

Voice report

From answers to action: customer adoption
of voice technology and digital assistants



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The age of touch as the
primary user interface
is giving way to a new age
of voice and digital assistants.



When it comes to search, everything is changing.

What started out as blue links on a search engine results page (SERP) is currently transforming into something even larger in scale and deeper in breadth. The blue links are disappearing. Keywords are disappearing. Keyboards are disappearing. What will be left?

The age of touch as the primary user interface is giving way to a new age of voice and digital assistants. Consumers can now engage with search engines on a deeper level and in more meaningful ways. The new Q & A is 'question and action' as search moves from a place of answers to a state of action. Consumers are using voice search to shop, get directions, make reservations, book travel, etc. But voice itself is not the next big disruptor.

There is an even bigger disruption on the horizon: Conversational AI and its impact on consumer behavior. Conversational AI simplifies computer usage like never before as it flips the user dynamic – instead of humans learning computer code, computers are learning our language. At the same time, conversational AI amplifies human ability, giving us access to our own personal clouds. We are just beginning to tap into this power through mobile phones and smart speakers. According to Nielsen, almost 25% of US households now own a smart speaker and almost half of those households own multiple smart speakers¹.

Search is moving from a place of answers to a state of action.

Facebook introduced their new 'Portal'- yet another example of voice-first devices.



As the numbers grow, conversational AI will continue to weave itself into the world around us. How? By surrounding us with an adaptive intelligence that knows us and works to fulfill our individual needs. From scheduling our next dental appointment to controlling our thermostat to ordering our favorite pizza, search engines are morphing into personal digital assistants such as Cortana, Siri, Google Assistant and Alexa.

But digital assistants are not limited to our phones and smart speakers. Rather, they are multi-device and multi-sensory. We will jump from talking to our phone to skipping on our car windshield to viewing our smart speaker screen without losing the logic of a session. Devices take on a secondary role in this new phase of search as we engage with a singular digital assistant that accompanies us throughout our daily tasks. We will switch between talking, viewing, swiping, etc. Face recognition will also play a unifying role as users move across devices.

Finally, these assistants will offer universal discovery that spans both the physical and digital worlds. Whether you are looking for a file that you created yesterday or how much milk you have left in the fridge, your assistant has the answer (with help from IoT and visual search). It's helpful to think of digital assistants, chatbots, and other forms of intelligent agents as invisible bridges, connecting us with a cloud-based knowledge graph. They are ready to fulfill user intent from the smallest to largest of levels:



"Hey Cortana, how do I boil an egg?"

"Hey Cortana, record the next season of The Voice."

"Hey Cortana, check my hair stylist's schedule next week and book an afternoon appointment."

"Your brand needs to have its own agents that can talk directly to customers and to converse across multiple digital assistants."

—Satya Nadella, Microsoft CEO



Introduction

In time, digital assistants will play a more proactive role in our lives, automatically scheduling a repair on a broken water heater or suggesting tickets as soon as our favorite band releases tour dates or reordering household items which are running low.

Digital assistants will drive a significant shift in consumer mindset and behavior. Microsoft CEO Satya Nadella is preparing marketers, 'Your brand needs to have its own agents that can talk directly to customers and to converse across multiple digital assistants.' But simply building new technologies is not enough. Retailers must then market their new skills, chatbots, mobile apps, in-store pickup, etc. Just as retailers of the 90s had to guide shoppers to their website, today's retailers will also have to educate us on new ways to shop and transact.

This report analyzes the latest voice disruption and the subsequent larger disruption looming ahead, conversational AI. This report is based on the findings from two separate online consumer focused survey's. The March – June 2018 survey was conducted by Microsoft Market Intelligence to gain a better understanding of the digital assistant usage and adoption. The Market Intelligence survey was conducted online with over 2,000 global responses representing the US, UK, CA, AU and IN. Building off of the findings from the Market Intelligence survey we used online research tool AskSuzy to engage with 5000 US consumers in February 2019 to gain a better understanding of the usage of how adoption of technology has shifted and how adoption of shopping functionality has evolved.

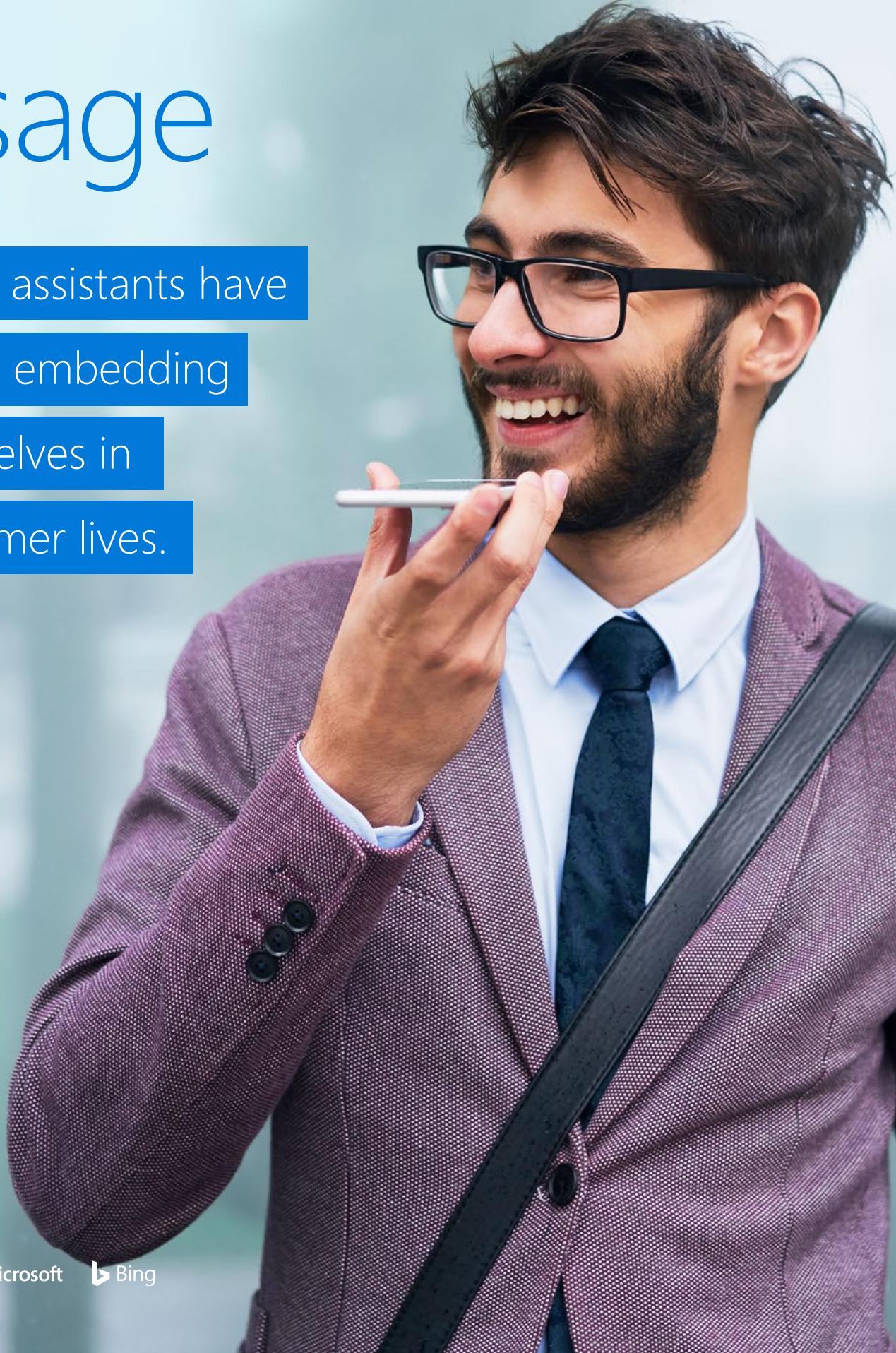
Key Voice Stats

1. **69%** of respondents have used a digital assistant.
2. **75%** of households will have at least one smart speaker by 2020.
3. **41%** of users reported concerns around trust, privacy and passive listening.
4. Consumers will **not** divulge PII (personally identifiable information) without a substantial reward.
5. **Over half** of consumers expect their digital assistants to help make retail purchases within the next 5 years.

01

Usage

Digital assistants have
begun embedding
themselves in
consumer lives.



Voice assistance is becoming the norm

72% of survey respondents reported using a digital assistant.

The majority of survey respondents reported using voice search through a digital assistant (72%), and over half of respondents have used voice skills and actions with their smart voice search through a smart home speaker.

Almost one third of respondents reported using of voice commands through IoT and connected devices such as TVs (36%) as well as connected cars (31%).

How are people engaging with voice?

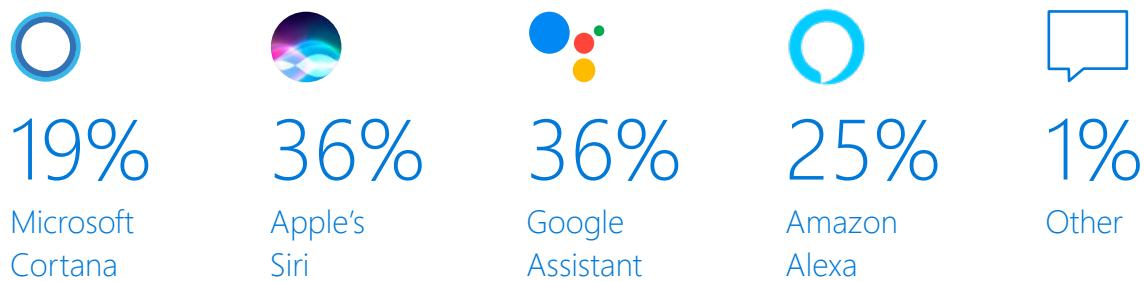
	Voice search through a personal digital assistant (Siri, Alexa, Google Assistant, Cortana)	72%
	Voice search through a smart home speaker	35%
	Voice commands to a TV or smart home device that is not a smart home speaker	36%
	Voice commands to a vehicle	31%
	Voice skills or actions through a smart home speaker, i.e. "Hey Cortana, play "Morning Edition"	52%

The most popular digital assistant may be different than you think.

Although the Amazon Alexa is widely known and advertised in the US, it is perhaps surprisingly not the most popular one. Apple's Siri and the Google Assistant tied for first place with 36% of respondents having used each. Alexa came in 3rd with 25% of respondents reporting usage, closely followed by Cortana with 19%.

The popularity of Siri and Google is likely due to the sheer volume of mobile phones (approximately 250M in US²) when compared with smart speakers (approximately 50M+ in US³). Both Siri and Google are more aligned with mobile phones while Alexa is more closely aligned with smart speakers (though Siri and Google are starting to infiltrate smart speakers, while Alexa can also be used on mobile phones).

Which digital assistants are people using?



It is now officially more common
than not to have used voice search
and voice commands through
a digital assistant



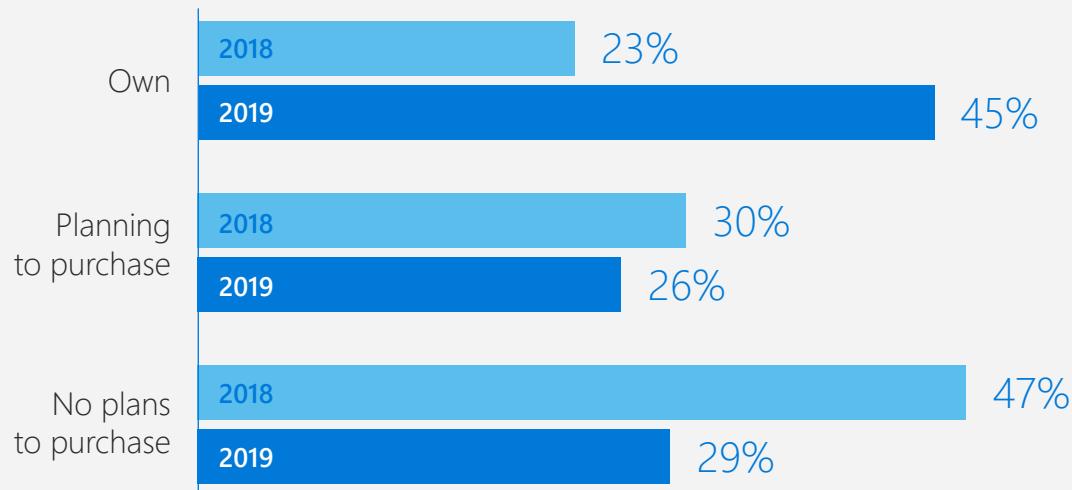
Across 2018, we found smart home speaker ownership to rise **22%**

Of course, even though smartphones currently outnumber smart speakers, this could also change fast as smart speakers head mainstream. Many reports now show smart speakers 'eating' mobile as consumers find themselves putting down their phones to engage more with their smart speaker.

Across 2018 we found the percentage of respondents who own a smart home speaker to increase 22 percentage points.

In 2018, we found that 23% of respondents currently own a smart speaker with another 30% planning to purchase. In our research in January 2019, we found that 45% of respondents now currently own a smart speaker with an additional 26% planning to purchase one soon.

How many people own smart speakers?



Smart speakers are a hot market

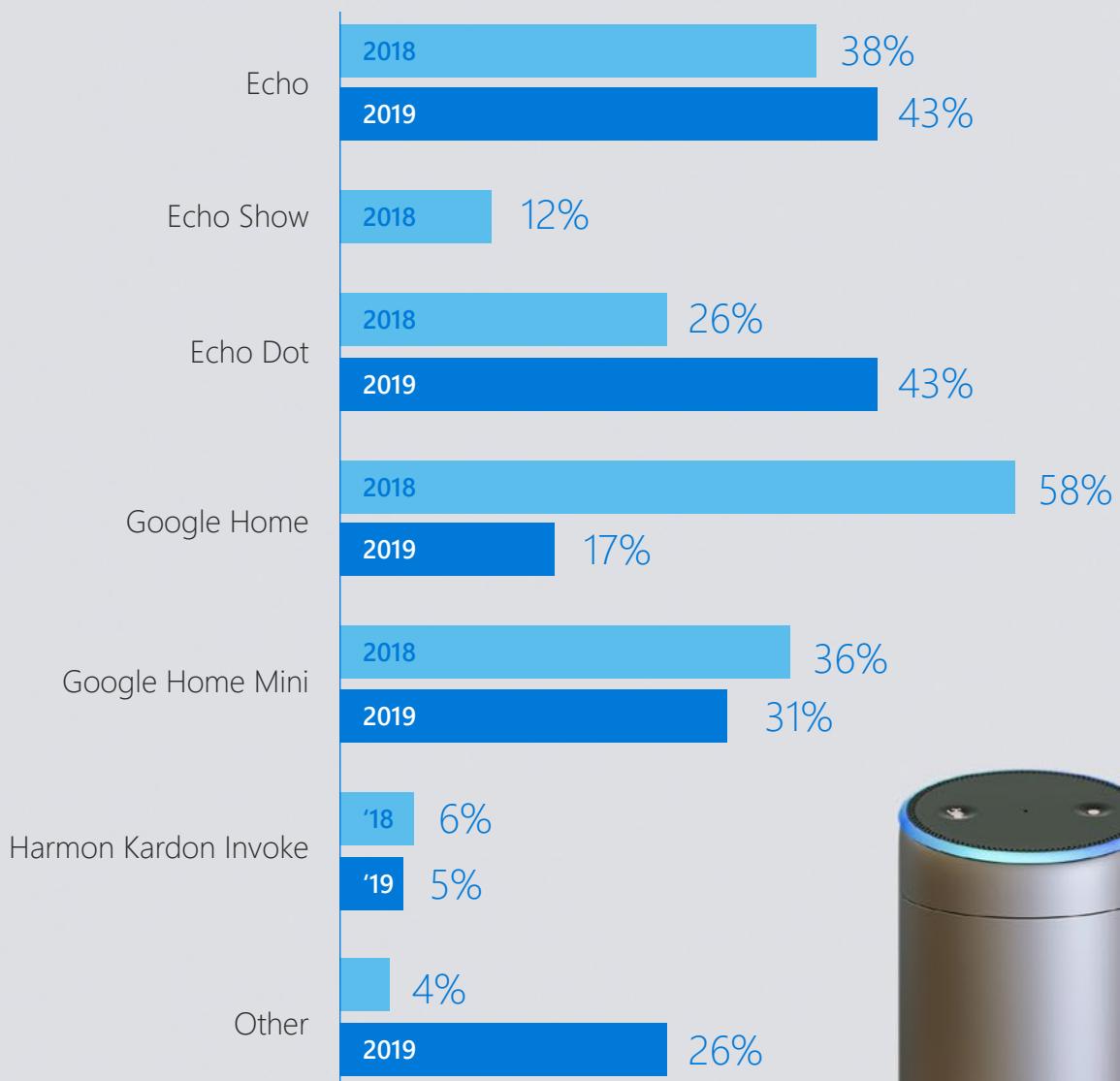
Of the **30%** planning to purchase, **73%** of them want to do so in the next six months, indicating some urgency, and a hot market.

This makes sense as smart speakers come down in price and become less of a luxury item. For instance, the Amazon Echo is now available for \$59. Which smart speaker do respondents want to buy? Most of them (94%) are at least considering the Google Home or Google Home Mini. Another 38% are interested in the Echo.

Another interesting trend in the early 2019 survey results is that 26% of respondents are now considering purchasing a smart home speaker brand such as the JBL Link and Sonos One, or Harmon Kardon Invoke.



Which smart speakers do people want to buy?



75% of households
will have at least one
smart speaker by 2020

- Gartner



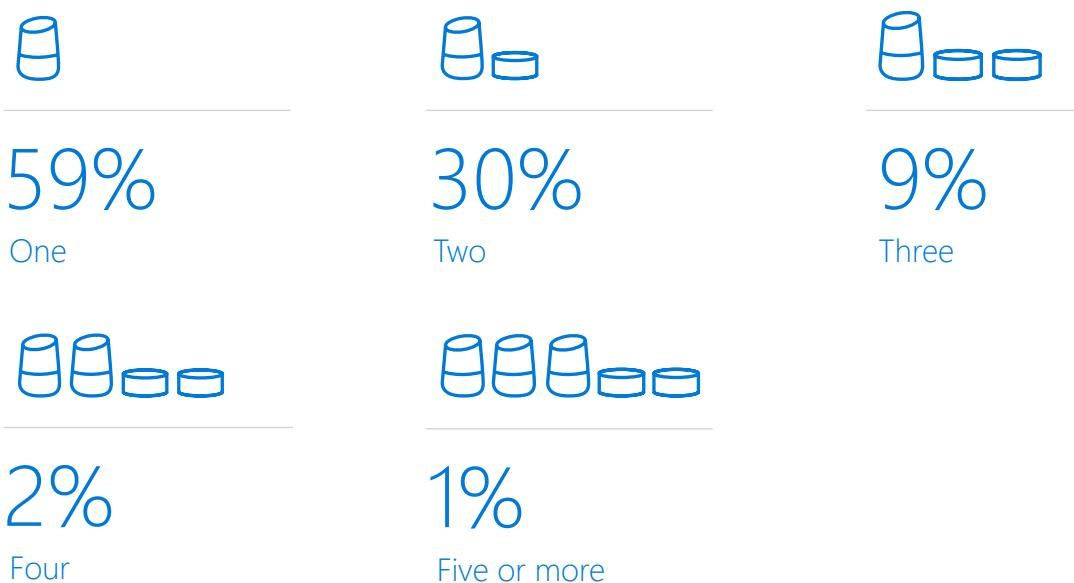
What is the future of smart speakers?

By January 2019, we found that **45%** of our survey respondents owned a smart speaker.

Based on the survey results from early 2018, we expected that half of our surveyors would own a smart speaker by the end of 2018 and Gartner predicts that by 2020, 75% of households will have at least one smart speaker⁴. By January 2019, we saw that 45%

already now own a smart speaker. For many survey respondents, one was not enough. 41% of respondents who own a smart speaker already have multiple speakers (2+).

How many people own multiple smart speakers?



4. Inside Radio, http://www.insideradio.com/free/microsoft-hopes-skype-sets-its-smart-speaker-apart/article_df50d874-1f52-11e7-a34f-eb5f9f355c22.html, 2017

Adoption

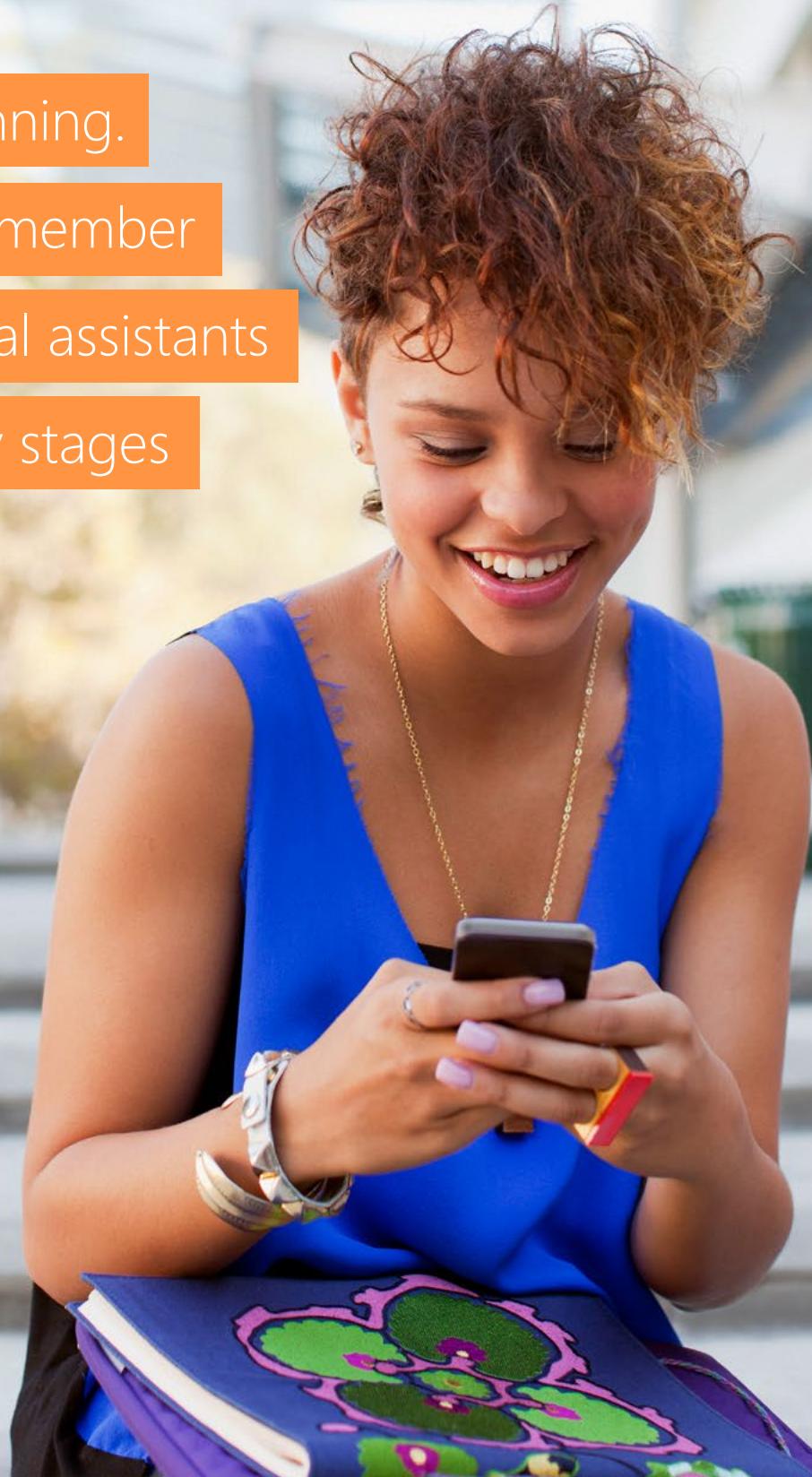
This is just the beginning.

It is important to remember

that voice and digital assistants

are still in very early stages

of adoption.



Innovators and early adopters are engaged and satisfied with their digital assistants

80% of users reported being somewhat or very satisfied.

Are people satisfied with their digital assistant?



How engaged are these users? Over 66% of respondents who have used a digital assistant reported as using them weekly and 19% use them daily.

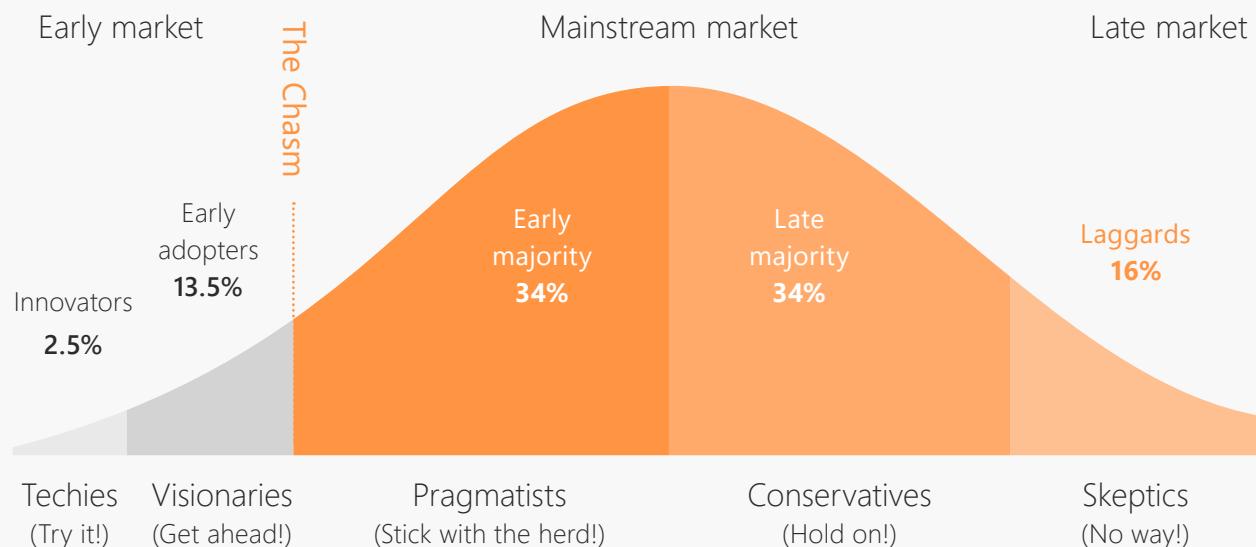
From the chasm to the mainstream

All new technologies embark on an adoption journey, based on the Diffusion of Innovation theory developed by E.M. Rogers⁵, that explains how, why and at what rate new ideas and technology spread through culture. This 19% daily usage is a very telling stat for the adoption of digital assistants and voice technology, showing that technology has crossed the chasm from early adopters into the early majority of users. Author Geoffery Moor coined a metaphorical chasm that exists between 'early adoptors'

and 'early majorities'.⁶ Digital assistants have thus fallen directly within Moore's chasm and suggests that digital assistants are on the cusp of going mainstream. As digital assistants get smarter, learn more, and engage with us differently we expect owners to use their DA on a more regular basis. It is the reason that Amazon sends out a weekly update of new things to ask Alexa. Consumers and tech builders are both in a learning phase, identifying value and responding accordingly.

Crossing the chasm⁷

Technology adoption life cycle market



People like using voice

One of the most important factors right now is actually not how much users are accomplishing with their smart speaker. More accomplishments are going to come as the technology matures. A more important question right now is how much users like using voice as a replacement for keyboards and touch screens. Even at this early stage, the majority of users (57%)

prefer to speak to their digital assistant while 34% type and speak. A combo of speaking and typing still occurs frequently, especially on our phones as we speak something, then have to fix the typos. No doubt, speaking will continue to increase as word error rates improve and users don't have to review/edit mistakes in their voice recordings.

How do people prefer to engage with their digital assistant?



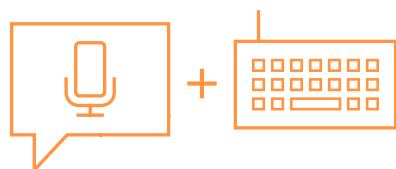
57%

I speak my requests or queries aloud



9%

I type in my requests or queries



34%

I sometimes speak and sometimes type my requests or queries

How many people use smart speakers to manage their home?

Yes **54%**

No **46%**

Even at this early stage, smart speakers and home management are melding into a synonymous unit, as evidenced by Amazon's purchase of Ring, the video-doorbell company. The \$1B acquisition is

driving creative synergies such as in-home package delivery to avoid theft. Over half of our smart speaker respondents reported using their speakers for home management.

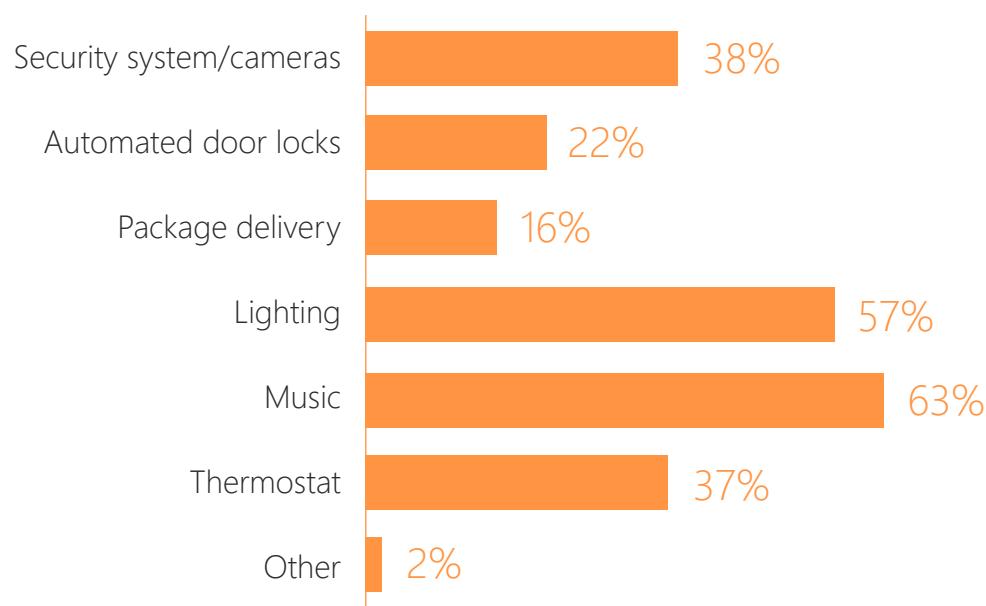


Smart speakers = smart home management

Music (63%) and lighting (57%) were ranked as top home management uses, followed by a wide variety of others from security to thermostats to package delivery. Like dominoes, disruption is occurring across anything home related from ovens,

roombas, smoke detectors, locks, window shades, garage doors, flood sensors, cookware – you name it. Smart home technology is setting a new standard, especially in newly constructed homes.

How are people using their smart speaker for home management?



Current top use: quick facts

Though almost all home management will require smart speakers, the reverse is certainly not true. Home management is just one piece of the smart speaker scene. Smart speakers and their featured digital assistants are ready to touch all corners of our lives. How are respondents using their digital assistant in addition to home management?

As expected, today's users are starting small, doing simple, uncomplicated tasks. On average, respondents selected 5 types of 'productivity' tasks. They're playing music. Looking for directions. Getting the news and weather. The current top use (68% of respondents) was 'Searching for a quick fact'.

How are people using digital assistants today?

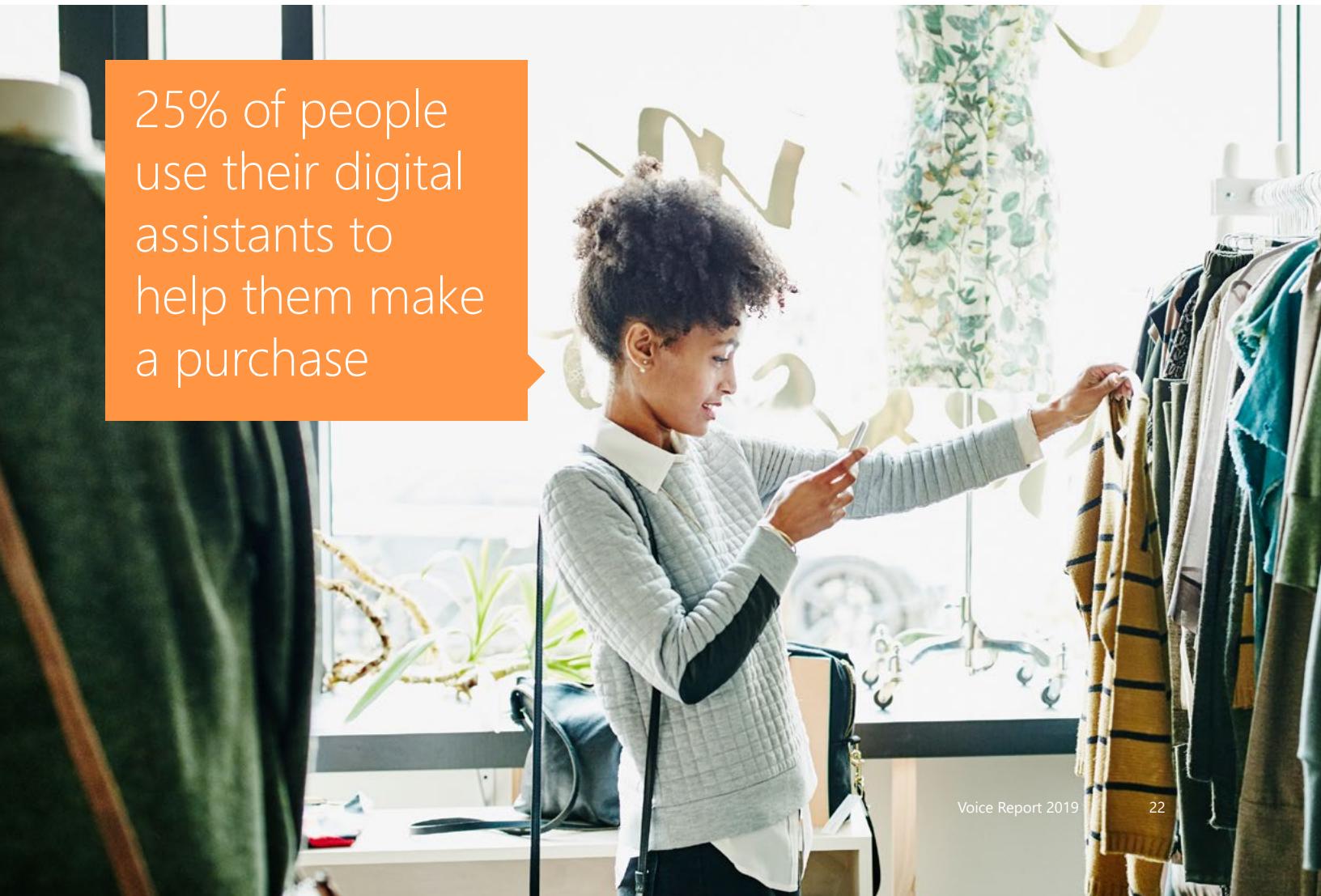


Shopping & banking hint at what's next

We saw some new survey responses that we did not see last year. Canceling an order (14%), accessing banking (11%) and managing credit cards (10%) are all new. These more complex functions that require coordination across multiple systems give

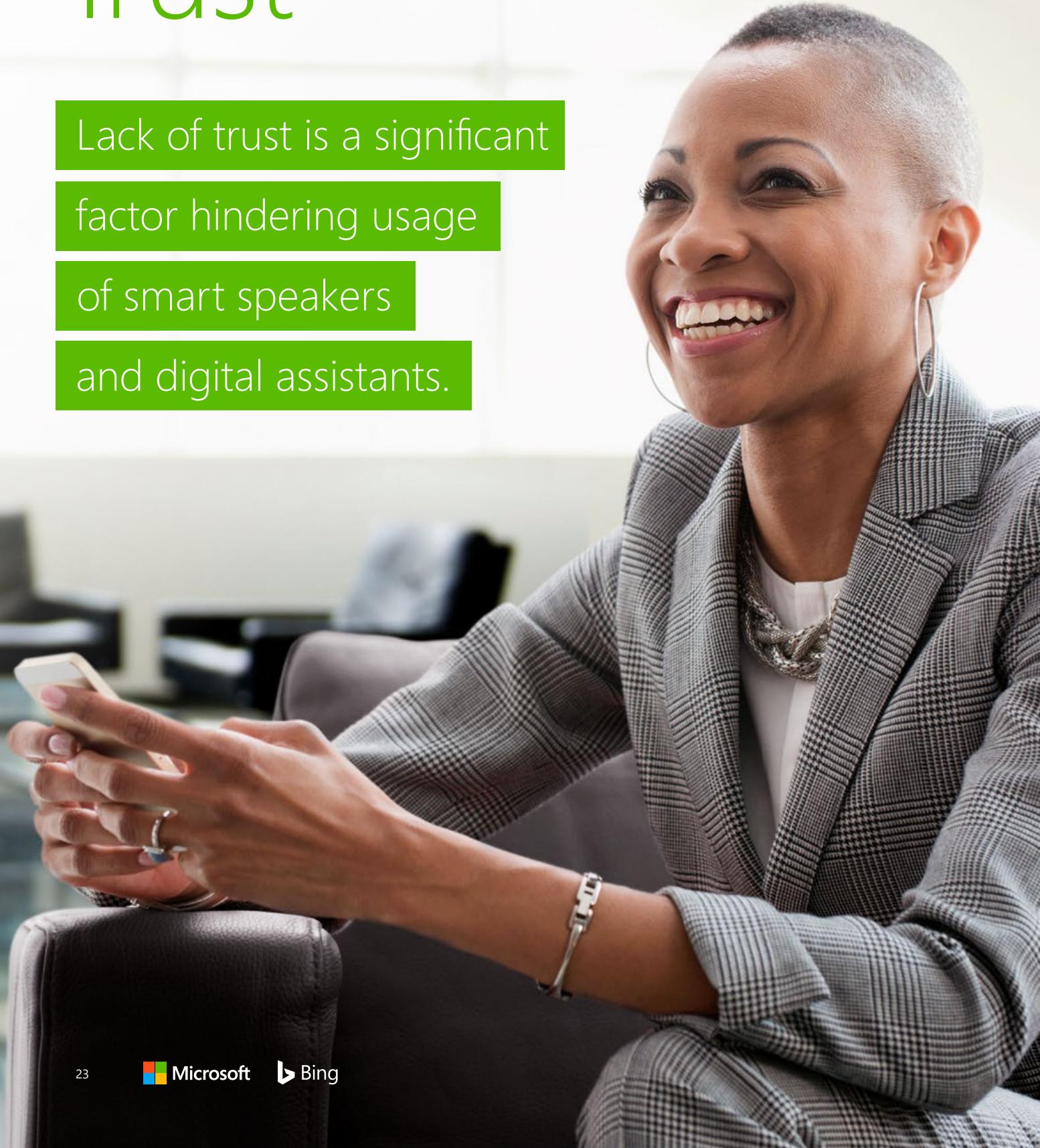
a sense of immense potential and where the technology is heading. But if we are going to fully achieve more complex usage, then there is one significant hurdle still to overcome: trust.

25% of people
use their digital
assistants to
help them make
a purchase



Trust

Lack of trust is a significant factor hindering usage of smart speakers and digital assistants.



Building trust is key

41% of users reported concerns around digital assistants and voice enabled technology.

Headlines can greatly influence consumer behavior at this early stage as users grapple with technology that relies on personal information to succeed. Misunderstood commands, unintended purchases and an Alexa listening controversy have all made it into the news. The onus is now on tech builders to respond, incorporate feedback and start building a foundation of trust.

Data security (52%) and passive listening (41%) were reported as top concerns. 14% of respondents actually took the time to hand-

write that they did not trust the company behind the voice assistant. But these hurdles are not necessarily new. The early internet also posed challenges as consumers, retailers and tech builders came together to create the internet we know today. Similarly, it is up to today's tech builders to create a secure conversational landscape where consumers feel safe. Steps are being made in the right direction as Amazon has released more advanced voice purchase settings, including passcodes and voice recognition.

What concerns do people have about digital assistants?

That my personal information or data is not secure	52%
I don't know how my personal information is being used	24%
I don't want my personal information or data used	36%
That it is actively listening and/or recording me	41%
That the information it gathers is not private	31%
I do not trust the companies behind the voice assistant	14%
Other	2%

How we earn trust

Microsoft is also working hard to earn user trust by focusing on six key principles in everything we do:

01. Control

We will put you in control of your privacy with easy-to-use tools and clear choices.

02. Transparency

We will be transparent about data collection and use so you can make informed decisions.

03. Security

We will protect the data you entrust to us through strong security and encryption.

04. Strong Legal Protections

We will respect your local privacy laws and fight for legal protection of your privacy as a fundamental human right.

05. No Content-Based Targeting

We will not use your email, chat, files or other personal content to target ads to you.

06. Benefits to You

When we do collect data, we will use it to benefit you and to make your experiences better.

How many people have concerns about digital assistants?

Yes 41%

No 59%



Are people willing to share personal information with digital assistants?

How willing would you be to share the following personal information?	PII (Name, Address, Phone)	Non PII (Gender, age, email)	Purchase preference
Personalized pricing/rewards	40%	67%	85%
Personalized product recommendations/alerts	40%	59%	79%
Expedited purchasing/checkout options	38%	67%	80%
Automated reordering of frequent purchases	40%	60%	73%
Free or upgraded shipping options	41%	73%	82%
Other	2%	—	—

Increased value will also help to mitigate trust issues. As consumers reap the value and become more familiar with the technology, they will become more comfortable. But there has to be a decent value exchange. Findings show that consumers are willing to share non-PII (personally identifiable information) data, such as age and gender, for a quick reward such as a discount. They are also willing to share more detailed PII such as name, email, home address, phone number, etc. for more substantial value such as automated purchasing or more concierge based services.

Finally, as digital assistants become more prevalent in our lives, they take on an important role as trusted advisors and purveyors of truth. As trusted sources for everything from 'best car seat for infants' to 'who was the 34th president?' it is critical that they distribute information based on the tenets of journalism. They shouldn't necessarily provide answers, but access to data so that users can make their own informed decisions. They should present multiple perspectives on sensitive issues, leverage user ratings on opinion questions and identify 3rd party sources (Wikipedia, Yelp, NPR) when distributing information.

Functionality

Tech companies are competing

to deliver the most useful conversational

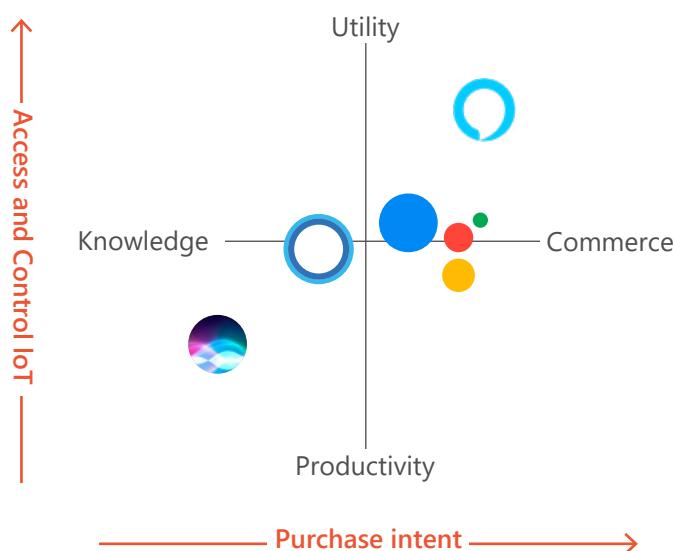
AI tools and services



The conversational landscape grows and changes by the day

Innovation abounds as today's largest tech companies compete to deliver the most useful conversational AI tools and services. Clearly, there is a lot of overlap in functionality across the core players in digital assistants, though differences are arising as each company is optimizing their platform and services in 4 general directions: Knowledge, Productivity (Work), Utility (IoT/Home Management), and Commerce. The chart below helps us visualize how each of the digital assistants fits across the functional spectrum of the

emerging market. The perfect assistant would be equally capable across these four functional areas, landing squarely in the middle of the chart. Today, each of the conversational AI platforms, as well as the digital assistants from the largest tech companies, tend to skew either towards the spectrum of Utility (the access and control of IoT devices) or Productivity (integration into work solutions) as well as across the spectrum of Knowledge (providing answers to questions) or Commerce (the ability to make purchases with your voice.)



Cortana is transforming the way we work

Microsoft's Cortana is growing as a productivity-based digital assistant to amplify our work abilities and become your intelligent assistant across your life. Cortana is integrated across Microsoft's subscription based cloud Office suite, Office 365, Skype, Windows 10 and Xbox. Perhaps less like Amazon, Apple, and Google, Microsoft is positioning Cortana as complimentary to the other players in the voice assistant technology space, instead of competing directly with them. She is also integrated as a voice skill for Amazon Alexa and a voice action for the Google Assistant.

In 2018, Microsoft and Amazon introduced that ability to invoke or access Alexa from a Cortana-powered device and vice versa. This makes Cortana a valuable skill that someone using Alexa can call to access everything from their calendar, their email to their files saved across Office 365.

Building on the trend of collaboration and integration, in March 2019, Microsoft filed patents for Cortana to help make it easier for app developers to integrate the Cortana voice assistant through features like voice recognition, text-to-speech, and app-specific voice controls.

There is an innovative push towards proactive assistance. For instance, if you give Cortana access to your Outlook (permission-based), she will automatically remind you about follow-up emails, meetings, commitments, etc. She can flag and notify you of urgent messages and meetings. She will soon be able to pull action items out of your Skype conversations and be a part of your connected car. These new integrations as a skill will only extend Cortana's ability to transform our productivity and make it easier to achieve work-life harmony wherever life happens.

"Cortana needs to be the skill for anyone who's a Microsoft 365 subscriber"

"You should be able to use it [Cortana] on a Google Assistant, you should be able to use it on Alexa. It's [Cortana] just like you use apps on Android and iOS. That's at least how we want to think about where it'll go."

- Satya Nadella, Microsoft CEO



05

Shopping

Digital assistants offer an exciting new marketplace with conveniences like never before.



vCommerce brings a whole new era for shoppers

54% of users believe that digital assistants will help them make retail purchases within 5 years.

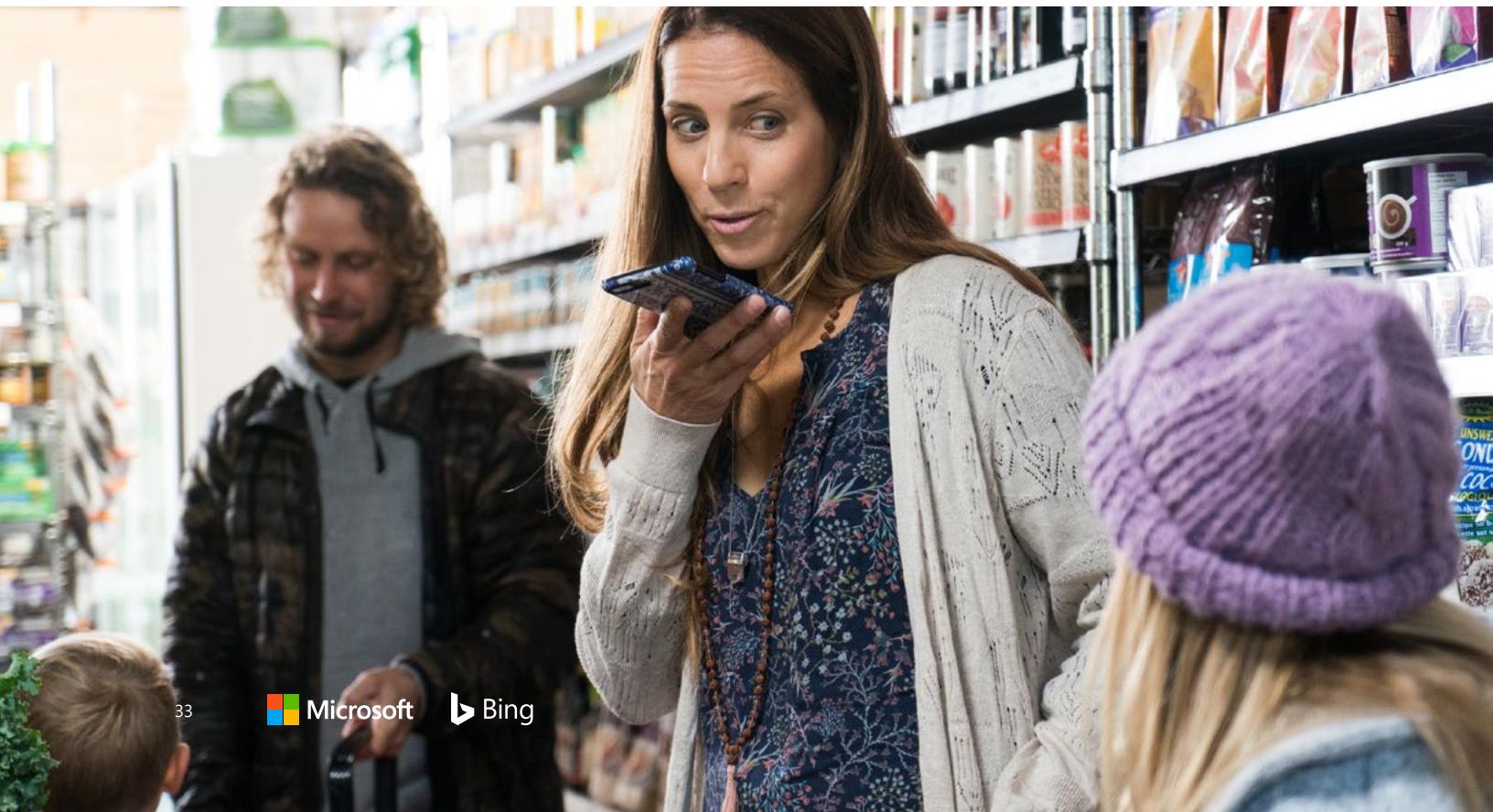
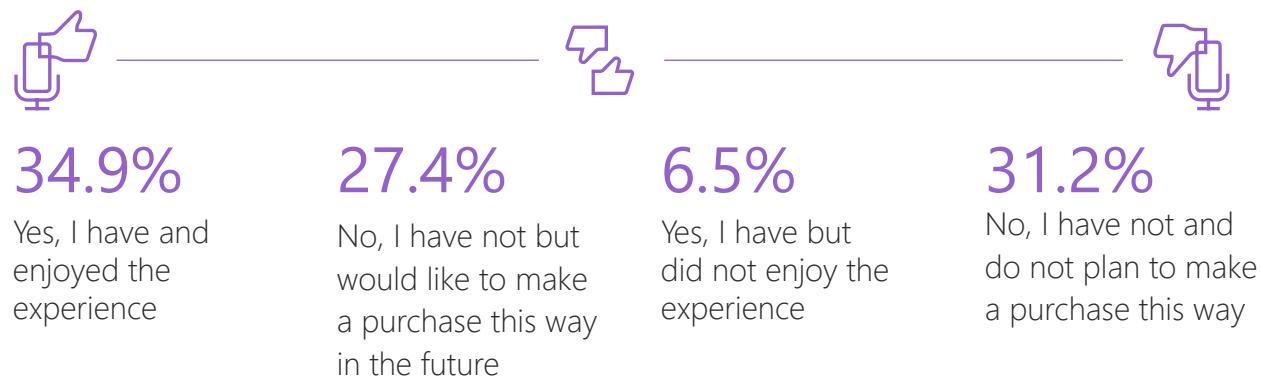
vCommerce represents eCommerce evolved to include voice shopping. It is changing the way consumers shop by minimizing friction including long lines, limited store hours and the timely checkout process on traditional websites. Just like the internet did, it elevates ease and convenience to a new level in which there will be no going back. Tell Alexa to have your favorite coffee drink ready for in-store pickup at Starbucks. Let Cortana book flights for your next business trip. Have Google Assistant order that new book by your favorite author.

While many consumers are already using digital assistants to find products and store hours/location, in early 2018 over half of respondents (54%) believe that digital assistants will also help them make retail purchases within 5 years.

Fast forward to the beginning of 2019, we are beginning to see the rise of voice commerce (vCommerce), where 40% of respondents have tried to make a purchase using their voice through either their digital assistant or smart home speaker. Of the respondents who made a purchase through either their digital assistant or smart home speaker, 74% reported as being able to complete their transaction fairly easily, 21% reported as having difficulties in completing the transaction, and 5% reported that they could not complete their transaction.

Are consumers shopping by voice?

"Have you ever attempted to make a purchase using either a digital assistant or your smart home speaker?"



What people are purchasing using voice technology today

Not all respondents were willing to share what they purchased with voice technology; however, those who did share give us some insights to the variety of goods being purchased today. The purchases ranged from food to clothing to consumer package goods and household supplies.

Over two-thirds of respondents (70%) also believe that the digital assistants will not only help them shop, but understand their preferences and make routine purchases on their behalf within 5 years.



How will digital assistants continue to enhance shopping?

Thinking about how digital assistants can enhance your shopping experience, which of the following do you think a digital assistant can do to assist you today?

	Today	2 Yrs.	5 Yrs.
Find products based on images or photos	42%	73%	100%
Scan bar codes and provide me with additional information including price and purchase information	41%	71%	100%
Provide accurate and personalized recommendations	36%	66%	93%
Understand my purchase preferences and make routine purchases on my behalf	25%	61%	70%
Proactively make purchase recommendations	29%	61%	83%
Provide me with real-time and relevant information based on my personal interests	42%	74%	97%
Find relevant information	65%	91%	100%
Help me make retail purchases	38%	69%	92%
Make a purchase on my behalf	23%	57%	61%
Help me reach and engage with my favorite brands	37%	67%	94%

vCommerce is the evolution of eCommerce. Expect the adoption of vCommerce to be similar to the adoption of eCommerce, slow and steady as consumers test the waters and become more comfortable using voice for purchases. Brands will need to pay attention to how each of the digital assistants and voice technologies pull their recommendations to make sure that they

don't get left behind. It's a new mindset that redefines shopping, repurposes the functions of a physical store, minimizes time and stress for consumers and maximizes the importance of personalization and brand loyalty.

Retailers as friends & advisors

In order for retailers to compete in this new environment, they will need to create intensely loyal relationships with their customers. The most trusted brands will rise to the top, leaving little room for new players. Retailers should create digital assistants that doesn't just sell products, but act as trusted resources. For instance, Tide's Alexa skill is ready to answer any question on how to remove a stain. Blueberries? Mustard? Permanent marker?

Tide has the answer. Purina has a skill that can answer questions on dog breeds, including pictures on the Echo Show. Retailers should not approach voice skills and actions as shiny new things, but try to solve actual problems to create deeper relationships with their customers. They should also think about sounds, music, and voices to create strong branding in screenless interactions.

As the adoption of voice engagement increases, brands will need to adjust their marketing strategies to maintain loyalty and awareness in the vCommerce space.

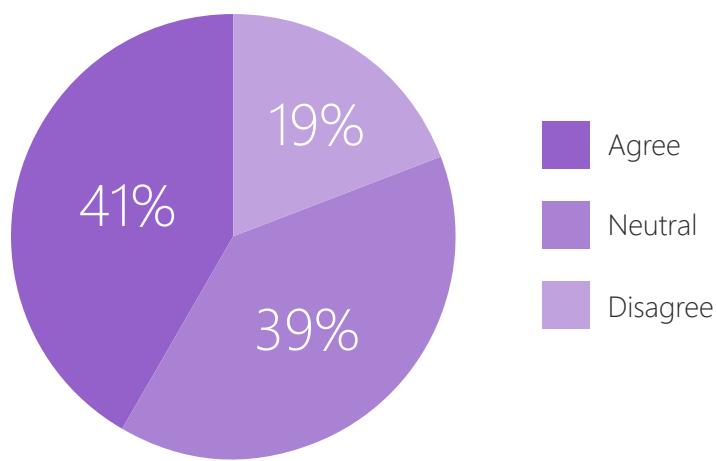
Chatbots are the stepping stones

57% of respondents expect to be able to reach and engage with their favorite brands through digital assistants within the next 5 years.

Microsoft CEO Satya Nadella believes, 'Your brand needs to have its own agents that can talk directly to customers and to converse across multiple personal digital assistants.' Chatbots are the stepping stones that will

help retailers get there. Tools such as the Microsoft Bot Framework are designed to help retailers take the first step, transforming retailer data into fuel for intelligent bot design.

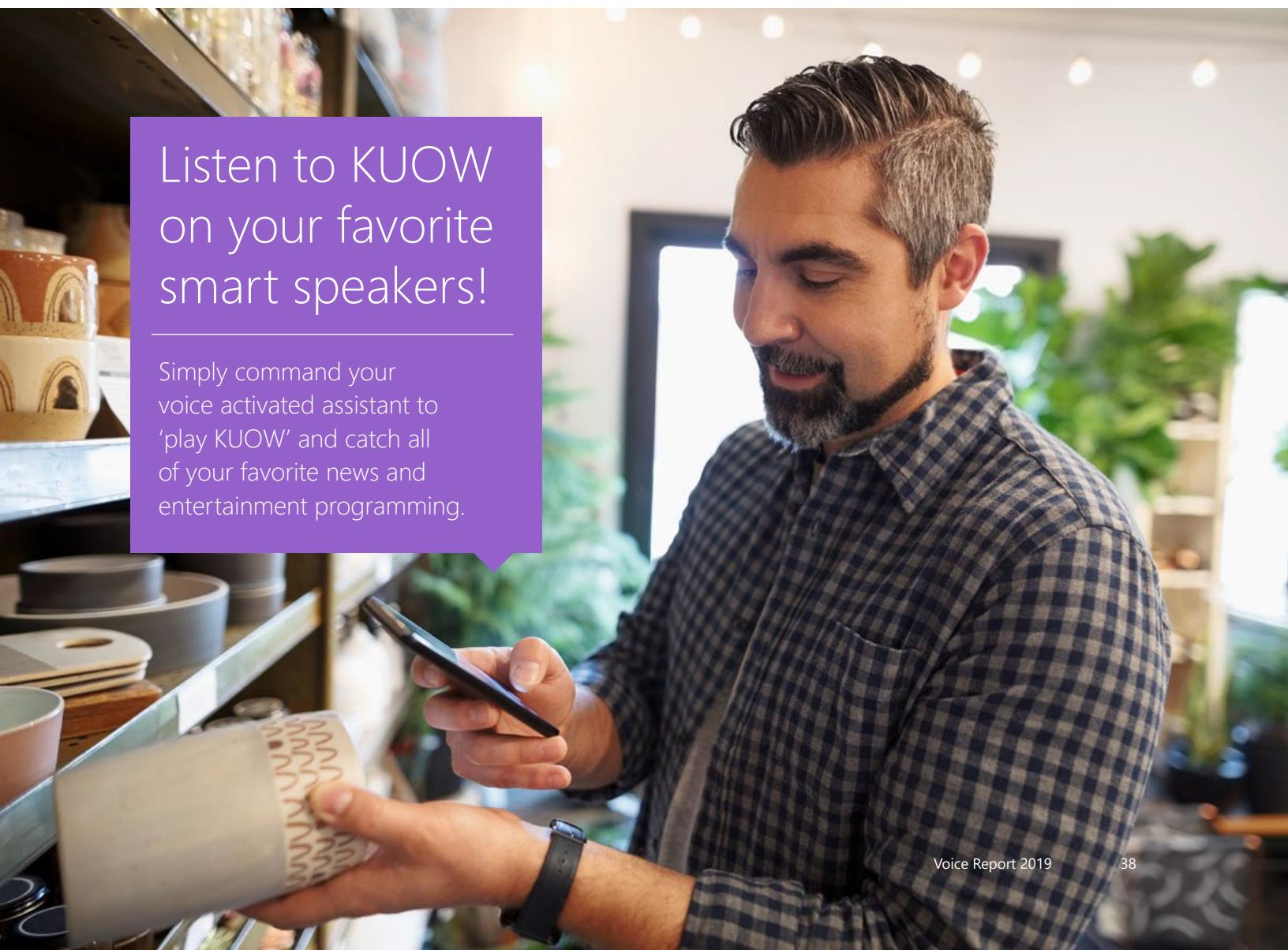
Do consumers expect brands to have their own digital assistants?



Where brands fail: discoverability

Over 80% of respondents are neutral or agree that digital assistants should demonstrate a brand's personality. But simply creating a chatbot is not enough. Retailers must advertise it too.

Discoverability is where most brands fail today. Just like early websites, retailers must educate consumers on where and how to find their apps, chatbots, skills, actions, etc. Below is a sample ad:



Listen to KUOW
on your favorite
smart speakers!

Simply command your voice activated assistant to 'play KUOW' and catch all of your favorite news and entertainment programming.

More voice, more screens

As voice usage rises, does this mean retailers should completely discount screens? Absolutely not! Screens are not going away; they are being repurposed. Humans will always have a desire to see and many interactions require it.

If anything, we will see more innovative screens as they play an integrated role in the seamless flow of interactions between you and your digital assistant. For example:

User: Cortana, how do you make turkey stuffing?"



Cortana: "Betty Crocker has a turkey stuffing recipe with a 5 star rating across 2,000 users."

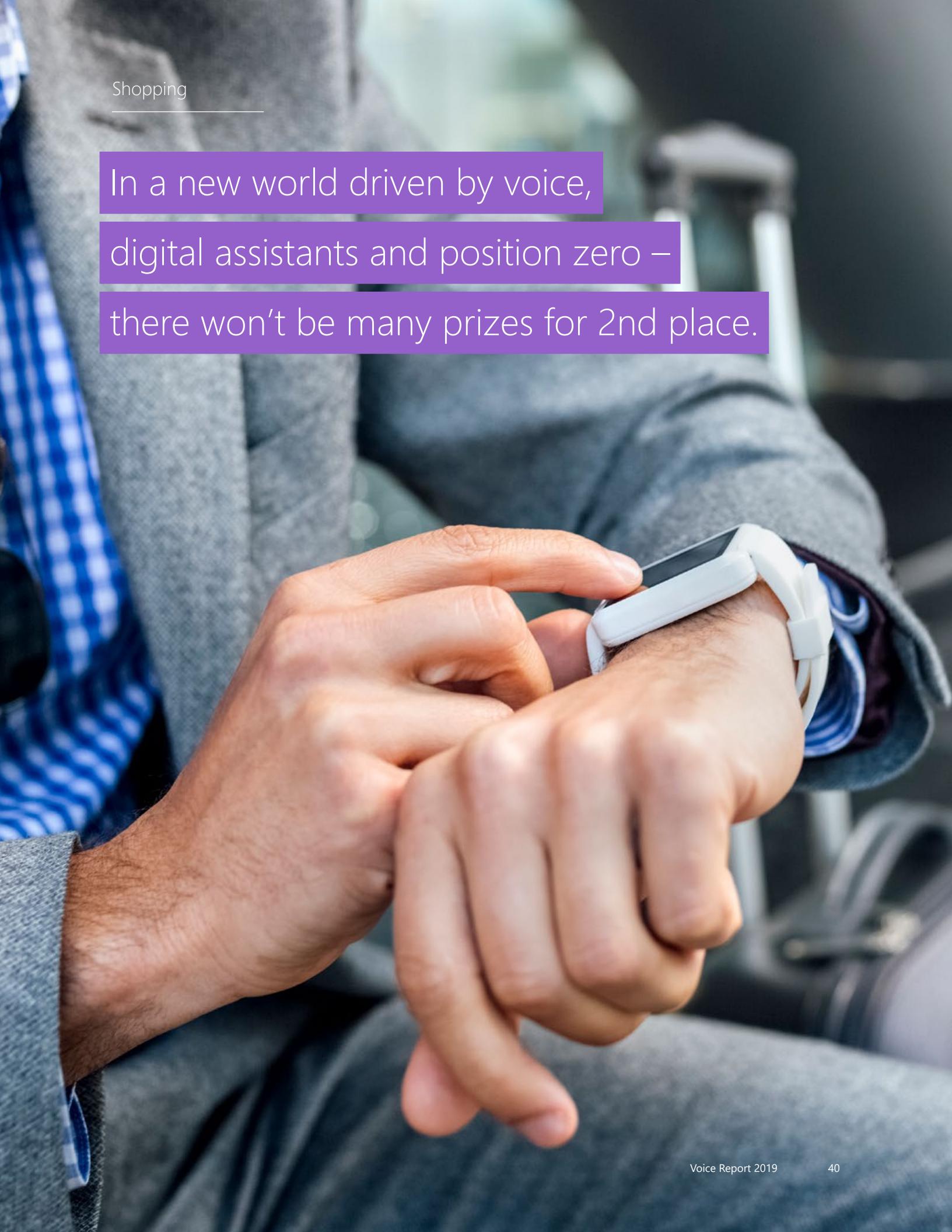
User: "Great, I'll try it."



Cortana: "Would you like it read to you, texted to your phone or displayed on a screen?"

User: "Send it to my fridge screen please."

In a new world driven by voice,
digital assistants and position zero –
there won't be many prizes for 2nd place.



In conclusion, connection is king.

We live in a world where speed, efficiency, and convenience are placed at a premium.

Voice and conversational AI ignite this world view, ready to enhance our lives in ways once only dreamed possible. From home healthcare to banking to farming, AI is fueling change across every industry around the planet.

Retailers in particular, should be paying close attention and be ready to take action. Disruptions don't evolve; they erupt - and it's likely that digital assistants are following closely in the footsteps of web and mobile. And in a world driven by voice, digital assistants and position zero, there won't be many prizes for 2nd place.





Christi Olson

Bing Ads Evangelist, Microsoft

As the Head of Evangelism for Search at Microsoft, Christi is a storyteller and writer creating thoughtful and thought provoking content through publications and at events, workshops, executive briefings, customer meetings, and conferences. She is on the Board of Directors for the Search Engine Marketing Professional Organization (SEMPO) and the University of Idaho School of Business.

For over a decade Christi has led Digital Marketing teams at Microsoft, Expedia, Harry & David, Pointmarc and Point It. She is passionate about search marketing and has spent her career helping businesses solve their marketing challenges and goals through studying and analyzing data to develop actionable insights and strategies. Christi has been recognized by PPC Hero and her peers as one of the top 25 Most Influential PPC Experts in 2018, 2017 and 2016 and 2015. She is a regular keynote speaker, panelist and award judge at industry events across the Globe such as AdWeek, Mumbrella, the American Marketing Association, 4A's, SMX, PubCon and DMexco. When she is not working, Christi and her husband are the wranglers of a handsome 2 year old boy, a pug and a schnauzer.



Kelli Kemery

Researcher, Microsoft Market Intelligence

As a researcher on the Bing Ads Market Intelligence team, Kelli spends her days researching consumer perceptions, adoption of new tech, influences on digital marketing, and how advertising influences consumer behavior and perceptions. She has been in market research for over a decade, working with brands like YouTube, Capital One, Bank of America, and more before joining the Bing Ads Market Intelligence team at Microsoft.

