

WATT*x*

CONSUMER REPORT

The Smart Home:

On the verge
of mainstream
acceptance?



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EXECUTIVE SUMMARY

This research report sets out to examine the general awareness of smart home devices among consumers as well as consumer awareness and sentiment towards potential security threats posed by these devices.

After consulting 145 consumers through an online survey, it is evident that there is a very high awareness of the smart home concept and individual smart home devices; people are especially familiar with smart TVs and smart speakers, which are also the most widely owned devices (owned respectively by 51% and 50% of respondents).

Furthermore, in order to assess consumer perception and attitude throughout our research, we made consistent use of a 7-point Likert scale (1 = strongly oppose and 7 = strongly agree). We learned that consumers consider the smart home concept appealing to some degree (average of 5.3 out of 7).

There is a general sentiment that smart homes increase home comfort (average of 5.2), and that smart homes could potentially increase users' productivity at home (average of 4.8). However, consumers are less convinced that a smart home makes their homes more physically secure (average of 4) or makes them want to stay home more often (average of 3.9). 48% of all participants indicate an interest in purchasing a smart home device in the near future.

When it comes to information security more generally, consumers are mostly concerned about malicious software infiltrating their networks (average of 6.35 out of 7) as well as their personal data being leaked online (average of 6). Consumers show slightly less concern for the same security threats for smart home devices.

Highlighted below are a few additional insights:



Device manufacturers should communicate on security.

Lack of security is still a major (21%) reason consumers will not buy a smart home device.



Providers should consider including features that provide additional comfort .

Comfort is perceived by 74% as a desired result of smart home devices.



Online retail is the most common distribution channel.

Almost half (48.7%) of the respondents purchased their devices via online shops.

INTRODUCTION

13.5 billion connected consumer devices are expected by 2020.¹

Connected devices are entering the market at increasing rates and their consumer base is growing. Next to the more common place smart TVs and gaming consoles, more traditional appliances and furniture are now available in “smart” and connected versions. Locks, lamps and thermostats are now leveraging data and automatically adapting to the user’s personal preferences.

Overall, smart home devices and appliances promise to simplify consumers’ lives. However, at the same time, these devices generate more entry points into the personal lives of consumers, increasing a user’s vulnerability to security threats. Even in markets with a general public interest in privacy, consumers often neglect properly securing smart home devices.

This raises the question of how interested and aware consumers are of smart home devices as well as how important consumers deem the security of such devices to be. In order to answer this, we turned to consumers with a survey focused on their feelings about the smart home and, more specifically, security.

This report provides insight into consumers’ overall interest and awareness of smart home devices and dives deeper into the perception of information security and security threats directly related to smart home devices.

1. “6.4 billion connected “things” will be in use in 2016, up 30 percent from 2015”, Gartner (2015).

METHODOLOGY

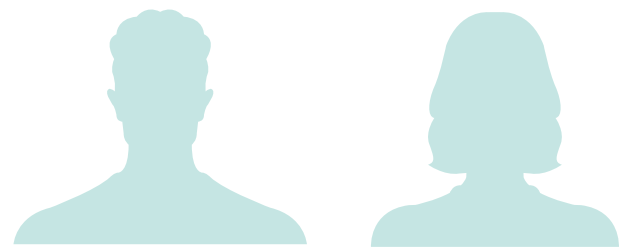
For this report, a sample of 145 respondents, ages 18 to 65, was surveyed. The survey ran online in June and July 2017 and was accessible via the research section of WATTx's website as well as social media channels.

31% of respondents are German, while other respondents are primarily from Western Europe and North America. 20.7% of all participants indicated that they live alone; 46.2% live with their respective partners; 24.1% live with their children; 16.5% live with roommates; and 8.3% live with their extended family.

Out of our sample, 55.9% hold a graduate degree from university, 26.9% an undergraduate degree, and 9% a PhD. The remaining 8.3% hold a high school diploma.

For the sake of this report, a smart home device is a home appliance that gains additional functionality by connecting to the internet. Besides laptops and smartphones, **"Smart home owners" are respondents that own more than two smart home devices** and "smart homes" are homes with two or more devices. To understand in detail the ownership of these devices, respondents were asked to provide their input related to the following list of seven smart home devices: smart home hubs, smart TVs, smart speakers, smart lights, smart thermostats, smart door locks, and smart surveillance systems.

145 participants



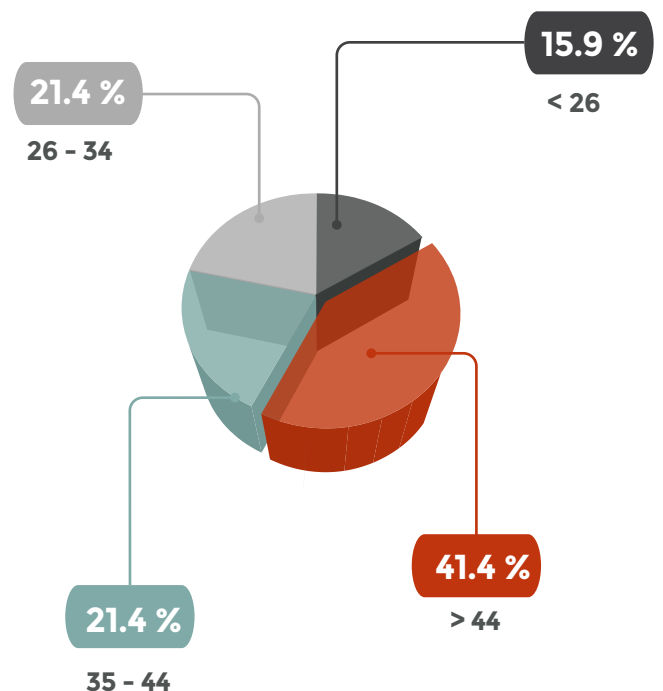
MALE MAJORITY

90 %

10 %

MORE URBAN THAN RURAL

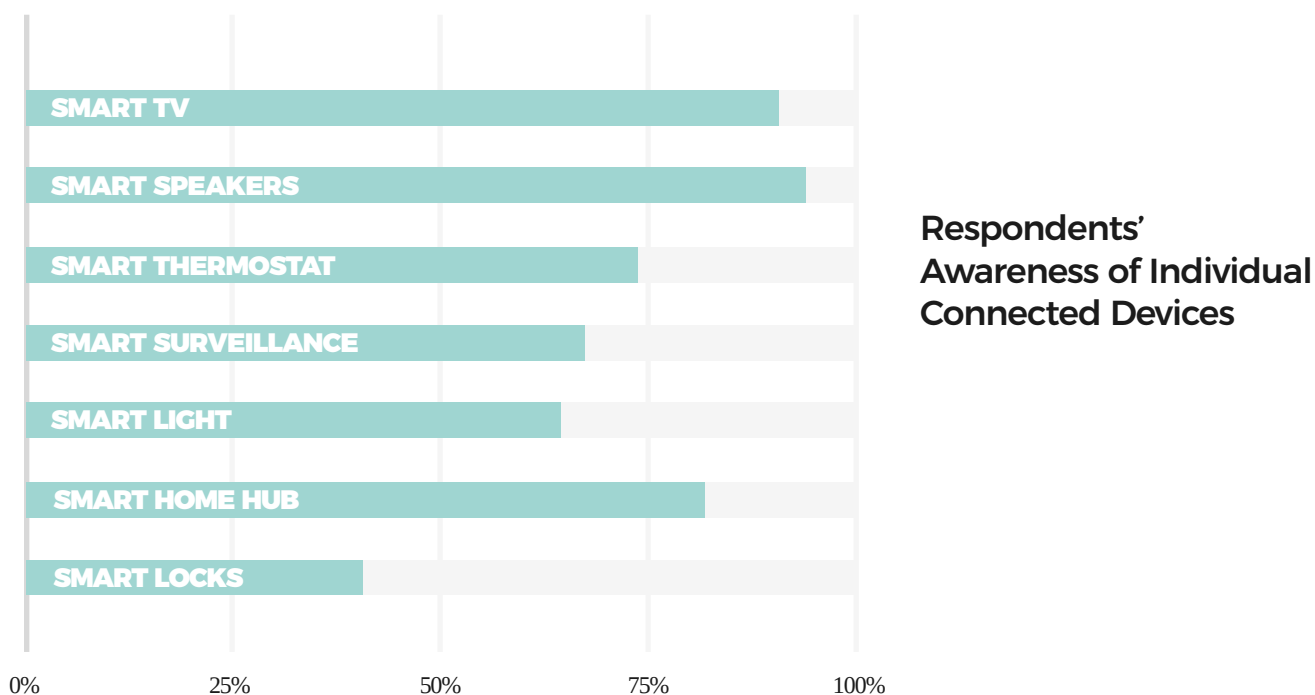
Age distribution



CONSUMER AWARENESS OF SMART HOME

The study found that the term ‘smart home’ is very well known: 96.6% of respondents have heard of the concept.

This also holds for the awareness of individual smart home devices. When prompted with a list of smart devices, the most recognized devices were smart speakers (95.2% of respondents have heard about this device) and smart TVs (91.7% of respondents have heard about this device) are the best known smart home devices. The least known devices are smart surveillance solutions (67.6% recognition), smart light solutions (64.8% recognition) and door locks (40.7% recognition).



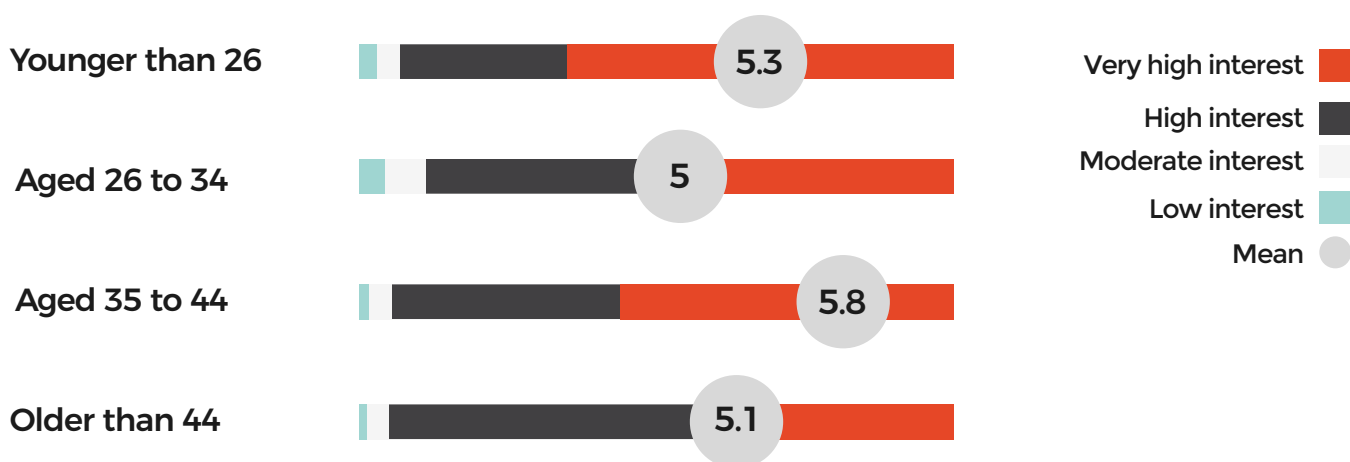
Respondents are very aware of smart homes: 96% have heard of the term “smart home” and 73% own at least two smart home devices.

CONSUMER SENTIMENT TOWARDS SMART HOME

How do consumers perceive smart homes?

In general, consumers are interested in smart homes. The survey indicates that the majority of consumers consider the idea of a smart home somewhat appealing.

When this perception is compared among different age and ownership groups, it varies only slightly. Respondents younger than 26 and those between 35 and 44 generally show a slightly more positive attitude toward the idea of smart homes than the respondent average. Those older than 44 are slightly less positive, while people aged 26 to 34 show the least positive attitude (however still leaning positive overall).



General sentiment by age group

A user's attitude towards smart homes is also impacted by the number of smart devices they own: it is not surprising that owners of more than two smart devices (38.6%) show a slightly higher interest (average of 5.4 out of 7) than the average respondent. Respondents with less than three devices (42.7%) show a similar interest (average of 5.3 out of 7). Only those study participants without any smart home device (16.5%) seem indifferent (average of 4.3 out of 7).

CONSUMER SENTIMENT TOWARDS SMART HOME DEVICES

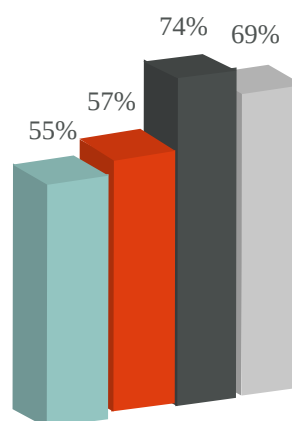
Do consumers want to be home more often in a smart home setting?

While participants are not entirely convinced by the potential smart home benefits, it is worth noting that those younger than 26 as well as participants between 35 and 44 show consistently more positive perceptions of proposed smart home benefits. When prompted with a list of possible benefits, namely ‘wanting to stay home more,’ ‘feeling of increased comfort,’ ‘increased feeling of security’ and ‘task acceleration,’ participants younger than 26 agree that a smart home can make their home more comfortable (average of 5.4 out of 7) as well as accelerate their daily tasks (average of 5.2 out of 7). Participants ages 35 to 44 show similar sentiments (with respective means of 5.5 and 5.2). Participants ages 26 to 35 and older than 45 show significantly more scepticism towards potential smart home benefits, only somewhat agree that smart home devices increase home comfort (means of 5 for both age groups) and are indifferent towards the ability for a smart home to accelerate their daily tasks or make them want to be home more.

The majority of study participants are indifferent as to whether a smart home setting would make them feel a greater sense of security or enjoy being at home more. Participants younger than 26 and those older than 45 are indifferent as to whether smart homes have the potential to increase home security (respective means of 4.0 and 4.1). Those aged 35 to 44 were more positive (average of 4.6 out of 7), indicating that a smart home environment would make them feel somewhat more secure.

Respondents' General Sentiment Towards Smart Homes

- A smart home setup makes me want to be home more.
- A smart home setup makes me feel more secure.
- A smart home setup makes my home feel more comfortable.
- A smart home setup accelerates my daily tasks.



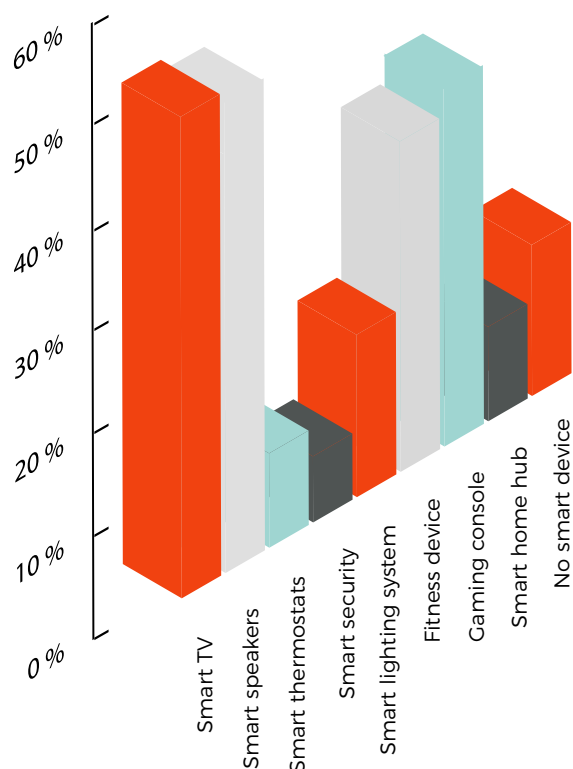
Participants are largely indifferent as to whether living in a smart home would make them feel more physically secure.



On average, respondents are somewhat convinced that a smart home setup would make their home feel more comfortable and accelerate their daily tasks and operations.

OWNERSHIP OF SMART HOME DEVICES

Product Ownership Among Respondents



83% of survey respondents own at least one connected device in their household. The most well known devices are also the most owned devices by consumers. The three most owned devices are smart TVs (51% of respondents), wireless smart speakers (50% of respondents), and game consoles (38% of respondents). Interestingly, smart doorlock systems are not widely used, with no respondent indicating ownership of such a device. Unsurprisingly, the majority of 35 to 44 year olds are owners of smart TVs (64.5%) and smart speakers (77.4%). Of consumers older than 44, 71% own a smart TV and 64.5% own smart speakers. 39% of consumers under 26 own game consoles.

83 %

of the respondents
own at least one
connected device.



Nearly half of the individuals surveyed own at least a smart TV or smart speakers, which enables new ways to consume content.

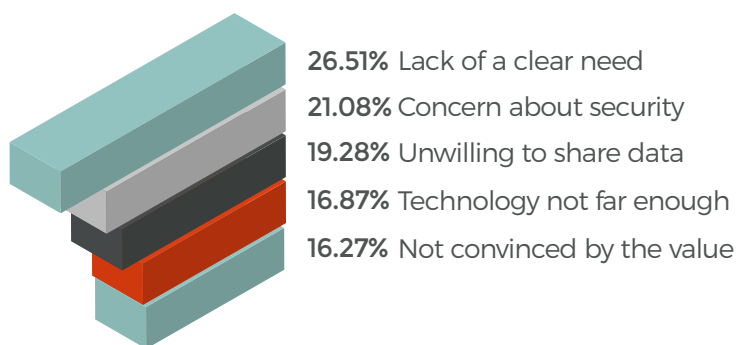
CONSUMER INTENTION TO BUY SMART HOME DEVICES

The concept of a seamless connected home is widely discussed in the media and defines what many consumers view as the near future. This concept is certainly becoming a reality given the increasing availability and accessibility of connected devices.

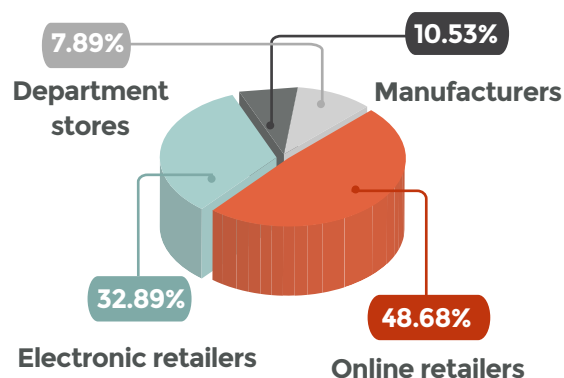
Looking closer at consumer perspectives on acquisition of devices, the survey found that the more smart devices people own, the more likely they are to buy additional devices. Across all respondents, 48% plan to buy more smart home products; This number rises to 59% for users owning more than two devices. Additionally, only 20% of consumers who currently own no devices envision themselves buying smart home products. The fact that consumers who currently own smart home devices are more interested in buying additional devices in the future suggests that they are less sceptical of smart home products.

Respondents were also asked about the categories of devices they would be more inclined to buy. Smart lights and thermostats are on the purchase plans of 51% and 31% of respondents (respectively), followed by smart surveillance devices (27.5%).

Reasons for Not Buying Additional Smart Home Devices



Purchasing Channels for Smart Home Devices



Online retailers lead as the main purchase channel for smart devices.



A major concern for consumers, which inhibits their interest in purchasing smart home devices, is data privacy and network safety.

CONSUMER SENTIMENT TOWARDS INFORMATION SECURITY

Information security, especially around consumer data, is a sensitive topic. Survey results show that consumers are concerned about the misuse of their personal data and are thus more and more reluctant to share such data with manufacturers or service providers.

New legislations, such as the General Data Protection Regulation (GDPR) coming into effect in early 2018, focus on giving consumers more power over their personal data.

Consumers are becoming increasingly concerned about the misuse of their personal data.

What is the general sentiment towards information security?

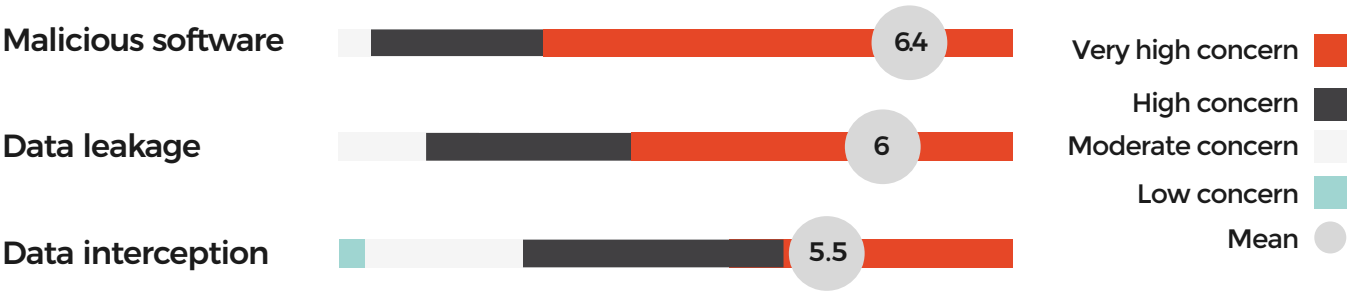
Information security is indicated as highly important by consumers. Out of the 145 participants, 134 either agreed or strongly agreed with the statement “information security is important” (average of 6.5 out of 7).

The survey results show that this sentiment is shared across all age groups. Interestingly, while still seen as important by consumers with no smart home devices (average of 6.1 out of 7), consumers with more than two smart home devices are more concerned with information security (average of 6.4 out of 7).

How aware are consumers of single security threats?

When asked to indicate their top three security fears, the majority of participants indicate the fear of being infected with malicious software or viruses, followed by abuse of their personal data, and finally, having their data spied on. The participants concerned with viruses the most are younger than 26 and older than 44. Interestingly, this age-trend also holds for the fear of data abuse as well as the fear of data spying.

Consumer Fear of General Information Security Threats

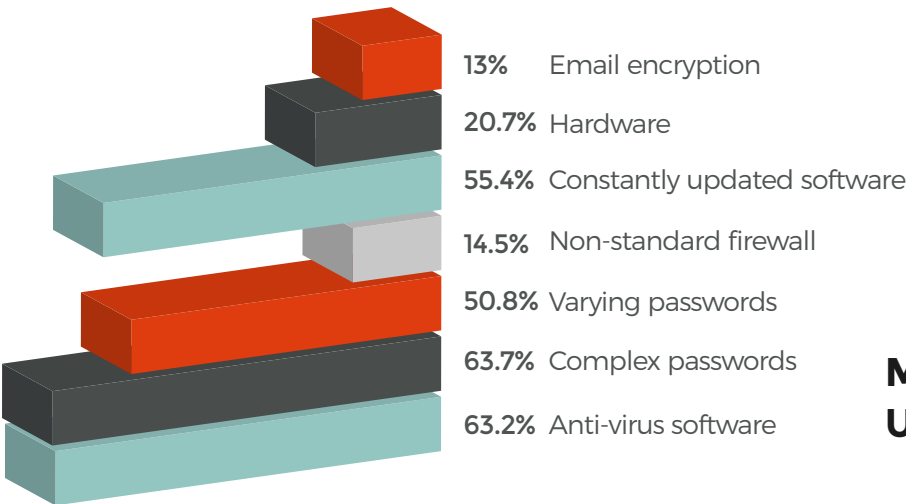


Female respondents are slightly less concerned about potential security threats.

Looking at the entire sample, female respondents are generally less afraid of potential security threats. Female respondents are somewhat less afraid of having their personal data spied on than male respondents; similarly, women are slightly less afraid of having their personal data abused than men, although both groups clearly indicate a fear of such a threat. When it comes to fear of potential viruses, both genders are equally afraid of being infected.

How do consumers protect themselves from potential security threats?

When it comes to protecting private information (such as personal data) or limiting unwanted network access, the most common measures taken are establishing complex passwords and installing anti-virus softwares. Additionally, a large percentage of participants makes sure that their software automatically updates and differentiates their passwords across platforms to prevent having their accounts hacked. Less common preventive measures are hardware or email encryption, and additional firewalls.

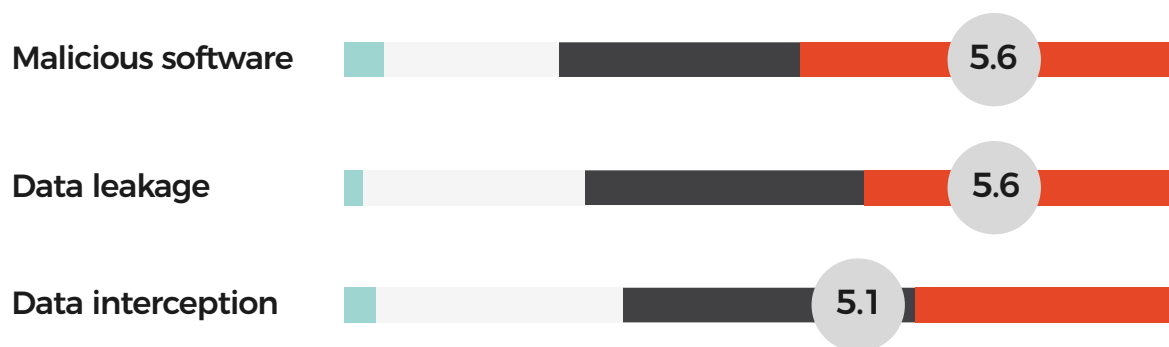


Means of Security Used by Participants

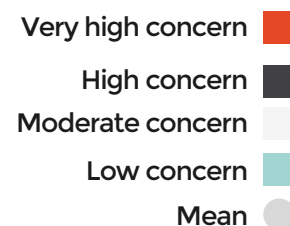
CONSUMER SENTIMENT TOWARDS SMART HOME SECURITY

When it comes to specifying their concerns around potential smart home security threats or leaks, most consumers are concerned about malicious software on their machines or in their network as well as their private data being leaked on the internet. Furthermore, respondents are somewhat concerned about data being intercepted in their home network.

These answers indicate that while consumers are generally concerned about the cyber security threats themselves, they are more afraid of the impact these threats can have on their privacy and device usability. Generally, consumers are slightly less afraid of information security threats when put in context of the smart home.



Concerns Around Potential Smart Home Security Threats



Consumers show a slightly lower fear of security threats in the smart home domain as compared with general information security threats.



Consumers owning no smart home devices express a stronger fear of smart home security threats than those owning at least one device.

CONCLUSION



People are generally familiar with the concept of the smart home.



Most consumers believe that smart home appliances can have a positive impact on their lives.



When asked, consumers are highly aware of and alarmed by potential information security threats.



Most consumers are planning to buy smart devices to make their home more energy efficient and comfortable.



Concerns around lack of security is still a major reason consumers don't buy additional smart home devices.

CONTACT

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Who we are



WATTx is focused on shaping new and rapidly evolving industries. We do this as a venture builder: with a user-centric approach, we create deep tech products and companies that solve the problems of our industrial clients. Our team conducts focused research to identify problematics, which trigger informed solutions. We take validated ideas from concept to prototype to launch - designing a new business division or entirely new startup entity for our clients.



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