Perceive™ survey

It’s Time to Raise the Bar for Smart Home Technology

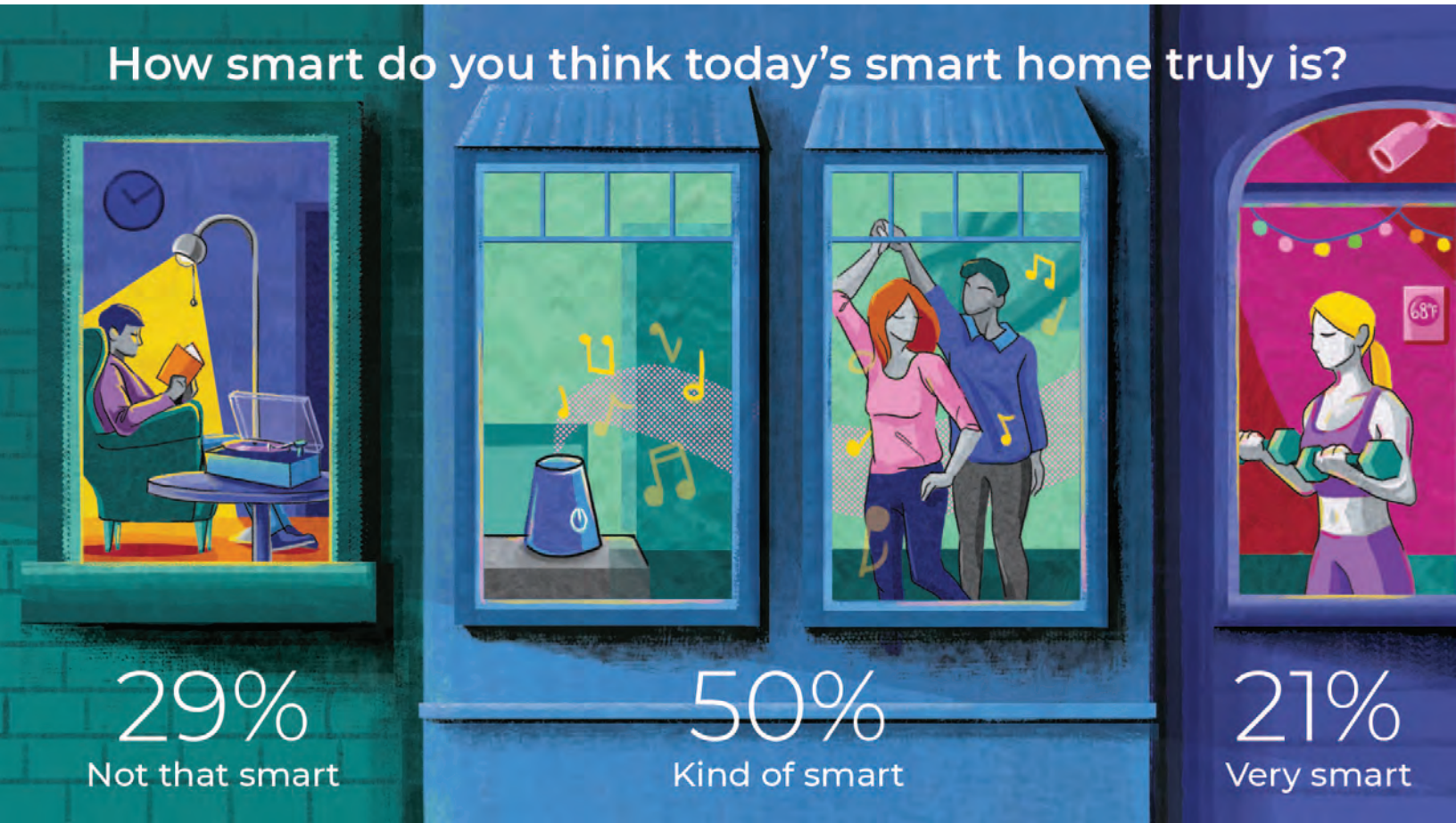
IMAGINE AN OVEN that, without extra instruction or constant monitoring, knows how to prepare your Thanksgiving turkey perfectly. A security system camera that alerts family or first responders when it detects an elderly person who has fallen and can't call for help, while protecting their privacy. An autonomous vacuum that can locate items around the house. With recent advances in machine learning and new edge inference chips bringing unprecedented computing power on-device, these innovations are within reach.

Meanwhile, more people are buying and using connected devices in the home than ever before. In fact, IDC predicts that 1.4 billion devices will ship to homes in 2024. Numerous signs point to the fact that we're on the cusp of big leaps in smart home technology.

To get a pulse on the state of the smart home in this seemingly pivotal moment, Perceive conducted an online survey of 2,000 adults in the US and Canada. What we found is that, while the surge in adoption is exciting, today's bar for smart home technology is still too low.

We asked 2,000 consumers to share how they feel about the smart home devices and features available today. Right now, many struggle to see the value. Only 21% of respondents believe that we have already achieved meaningful home intelligence. At the same time, almost a third of respondents (29%) shared that while some smart home devices are fun to use, they aren't necessary.

It's become clear that smart home technology must be refined to provide functionality that expands on what users can do. The tech must do more than simply make tasks more convenient or provide what we call "taskertainment" — task automation that is more entertaining than it is actually useful.



In the convergence of emerging technologies like AI and edge computing, we have the tools we need to lay a proper foundation for the next-generation smart home and to offer services and features that bring tremendous value to consumers' lives. But until we set a higher standard for the functional value of connected devices, we will inhibit meaningful advancement and continue to see the tepid reactions from consumers we're seeing at present.

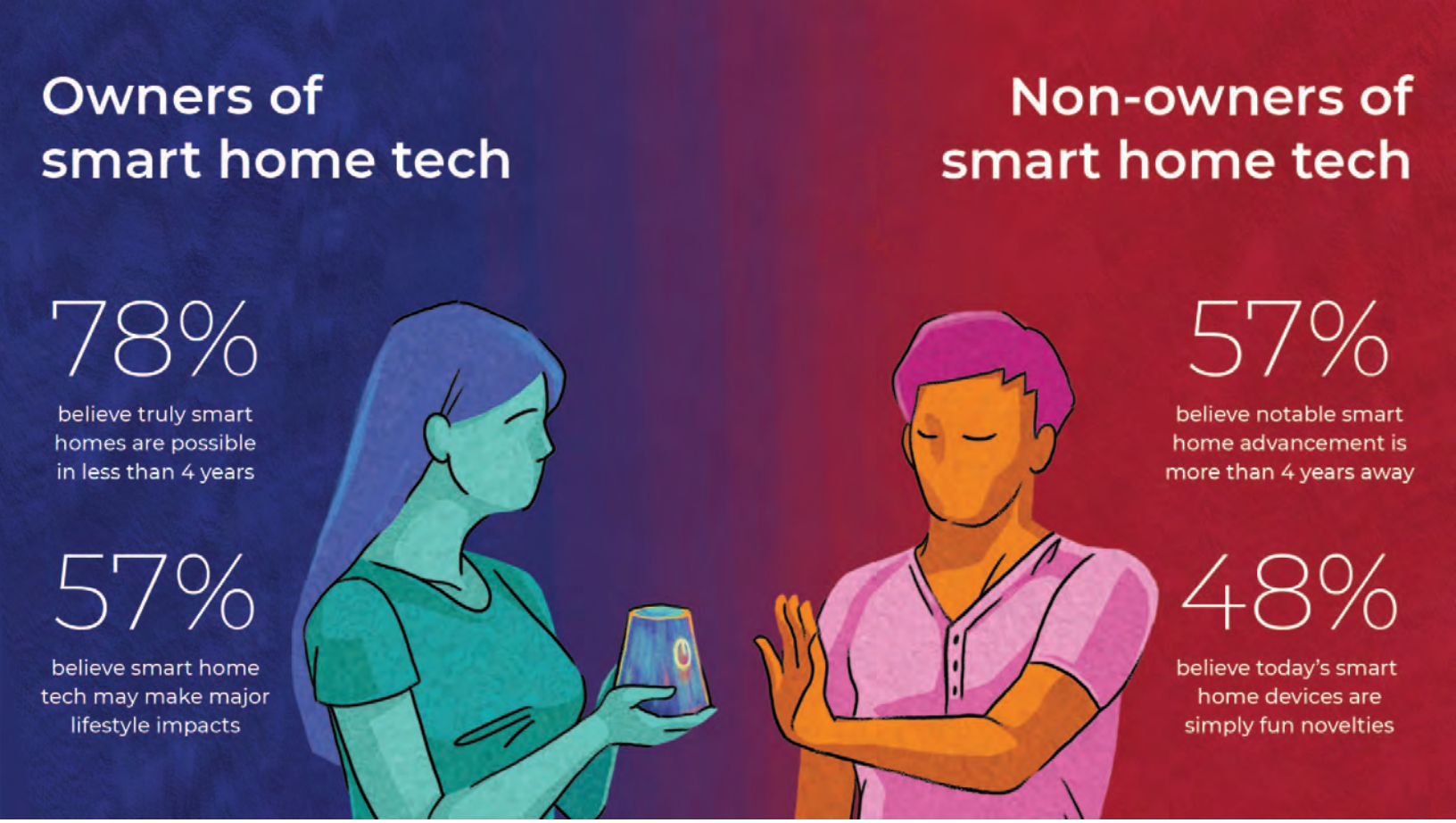
Consumers are Generally Optimistic About the Smart Home Future

It's important to note that, despite doubts about the intelligence and value of current devices, many believe automated and intuitive smart homes are in sight. In fact, 67% of respondents expect that automated and intuitive smart homes will be a reality in less than four years.

Excitement for continued innovation and advancement is reflected in purchase intentions as well. A supermajority of people surveyed (78%) plan to buy more smart home devices by 2022.

Device Owners are Excited for Innovation in the Space

Millions of devices are already in homes, including smart speakers and connected lights, blinds, cameras, and appliances. However, many of today's smart home technology adopters are using simpler features, such as asking a speaker to turn the lights on and off or to stream audio through their speakers. That said, we found that device owners are ready to embrace innovation in the smart home space.



Those who already own smart home devices are more optimistic about this coming innovation — 78% believe that a truly smart home will be possible in less than four years, and over half (57%) believe that smart home tech has potential to make a significant impact on their lives.

Meanwhile, consumers who haven't yet jumped aboard will need more convincing about the value smart home technology provides. More than half of those who don't currently own smart home devices (57%) believe that marked smart home advancement is more than four years away. And 48% of non-owners think today's smart home devices are simply fun novelties — they want to see more advancement in the tech before they're convinced of its value.

Home Security Technologies are Building Trust in the Smart Home

Those who own smart home security systems, which comprised 42% of our respondents, place a lot of trust in their devices. Security devices clearly aren't novelties, and these consumers depend on this technology to keep their family, friends and property safe. This specific corner of smart home technology adopters highlights a population of consumers that fully appreciates the value of the current technology and at the same time is excited for innovation. Case in point: Almost all smart home security technology owners surveyed (98%) plan to buy more smart home devices this year.

We also found that security system owners care deeply about privacy, and for good reason, as numerous providers have fallen victim to security breaches in recent years. Half of security system owners (51%) reported privacy as their biggest concern with their current setup.

Further, when asked what the most important aspect of a smart home security system is, the number one concern among owners was that they know who has access to their data and that it's not at risk to hackers (47%). Data privacy concerns were prioritized over the accuracy of alerts (36%), the availability of dynamic features (9%), or innovation and updates to the technology (8%).

Like privacy, accuracy is also imperative in the home security device experience. Given their promise to keep homes and their owners safe, it's understandable that consumers expect these applications to work as advertised. Accuracy is such a priority for home owners that it could even convince people to abandon their current setup and replace it with a more intelligent system — 40% of smart home system owners would upgrade to a more effective system if it meant they'd experience fewer false alarms.

All in all, our data on consumers and smart home security systems shows us that people are interested in leveraging devices to manage something that's truly valuable to them — their safety and peace of mind.

For consumers still wary of smart home security systems, it's important to note that advances in edge computing are enabling home security devices with improved privacy and accuracy. Running motion and audio event detection applications directly inside security devices like cameras, doorbells, and motion sensors significantly limits opportunities for sensitive data to be exposed to bad actors in the cloud. It also improves overall response times and reduces power consumption.

What's Next: Rising to Meet Expectations

We're seeing unprecedented advancement in the smart home category, but clearly there's still room for improvement. So far, the ability of connected devices to meet consumer expectations has been compromised. We've accepted risks to consumer privacy and security to gain the processing power of the cloud. We've settled on basic network-driven device connectivity and simple automation when what's needed to provide substantial consumer value is true intelligence and situational awareness. It's time for this to change.

We can't settle for novelties. Intelligence in smart home technology needs to go beyond taskertainment before it will see wider adoption, and it needs to be designed from the outset to protect consumers' security and privacy.

We have the technology to make smart home devices far more valuable to consumers than they are today. If we raise the bar, we'll reduce consumer ambivalence and accelerate adoption. Let's build faster, more powerful, and more accurate smart home devices this year. With 78% of consumers planning to buy more devices by 2022 — we owe it to them.

Methodology — In November 2020, Perceive conducted an online survey of 2,000 adults between the ages of 18 and 70 in the US (1,000) and Canada (1,000).

Perceive makes devices smarter. The company develops breakthrough neural network inference solutions that push the performance-accuracy-power envelope, while protecting the security and privacy of consumers. By bringing advanced neural networks into edge devices with datacenter-class accuracy and performance, Perceive enables device makers to deliver smarter products that understand their environment and respond intelligently.

Contact us to learn more about integrating state-of-the-art edge inference processing into your device.