segment that is disproportionately responsible for purchases of connected technology products. Among other characteristics, this segment of consumers is younger, wealthier, and reports higher levels of personal wellbeing than consumers in the four other segments identified.

There is good evidence that value-added services can help overcome consumer reticence.

61% of those who are considering a purchase of a connected technology product would be more likely to buy it given longer warranties, on-demand tech support, or insurance.

For the connected ecosystem to continue flourishing, it is essential that companies proactively address consumer fears.

The more connected consumers are, the happier they are. However, 8% of consumers are "more likely to feel anxiety about relying on connected devices for everyday tasks" as a result of negative headlines about security and privacy risks.

Connected Tech Ownership & Interest

Figure 4.1. Self-reported share of U.S. households that own at least one CONNECTED product in the following categories

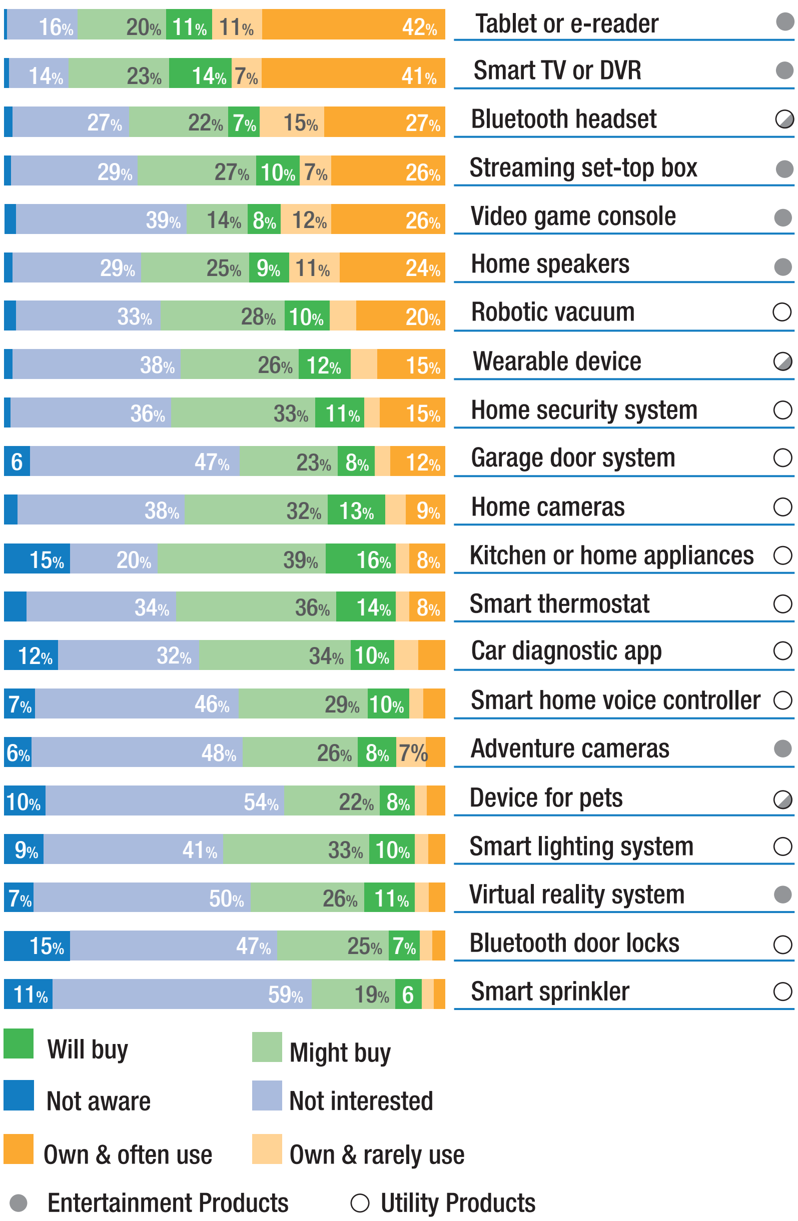
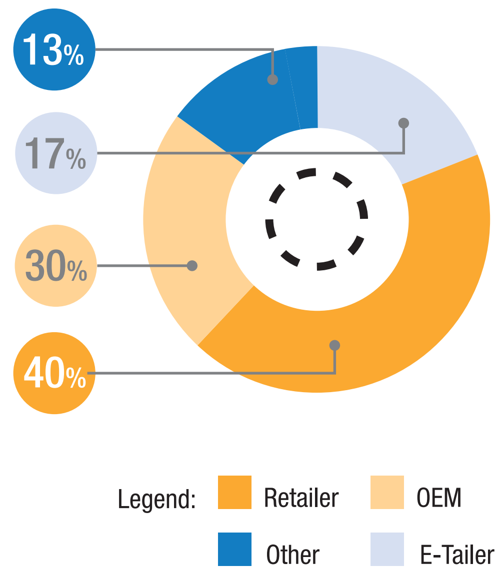


Figure 4.2. Channel used to purchase any connected product



U.S. consumers are well aware of the broad landscape of connected products available to them.

But the appeal of connected technologies vary greatly by category, and in many cases a significant share of consumers will be difficult to reach. Averaged across categories, 44% of consumers say they have no interest in owning a given device.

Nonetheless, a substantial number of consumers who don't yet own a product in a given category – 37% on average – say this year they either "might buy" or will "definitely buy" their first such product in the category. The industry will continue to grow through improved penetration with such significant headroom.

One additional trend the data makes clear is that connected products designed for entertainment have so far seen a quicker uptake by consumers than products built to serve more practical purposes.

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Frustrations with Connected Products

To better understand what factors might limit adoption of connected products, we asked consumers about the negative experiences they've had with the connected products they already own, and which may have dampened their interest in further purchases.

Figure 5.1. Share of U.S. consumers who have experienced the following frustrations and/or concerns with the connected products they already own

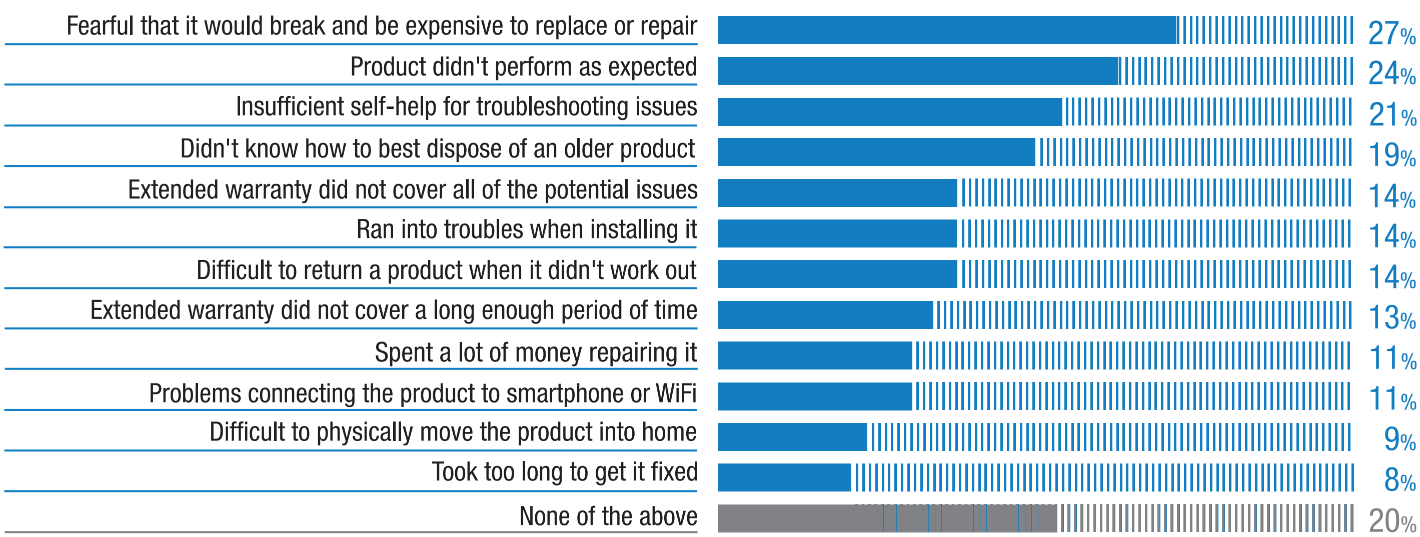
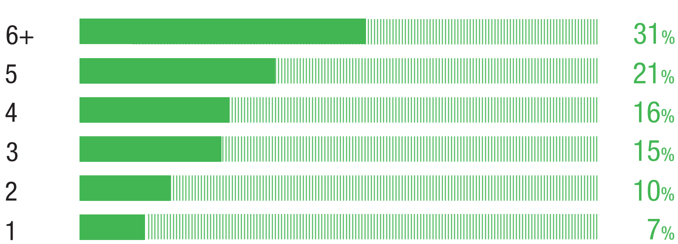


Figure 5.2. Average expected lifespan of connected products in years



Given that nearly a third of U.S. consumers anticipate their connected products will last at least 6 years before breaking or becoming obsolete, it is no surprise that the most frequently cited concern – also by nearly a third of consumers – is the potential cost of replacement or repair for products that don't go the distance.

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Contending with New Security Risks

Half of U.S. consumers were at least minimally aware of the late October cyberattack on Dyn, a New Hampshire-based Domain Name System provider that has since agreed to be acquired by Oracle.

The attack disrupted a number of major websites and services, including Netflix and Spotify. The attack took a new approach using internet-connected consumer devices. We know this won't be the last story of its kind, which is why we wanted to understand what effect this headline had on consumer sentiment.

Figure 6.1. Extent of U.S. consumer awareness about the disruption of Dyn by an Internet-of-Things botnet attack in October 2016

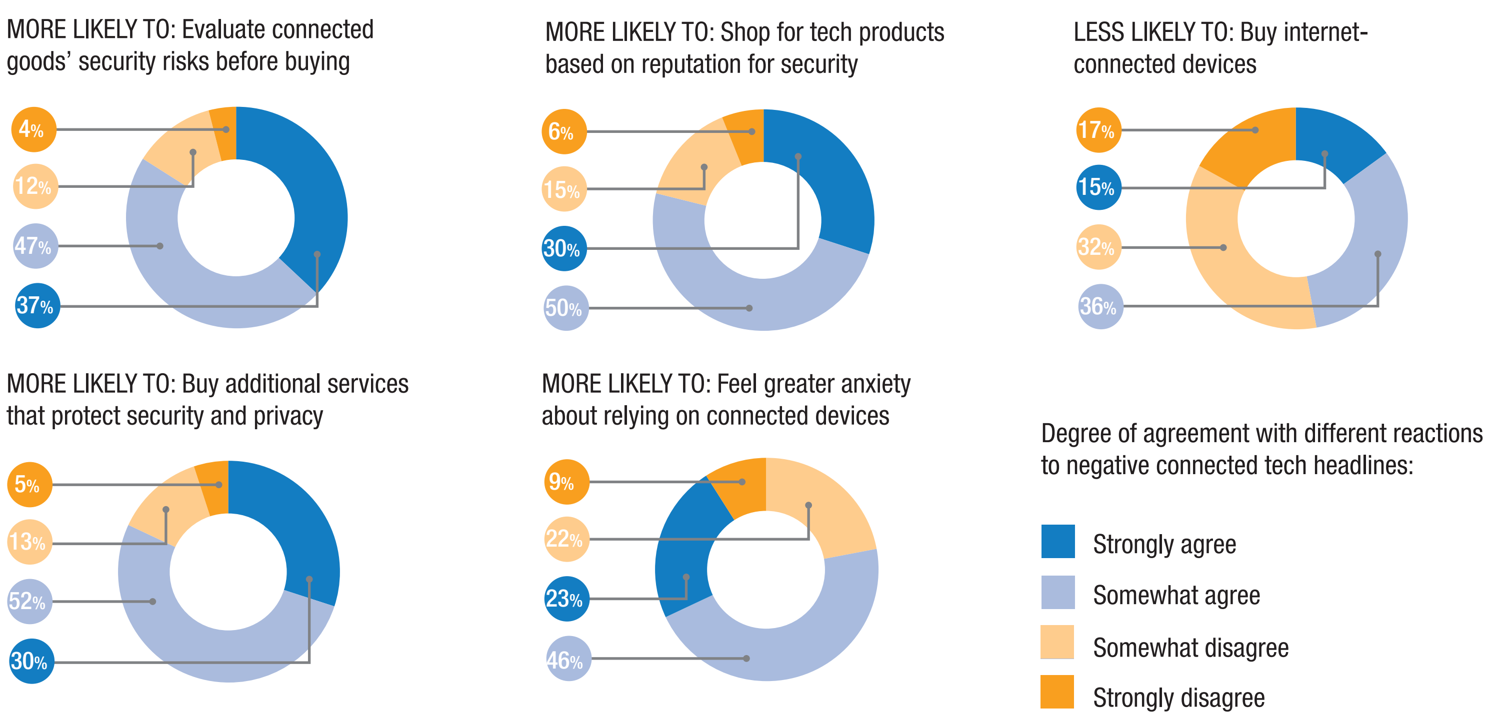
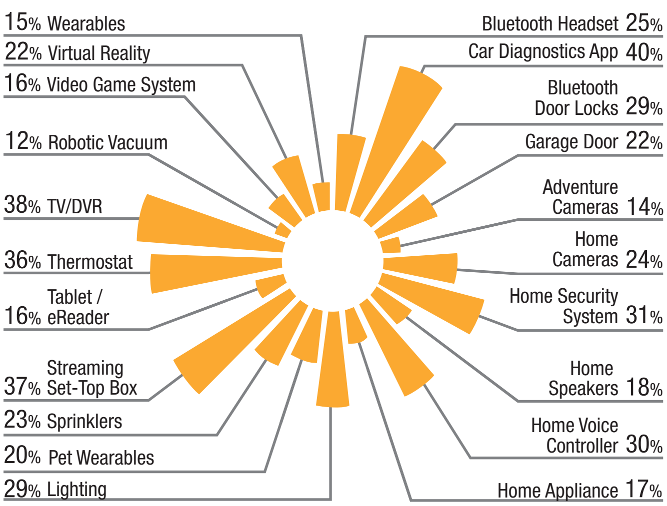


Figure 6.2. Reaction to negative headlines about connected risks

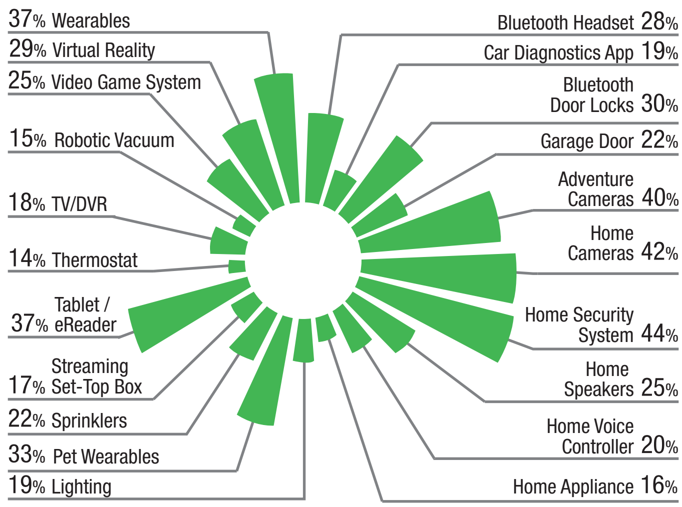
Overcoming Consumer Reticence

The pain points of reliability, risk, and performance can be addressed in ways that reassure consumers.
We found that the inclusion of key companion services can help overcome hurdles to adoption of connected products.

Impact of on-demand tech support



Impact of protection for loss, theft or damage



47% of those who might buy a Tablet or eReader would be more likely to do so if it came with a 2-year extended warranty

Impact of 2-year extended warranty

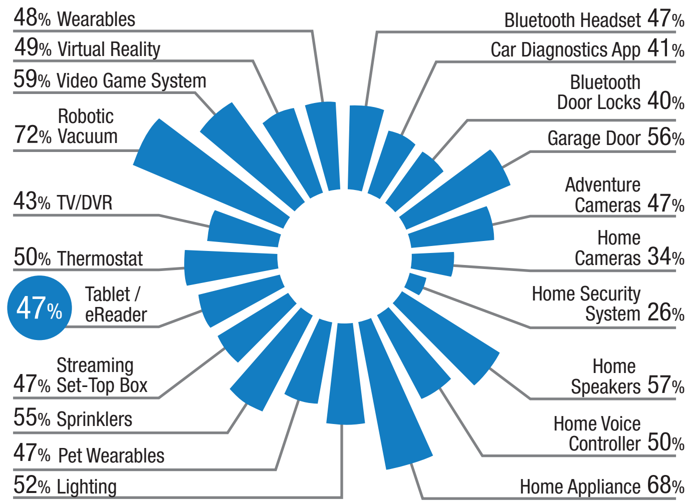


Figure 7.1. The share of those who "might buy" a given connected product that would be more likely to do so given an accompanying extended warranty, protection plan, or technical support service

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Buyers of Value Added Services

To better understand who purchases companion services for connected products, our analysis uncovered three consumer segments that define the entire U.S. market according to one's propensity to buy.

CONSUMER SEGMENTS BUYING CONNECTED TECH COMPANION SERVICES

✓ Product protection plans
✓ Live tech support
✓ Extended warranties

65% of consumers
INFREQUENT BUYERS

1.1	average services bought in 2016
32%	bought smartphone protection
5%	bought live tech support
15%	bought an extended warranty

More likely to:

- Live in a suburban area
- Be unemployed, a student, or a homemaker
- Be middle-aged
- Be female

10%
DEVOTED BUYERS

6.7	average services bought in 2016
70%	bought smartphone protection
37%	bought live tech support
48%	bought an extended warranty

More likely to:

- Live in a rural area
- Be employed full-time
- Be younger
- Have children

25%
MODERATE BUYERS

3.3	average services bought in 2016
50%	bought smartphone protection
15%	bought live tech support
25%	bought an extended warranty

More likely to:

- Live in an urban area
- Be retired
- Have children

Figure 8.1.Consumer segments buying connected tech companion services

Segments of Connected Tech Buyers

Who buys connected products?

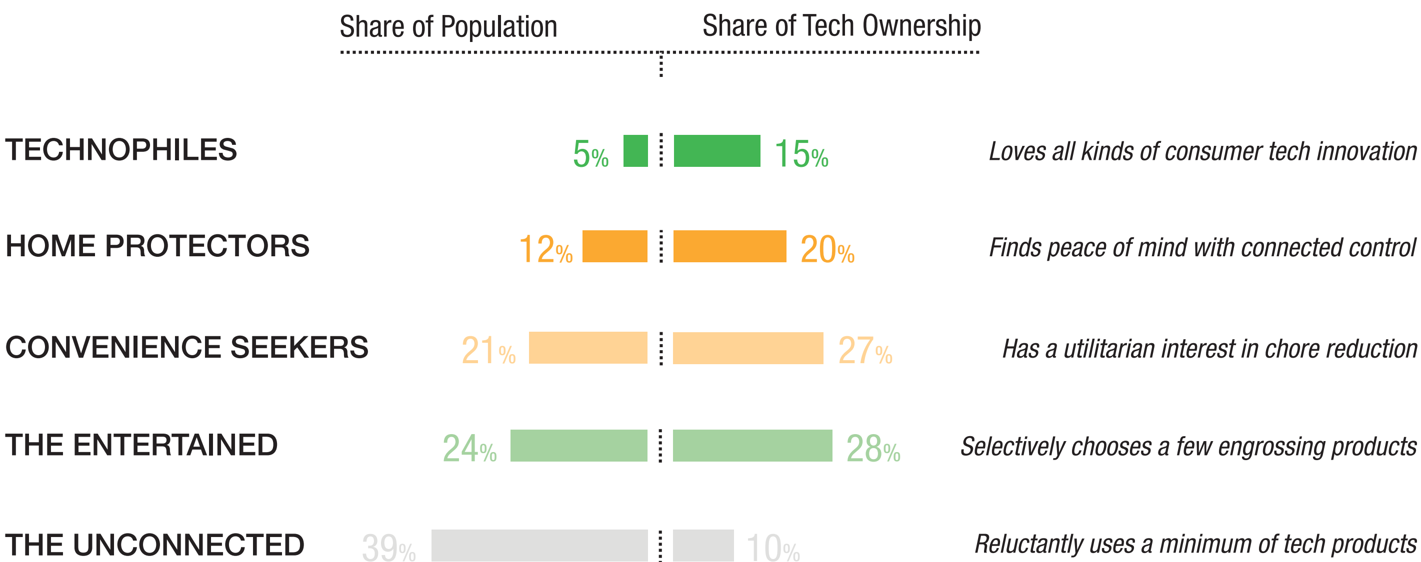

Figure 9.1. Segment share of U.S. consumer population versus segment share of connected technology purchases

We set out to understand the breadth and depth of the market, the patterns of ownership, as well as the demographic drivers of adoption. By segmenting the market we were able to get a clear picture of the current landscape and the distinct challenges that the connected future will bring for each group.

We focused mainly on self-reported rates of ownership and use across 26 different categories of connected products. Our analysis identified five mutually exclusive segments that characterize the entire connected technology market.

The size of each segment varies tremendously, as does their purchasing frequency: the smallest three segments – less than 40% of U.S. consumers – account for nearly two-thirds of all connected product purchases. Over the next few pages we'll explore these segments further.

What Each Segment Buys

"The Unconnected" are apt to buy, if anything, just a couple connected tech essentials, while "Technophiles" purchase widely across categories. Buyers in the middle segments are likely to focus on specific value areas.

Figure 10.1. Percent of each segment that owns at least one connected product from a given technology area

Orange cells = Defining attributes of segment

	PRODUCT CATEGORIES	THE UNCONNECTED	HOME PROTECTORS	CONVENIENCE SEEKERS	THE ENTERTAINED	TECHNOPHILES
Security & Monitoring	Bluetooth door locks (e.g. Kevo)	1%	5%	3%	1%	**84%**
	Smart thermostat (e.g. Nest)	3%	**31%**	3%	8%	**74%**
	Home security system (e.g. ADT Pulse)	3%	**84%**	15%	5%	**67%**
	Home cameras (e.g. Dropcam)	2%	**68%**	4%	3%	**68%**
Out-of-Home Gadgets	Wearable pet devices (e.g. Motorola Scout 5000)	2%	9%	5%	3%	**68%**
	Car diagnostic apps that use OBD II port	4%	9%	10%	13%	**78%**
	Adventure cameras (e.g. GoPro)	3%	34%	6%	8%	**66%**
	Wearable devices (e.g. Apple iWatch, Fitbit)	3%	31%	6%	50%	**73%**
	Bluetooth headset or hands-free car system	22%	65%	46%	53%	**74%**
Home Automation	Robotic vacuum (e.g. Roomba)	4%	30%	**69%**	13%	**76%**
	Garage door system (e.g. MyQ)	1%	32%	**31%**	6%	**73%**
	Home appliances like a washer and dryer	0%	7%	**40%**	0%	**66%**
	Smart home voice controller (e.g. Amazon Echo)	2%	8%	8%	5%	**68%**
	Smart sprinkler system (e.g. Rachio)	1%	4%	3%	0%	**73%**
	Smart lighting system (e.g. Philips Hue)	1%	7%	3%	2%	**91%**
Home Entertainment	Video game console (e.g. XBox)	6%	52%	48%	**64%**	**78%**
	Streaming set-top box (e.g. AppleTV)	6%	38%	41%	**59%**	**75%**
	Internet connected TV or DVR	19%	64%	77%	**58%**	**78%**
	Tablet or e-reader (e.g. Apple iPad)	19%	67%	59%	**94%**	**74%**
	Home speakers (e.g. Sonos)	12%	68%	47%	**40%**	**70%**
	Virtual reality system (e.g. Samsung Gear VR)	1%	7%	2%	8%	**71%**

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How Ownership Segments Differ

THE ENTERTAINED 24%

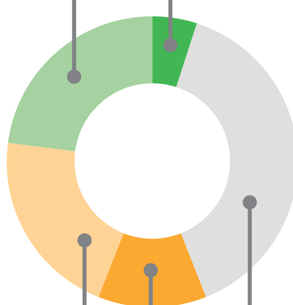
Selectively chooses a few engrossing products

- 5.4 avg connected products owned
  Excluding computers, smartphones
- Most likely to use Amazon Prime
  55% subscribe
- More likely to be female
  +20% skew towards women
- Least AT&T-Time Warner support
  Only 17% view as beneficial
- 2nd most number of children in home
  0.7 avg per household
- 2nd least likely to be bilingual
  89% speak just English at home

TECHNOPHILES 5%

Loves all kinds of consumer tech innovation

- 15.5 avg connected products owned
  Excluding computers, smartphones
- Youngest segment-*39 years avg*
- Second wealthiest
  $59k avg household income
- Highest educational attainment
  61% have at least a B.A.
- Greatest personal wellbeing
  8.1 out of 10 avg score
- Most number of children in home
  1.1 avg per household
- Greatest full-time employment
  71% across entire segment



CONVENIENCE SEEKERS 21%

Utilitarian interest in chore reduction

- 5.7 avg connected products owned
  Excluding computers, smartphones
- 2nd least wealthy
  $44k avg household income
- 2nd least likely to have college degree
  36% have at least a B.A.
- 2nd lowest personal wellbeing
  6.7 out of 10 avg score
- Lowest awareness of Dyn DDoS attack
  Only 14% very aware

HOME PROTECTORS 12%

Finds peace of mind with connected control

- 7.6 avg connected products owned
  Excluding computers, smartphones
- Wealthiest
  $60k avg household income
- 2nd highest educational attainment
  49% have at least a B.A.
- 2nd highest personal wellbeing
  7.0 out of 10 avg score
- 2nd most likely to be bilingual
  20% speak language other than English at home

THE UNCONNECTED 39%

Reluctantly uses a minimum of tech products

- 1.2 avg connected products owned
  Excluding computers, smartphones
- Oldest-51 years avg
- Least wealthy
  $38k avg household income
- Least likely to have college degree
  35% have at least a B.A.
- Lowest personal wellbeing
  6.5 out of 10 avg score
- Fewest number of children in home
  0.4 avg per household
- Lowest full-time employment
  35% across entire segment
- Least likely to be bilingual
  90% speak just English at home

Anxieties about the Connected Present

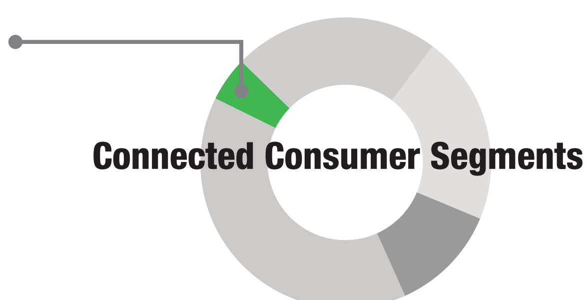
Across all segments we found that U.S. consumers have a significant amount of background anxiety about the connected world.

Figure 12.1. Share of U.S. consumers reporting concerns, fears or anxieties about the following areas

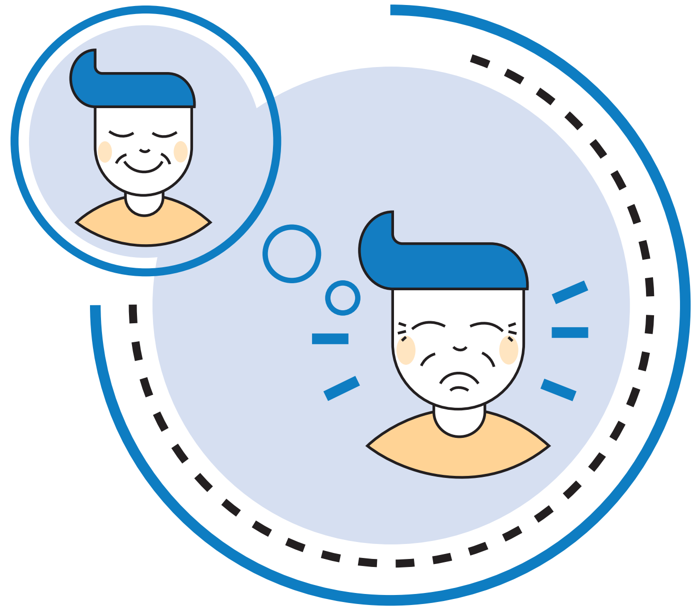
Area	Terrified	Very concerned	Somewhat concerned	Unconcerned
Identity theft by criminal hackers	22%	43%	29%	6%
Cyberattacks on America's web infrastruture	20%	42%	31%	8%
Email or social media account hacking	13%	38%	38%	11%
Eavesdropping by foreign governments	13%	29%	36%	22%
Misuse of data collected by web services	13%	40%	36%	11%
Dependencies on failure-prone tech that make us vulnerable	13%	39%	36%	12%
Eavesdropping by the U.S. government	12%	28%	36%	24%
Loss of human connectedness because of technology	12%	35%	35%	18%
Digital blackmail, snooping or stalking	11%	32%	37%	20%
Increasing social / political polarization from siloed news	9%	34%	38%	19%
Increased costs of maintenance or repair	7%	40%	39%	13%
Reputational harm on social media	7%	20%	34%	39%
Loss of focus due to constant digital stimuli	6%	27%	40%	27%

Of all consumers, Technophiles exhibit the most statistically significant patterns when it comes to connected anxieties.

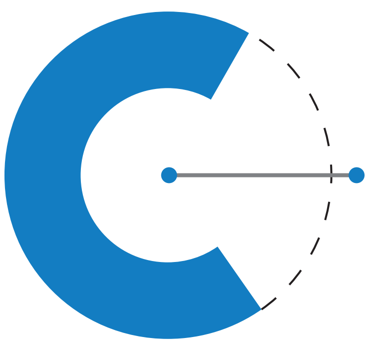
These consumers are much less likely to be worried about cyberattacks on the U.S. or by the vulnerabilities of being overly reliant on connected devices. On the other hand, they're much more likely to be worried about eavesdropping by our own government and by increasing social and political polarization.



Optimism for the Connected Future



The anxieties Americans have about the connected world do not, for most of us, outweigh the perceived benefits



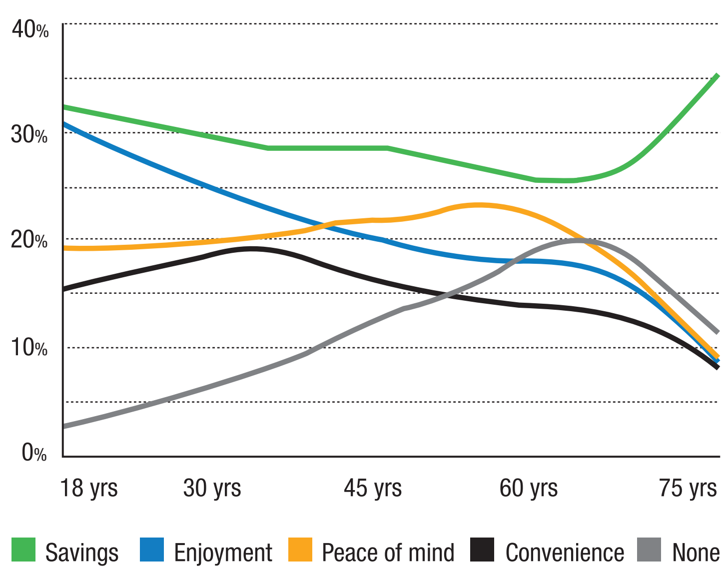
68%

of Americans believe connected technologies have made life better, not worse

WHAT DO WE KNOW ABOUT THE CONNECTED OPTIMISTS?

- They come from all walks of life – not any one demographic profile or income band
- They are more content with life in general, reporting 9% higher levels of personal wellbeing
- They experience half the levels of fear and frustration with connected technologies
- They are 55% more likely to cope with the risks of connected technologies by protecting themselves with extra services
- They are much less interested in cost savings as a connected tech benefit than enjoyment, peace of mind or convenience

Top Benefit of Connected Technology by Age



The connected technology benefit most sought after shifts with age.

Tech as a means of enjoyment is never more compelling than when we're 18. Cost savings is the most desired benefit at every age, but particularly in early adulthood and after retirement.

At age 36 our interest in the benefits of convenience hits its peak, while our desire for peace of mind continues rising in importance until age 56, when it too begins to fall as a result of greater interest in cost savings.

Figure 13.1.The distribution by age of the top cited benefits of connected technologies