XDQ1
ALL ABOUT VOICE

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## What a Difference a Year Makes

As experience designers (XD), we approach every challenge as an opportunity, an occasion to connect with customers, make life easier and bring about more moments of pure delight. We're a creative team of strategists, designers, writers and researchers who understand the potential behind every interaction and the impact of a first impression. Here's a chance to get to know us better. Each quarter, this newsletter will spotlight the vision and passion of the people and projects that make up the Experience Design group. Today, we're talking about voice technology and how we're actually speaking with customers. We invite you to join the conversation, ask questions and let us know how we can partner with you in the future. It's a new year packed with possibility. Welcome.

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01: The Voice of Research

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Over the past few years, natural language processing has improved immensely, and as a result, people want to do more with voice control. Comcast has the distinct benefit of integrating voice with TV, a familiar device that's already in most homes. It's a natural fit, one that allows our customers to become more comfortable with voice technology while putting us in the position to lead and differentiate. Since our customers offer the most valuable insights, we turn to research to reveal viable opportunities and primary challenges.
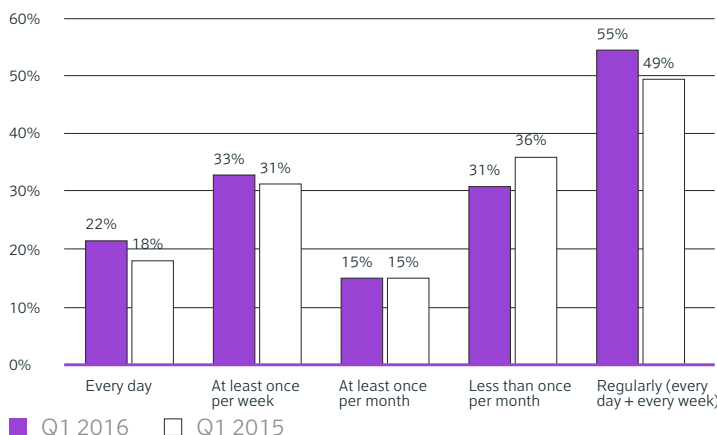
How often do you use voice search / commands?

Intelligent Voice Assistants User Adoption Survey, MindMeld, 2/2016

Chart: How often do you use voice search / commands?

Category	Q1 2016	Q1 2015
Every day	22%	18%
At least once per week	33%	31%
At least once per month	15%	15%
Less than once per month	31%	36%
Regularly (every day + every week)	55%	49%

Our top 3 Opportunities:

Building Deeper Connections
Voice control allows our customers to do more than ever before. Similar to smartphone adoption, when features are used frequently, they provide a greater purpose beyond the original technology. If customers value staying connected, informed and entertained, and voice control makes it easier to do so, then voice will be a welcomed addition to their lives.[1]

Breaking Down Physical Barriers
Customers can interact more freely using their voice than with buttons and menus. Just as the remote control gave way to channel surfing, voice control will also encourage new behaviors and viewing styles that will enhance the user experience. Voice technology is also a means to empower people with visual, mobile and manual dexterity impairments, giving them greater independence and freedom from the challenges of a physical remote.

"The less I need them [caretakers] to do, they could be doing something else. They don't have to stop doing [their duties] just to change the channel."–*Richard, Whole Home Accessibility, 10/2015 J. Ackerman*

Understanding True Intent
While most interfaces predetermine intent with onscreen menus, voice control and the use of natural language allow customers to guide the experience themselves. Even better, by recognizing high-volume voice patterns, we can anticipate needs, improve designs and personalize offerings.

"Can it pull content out of an episode? If I know something I want to see–Seinfeld with the dentist. I'd have to Google or IMDB to find an episode otherwise."–*Louis, XR-18 Prototype Evaluation and Voice Control Discovery Research, 11/2016, K. Holmes*

Our top 3 Challenges:

Starting the Conversation
Voice control is still an emerging technology and new to many of our customers. The good news? It's gaining ground quickly. In a 2014 usability study, the concept of a "wake-up word" wasn't familiar compared to a more recent study in which all participants expected to use a "wake-up word" to get the device to "listen."[2]

### Providing a Comfortable Experience
Early adopters want to be sure their technology isn't disruptive. The stress and frustration of miscommunication were found to be major deterrents to full voice integration. Those who are multilingual and/or have accents are also skeptical.

"If I type, I might have misspellings, but my accent leads to misunderstandings too. That annoys me even more than typing."
–*Boris, XR-18 Prototype Evaluation and Voice Control Discovery Research, November 2016, K. Holmes*

Showing Long-Term Value
Many customers admit that their use of voice control is high at first but drops off over time. Full adoption will take some time simply because customers are more comfortable with the same well-worn paths they've always used and found to be effective.

Early-adopter Drew admits to buying his Amazon Echo on a whim when it first went on sale because he thought it "looked kind of cool." He now only occasionally uses it while cooking to set timers and play music.–*Emotional Bond Exploratory Research, February 2016, E. Kell*
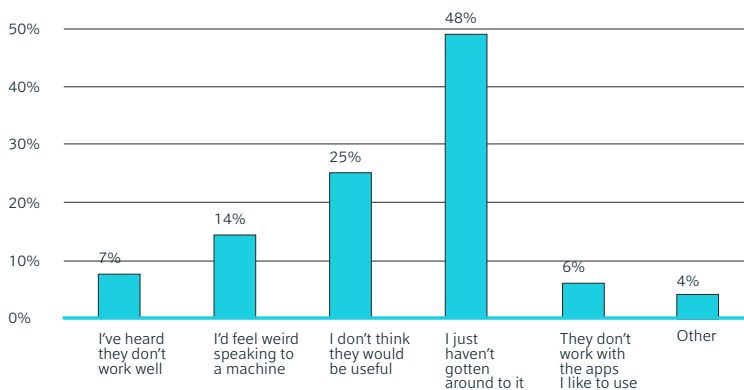
Why haven't you tried Voice Assistants?

Intelligent Voice Assistants User Adoption Survey, MindMeld, 2/2016

Bar chart values:
- I've heard they don't work well: 7%
- I'd feel weird speaking to a machine: 14%
- I don't think they would be useful: 25%
- I just haven't gotten around to it: 48%
- They don't work with the apps I like to use: 6%
- Other: 4%

Find more detailed reports on the new Design & User Research website: https://research.xfinity.com/

1. "Once the user is successfully trained, [voice control] will be used many times a day, and its connection to the user will be used continuous, regardless of the underlying hardware or apps in use."–*The Future of Voice Control Goes Far Beyond Dictation; A Case Study In Digital Platform Power, Forrester Research, By James L. McQuivey with David M. Cooperstein, Alexandra*

2. "Voice Command Competitive Usability Testing, 6/2014. XR-18 Prototype Evaluation and Voice Control Discovery Research, 10/2016

02: The Talk at CES

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Alexa integration, Google Home, voice, voice and more voice. It was all the rage this year at CES. It's the exciting, shiny object that allows companies to check the box and say, us too! And everyone seems to be using it to different ends. At one point, I was led into a booth by an Alexa app that turned out to be a showcase for HD Radio? Wait...What?! Not the payoff I was expecting.

While most people were drawn to the glitzy innovation of self-driving cars and the constantly evolving TV, I was trying uncover how all this cool stuff was going to actually work in my house. It's the simplest thing that drives every customer crazy—connectivity.

They're starting to ask the right questions and deliver solutions that make sense. It's an approach that not only solidifies the customer relationship but also creates a foothold in the digital home.On our end, we announced the next level of hardware featuring a software platform that makes sense of network connections by humanizing the experience in a whole new way: The Advanced Wireless Gateway. With this release, we've given customers a better understanding of their equipment and their network. Customers can set up and connect devices, identify and resolve issues on their own, quickly, without a tech call. The result? It's already surpassed all other 3rd party routers on the market.

The move to humanize this device, and personalize the experience, helps our customers grow more comfortable, gain confidence and be more likely to embrace new technology like voice controls.

They won't just add hardware, but they'll expand and improve connectivity throughout their entire home. By tackling the hardest problems, the most daunting technical and customer experience challenges, we have the opportunity to establish our own footprint in the emerging digital home.

03: Our Digital First Language

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Imagine a future where customers manage most of their XFINITY services by voice. Simply utter a request into an X1 Voice Remote, et voilà, you've purchased a movie, adjusted the lights, and dicovered the best delivery service in town. This is what we work toward every day; new ways to use voice as a means to make homes smarter, safer, and easier to manage.

"OK Google. Find a hotspot near me."

To fully engage and optimize voice technology, our services have to dovetail each other and operate as a collective whole. Conversations with our customers have to be fluid and natural, across products and platforms, from device to device. The goal is to create a seamless integration of services, an effortless connectivity that makes life easier for millions of customers. So how are we doing it? Digital First.

Digital First is a shift in how we think about both the customer and employee experience. It's geared towards providing customers autonomy while eliminating the need for assisted support. This transformational journey is based on a

conversational UI that taps into our distinct brand personality.

Let's look at our buy flow as an example. We've reimagined the end-to-end experience featuring a "Help Me Decide" format that makes it easier to personalize packages. Customers are guided through decisions, offered assistance at key moments and given the ability to skim or dig into more detailed information at any time. The customer drives the experience, engaging directly in a friendly, personal way. Internet with a side of TV? Yes, please!

This conversational style instills trust in our customers by anticipating their needs and delivering on expectations without frustration. It's this approach that's given way to our emerging Virtual Assistant technology and a range of self-help features designed to educate, assist and resolve issues online in a manner that's often more efficient than a direct call.

The result? A new normal. Our customers are Digital First, so we have to be too. Their lives and requests can be unpredictable and we have to design for the unexpected. If we can start the conversation online, in text, the evolution to voice will be an effortless transition.

"Put on Game of Thrones, turn off the lights, and turn up the heat."

With voice technology, the possibilities are endless and as unique as the individuals we're speaking to.

We imagine a time when we can serve dynamic ads to different users based on their voice ID. Why not show movie-buff Mom a new trailer instead of the computer that Junior's been asking about? We're prepping for the potential as well as the actual future of voice, one utterance at a time.

As we extend our Digital First efforts to more customer touch points—including call centers, tech and retail—we're now, more than ever, committed to delivering a best-in-class experience you have to say to believe.

"Hey X1, show me more."

04: The Word on Voice

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As is the ritual every January, companies across the globe descended on CES to show their latest wares, both conceptual in nature and near-term product releases. This year, voice-controlled experiences continued to dominate as the big story.

As the list of voice-enabled devices grows, the segmentation among them can be clearly defined into three types of experiences:

The End-to-End Assistant: An assistant that can handle whatever you throw at it. From asking random questions, ordering a pizza, or playing music, it delivers. Think Amazon Alexa, Cortana before it, Google Home and Viv just after.

The Bespoke Assistant: This assistant speaks to an unmet niche of an audience. This might be an audio device that reads your children bedtime stories or a medical device that can assist with a diagnosis.

The Integrated Device: This experience serves the dumb device, the one with a minimal interface that strives to be "smart". Rather than completely rebuild, this device integrates with an existing assistant. Take the Whirlpool washing machine for instance. Want to know if the wash is done? Just ask Alexa.

At Comcast, we've been focusing on voice technology for some time. From our first voice-enabled iOS app to the latest XR11. The question for us, and for many at CES, is what's next?

For our platform with XR18, it's the hands-free conversational aspect of the experience. Previously, even though you could ask a question and get a response, you'd have to use your remote control to complete the task. Now the aim is to lose the remote altogether. We can't do this by simply adding voice to an existing experience; the entire experience needs to be reimagined from the ground up. Today's X1 was designed for a remote while tomorrow's UI must be designed for voice first. Think about it. Today's experiences are based on sound logic where users are guided through a pre-determined flow to get an expected result. Tomorrow's interfaces will have to deal with the unpredictable. This is a conversation with our

users that we haven't had before, a conversation that's no longer one way in nature. What we learn from customer conversations will inform how we react, what we suggest and ultimately, how well we meet their expectations.

Our approach to every new experience can't be waterfall process, where product makes a requirement, design gives a presentation, and dev builds something. Instead, we need to be nimble and reactive, building tangible and testable devices that improve and delight with each iteration. The only thing we can predict here is unpredictability.

It's clear that voice integration is becoming table stakes of the future. And while no one is nearing the artificial intelligence of KITT from Knight Rider, our continued focus on how voice can best serve our customers will help us get there sooner.

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