Innovation Scout

VOICE FIRST

The EDGE in Voice Innovation
first in a series on reshaping customer interactions

Voice First

In the very near future, companies in virtually every industry will be thinking 'Voice-First' in creating new brands & products. This is not a shift away from omnichannel interaction, rather an onramp to multimodality – a new way of thinking about accelerating growth in a Voice-driven environment. Voice interaction - in whatever form of delivery - will become the powerhouse medium for; marketing, sales, distribution, fulfillment and, service centers – all rolled into one.

"The next big step will be for the very concept of the "device" to fade away.
Over time, the computer itself - whatever the form factor - will be an intelligent assistant helping you through your day.
We will move from mobile first to an AI first world."

- Sundar Pichai, CEO, Google

Happening Now - two announcements that will quietly change the playing field for Voice: 1) Adobe buys Sayspring: a startup that helps developers prototype and build the voice interfaces for their Amazon Alexa and Google Assistant apps. 2) Alexa launches Skill Blueprints, a simple way for users to create personalized skills and responses for Alexa. These blueprints are templates that allow any-one to create a personalized skill, without any coding knowledge. The blueprints will only work on their own Alexa device, and not be available in-store.

Both of these put simple Voice design in the hands of well, just about everybody. They will acceler-ate the usage of voice AND create even more awareness of voice-enabled solutions. In turn, this will create an expectation that users should be able to interact with anything, i.e.; any brand or product via voice, and get answers to just about any questions.

For many years, lawyers at an oak-paneled law firm in Washington, D.C. have had full access to an application that accesses a massive historical database of case law and outcomes. They don't use it. Instead they do things in a more comfortable way. They call their colleagues or chat with them in the hallway to discuss the details of an important case they needed to reference from 4 years ago. It seems the task of typing and clicking can become too burdensome. Their preference? Just 'ask'. To them it's faster.

That's about to change. Why? Because they no longer have to sit at a computer, type phrases and sort through written results. Now they ask an automated attendant to "Please find me all materials regarding the Weiden v. Jones case of 1987 and send the information to email and to my colleague, John Barclay". This seemingly simple shift will forever change the way lawyers and every other worker interacts with information. Whether it's a mechanic working on jet engines who needs to reference a procedure, while up to their elbows in engine parts or a surgeon who is two hours into a heart procedure needing specifics of a complication he's come across, while the patient is in surgery, Voice makes the human interface to computers natural.

> **The race is on! Businesses are undergoing a revolution to find the best ways to represent their offerings using a voice interface. Advertising is wrestling with formats on this new important platform. Digital giants are beating a path to every consumer, looking to win a home automation arms race. Could be you too are considering how to connect in new ways with customers or perhaps how to imagine completely new lines of business because; voice and speech recognition are ready for prime time.**

Why Now?

The rise of artificial intelligence and computer speed are the key drivers to bring this capability to our everyday lives. Computational speed allows us to train Recurrent Neural Networks, a class of Artificial Neural Networks that allow an internal state (memory) to process sequences of inputs such as voice, sound and speech recognition. These breakthroughs enable claims of 95% accuracy by Google.

The dream started long ago. In 1769 Wolfgang von Kempelen introduced a manually operated speech synthesizer. By 1962 IBM's Shoebox could understand 16 English words. It was 1968 when movie goers experienced a future vision where humans spoke to computers. In "2001 A Space Odyssey" HAL and Dave had meaningful exchanges. However, in 1968, the same year as that movie's release, – miles from Hollywood-   Douglas Engelbart introduced a new 'pointing' technology called the mouse. Before conversations with HAL would become a reality, our primary means to interact with computers was set. Point & click with a mouse has been the primary input for more than 50 years. It wasn't until very recently that enough power and smarts were available to bring speech as a workable interface into our daily lives.
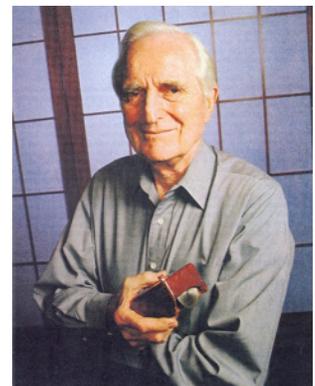
Douglas Engelbart

It wasn't until 2008, when Google launched their voice search app, and then Apple's announcement of Siri in 2011, when the foundation for scale of voice was realized. That put voice in our pockets. Next frontier; our homes. There are now more than 35M voice devices in living rooms, bedrooms, kitchens and dens. Two digital giants are duking it out, both willing to lose short term on hardware to win the long game of having a listening device in every room, automobile, storefront, dorm room, hotel and hospital. You saw the end game in Minority Report; interaction surrounding you, to capture and respond to your every need.

We are watching Mass Adoption of Voice Devices in the Home

What's got everyone excited? Penetration of "voice first" devices in the home (according to ComScore Feb. 2018, 18.7M US homes, 20% of homes with Wi-Fi). But be aware, these devices aren't coming to the home merely so you can order pizza or get the weather with the blinds closed. They are the 'gateway' platform to a future of integrated components for the home. They are the glue that make Internet of Things, connected home, indeed; Internet of Everything: work. While Google Home or Amazon Echo can already be used to control a vast array of Internet-enabled devices, there are many more due to join the list by 2020. These will include smart refrigerators, mirrors, and smoke alarms, along with an increased list of third-party integrations. Features such as playing music, controlling lights, television, heating and air controls are just the beginning.

> *"We think of it as ambient computing, which is computer access that's less dedicated personally to you but more ubiquitous."*
>
> Dave Limp, Head of Amazon Device

Oh, The Things They Will Learn!

The race is on. Low price voice hardware will drive quick adoption. Google and Amazon aren't looking to make money on this equipment that can listen and speak. They want you to put a speaker in every room. Data shows that Amazon Echo market share is currently 69% in the U.S. with Google Home accounting for 31%.

Installed digital listening devices are growing daily. Moreover the 'skills' that these devices have will evolve, because building new capabilities is an 'open' source process. For Amazon's Alexa you build 'skills', for Google's Home, these are called "conversation actions". There are over 30,000 skills and Google reports there are over 1 million actions with Google assistant.

Wondering what they do with all of the captured listening data? The device doesn't actually begin to process until it hears the 'wake word' that you assign. Amazon and Google are not keeping track of everything that you say. However, once the wake word is spoken, both devices start recording and send the snippets of what is said to the cloud. The user has the ability to see what snippets have been recorded and if desired, delete them from the cloud at any time.

A "CAMBRIAN" explosion of new voice enabled devices

New players are rapidly entering the game: **Voice First** hardware including: Sony's LF-S50G powered by Google Assistant (September 2017), and Apple's release of Homepod. Samsung recently released "Bixby" the smart assistant for Android phones that will be resident across all Samsung appliances from TV to refrigerator. Google as assistant will also be coming to a number of new independent speakers, including the Zolo Mojo by Anker, TicHome Mini by Mobvoi and the GA10 by Panasonic.

Marketers Want In, But There are Roadblocks

2018 will be the year that brand advertisers begin to take voice assistants seriously. First a marketer will want to understand what other brands are doing. So far this is not easy on any of the platforms. Alexa's skills don't offer much ability to explore the competition. For instance; to access a bank's skill, you have to have an account there. No vendor really knows what else is going on in voice from any of their competitors or peers. There is no easy way to discover what the brand leaders are doing.


Where people keep their voice-activated speakers

Common room (e.g., family room, living room, etc.) — 52%

Bedroom — 25%

Kitchen — 22%
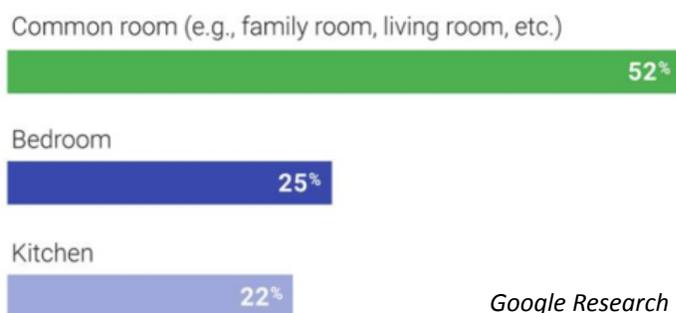
Google Research

Then there is the idea of an actual advertisement. Imagine how annoying a broadcast ad would be in the context of a digital helper in your home. Very different from radio or TV, **voice assistants are a "No interruptions" platform**- making us rethink the notion of an advertisement in a voice run world.

That's why, Amazon launched a restrictive ad policy that bans third-party ads from skills, unless those skills stream content. Instead, Amazon is encouraging innovations by subsidizing the developers themselves. (In a statement to Backchannel, Amazon explained that the approach "is focused on delivering a delightful experience for customers and exploring ways for developers to monetize skills while maintaining the best possible experience for our customers.") Although there is no official word from Amazon on Alexa advertising, Brands should be thinking about this as the long game. The goal right now is to learn as much as possible, build engagement with customers, and start to make connections. A fully formed solution will come later.

Brands should not think in terms of losing control of the consumer conversation. Rather, think of it as an extraordinary new way of interacting with the customer, reshaping their journey to get a job done. This is the time to be thinking about conversational content towards a purpose (learning more, queuing for a purchase, actual purchase) – all towards enhancing the customer experience. First mover Brands will increase market share, but more importantly; set the standards for customer expectation. Always a powerful position.
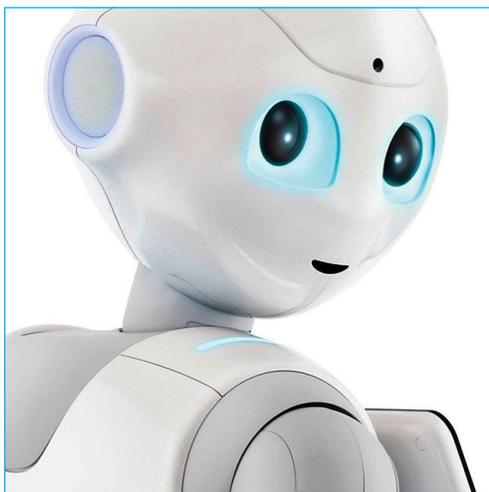
There is also the thought that Voice, will remove barriers of education level, literacy and even language – considering that the next billion people to go online are in this category, that's quite a bump in prospective customers

There is no question that people assign human characteristics and even have feelings toward inanimate objects – remember the soccer ball; 'Wilson' in Castaway? What better way to give a Brand personality, than give it Voice? This of course gets you into the discussion of developing a Voice that reflects the characteristics of the brand and the buyer – think M&M Characters, Tony the Tiger, Mickey Mouse, or imagine a caring voice that may be associated with the robot on the left.

Industrial Voice Apps were the First Mover

The industrial Warehouse use of Voice has been developed for years. Though cost reduction was the early driver, many manufacturers have begun implementations to improve accuracy of inventory and to resolve space issues in their facilities. Integrating voice and Warehouse Management Systems allows you to achieve better accountability and visibility of workers on the floor. Improving efficiency takes the decision out of the human's hands.

In some warehouse situations, 60% of worker's time is spent traveling throughout the warehouse floor searching for and picking products for shipment. Voice technology reduces the time that the worker uses to pick products by giving them the most efficient path through voice-directed workflows. Voice technology immediately reduces the amount of travel time needed and improves overall workflow processes.

> **Translation technology is key to making voice a reality in many settings. 25% of warehouse workers in distribution centers around the world do not speak the language of the country they work in.**

Voice technology is extremely effective when it comes to industrial safety. It inherently removes the need to use your eyes to look at a handheld scanner. Removing this need ensures workers' heads are up and their eyes and hands are free — workers' eyes are focused on the task at hand and not distracted by looking at a screen or handling the scanner. Organizations are also using voice tech integrated with apparel called "voicewear". Voicewear removes the need for a headset and eliminates another distraction for workers. Think of this as Hands-free, eyes-free and headset-free. The optimum solution in worker efficiency and worker safety.

More Curing, Less Typing and Paperwork

From taking electronic medical records in-office, with a patient - to use by surgeons in the operating room; voice technology is changing healthcare forever. Currently Doctors spend 2/3 of their time on clicking and paperwork.

Hospitals are very interested in the integration of voice for documentation and transcription but are currently hindered by the lack of HIPAA compliance for voice. However, some forward thinking startups like Orbita are ready with solutions for healthcare that address these issues.

Voice applications are being used in a number of hospitals. Hospitals including Massachusetts General Hospital and Boston Children's Hospital are experimenting with ways to use Alexa to help surgeons in the operating room comply with a safety checklist before a procedure, Raul Uppot, a radiologist told CNBC that in one case a patient was listening in to the safety checklist via a voice application right before going under. The patient had an allergy to latex, a fact that was missing from the medical record, but was addressed thanks to the voice activated checklist. Uppot is now sold on the potential of voice technology, not just to help doctors but also to involve patients in their own care in new ways.

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Putting Education Front and Center

Today's learners are overloaded with information that is not contextualized to their goals and needs; nor easily accessible at just the time they need it and where they need it. In addition, students have an expectation of getting answers immediately, and are faced with either scouring the web for answers or in some cases spending more than forty minutes on the phone with the call center, just trying to resolve an outstanding issue. These are all distractions to the student and keep them from focusing on what is key to their success: academics.

By leveraging the power of voice, from the comfort of their dorm room, or just about anywhere. Imagine a future where students can ask a voice assistant questions like 'when is my next class', or 'why do I have a hold', or 'what events are happening'. Faculty can have the ability to post information for students around classes and assignments, and staff can leverage voice-enabled solutions for everything from pre-enrollment thru alumni, to engage with the student before they attend the university and also have a one to one connection with them long after they have finished their studies. In these scenarios, the voice assistant has transcended its traditional hardware form and has evolved to be a true friend of the student.

As for the university, having voice assistants help students with basic queries frees up others to handle more complex requests, and also creates a more positive experience for the student, which will result in reduced cost, higher yield and higher graduation rates.

The scenario described above is possible today. A simple example: some universities are experimenting with voice and creating skills to let a student look up the status of their meal plans. And other companies, like n-Powered, have created an end-to-end VoiceFirst platform that connects disparate systems to create a 360 degree view of the student. This helps universities address the pain points along the student journey. In this way, as new challenges come up, the student can talk to a voice assistant, or their new university voice-enabled friend, and get the answers they need, in real time.

Hospitality and Retail

Voice assistants are also helping in hospitality. You can now walk into your hotel room and ask a device what specials are available, or call room service, or report a problem with the room. The same voice assistant can also play a playlist of recommended songs and tell you about events happening around the area.

In Retail stores, shoppers can ask the virtual assistant information about the store, or specific items in the store, or special offers; the possible interactions are endless. And since the technology is multi-modal, it doesn't have to be just voice. The shopper can speak and be presented with different visuals, based on their request.
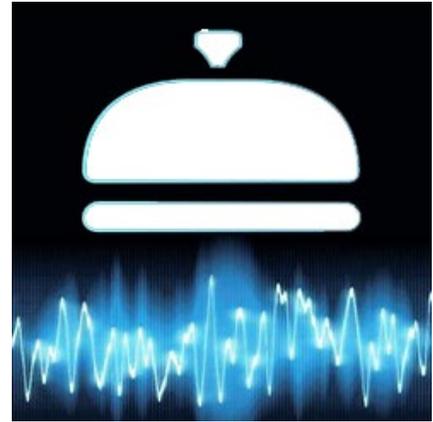
The "virtual concierge" of the future presents an almost in-finite buffet of no-cost service.

How should your company think about Voice Technology

[Designing for voice applications is quite different] than designing for graphical interfaces. Think about it, humans are used to using voice to communicate with other humans – not with technology. This simple understanding sets up the expectations of users.

When thinking about designing a voice application, think about it as if you're talking with another human.

> **"When I work with clients, I instruct companies to have one person play the role of the human and the other to play the role of the voice assistant. This immediately separates the technology and allows you to focus more on the conversation and the information being delivered." – Joel Evans Co-Founder and CEO, n-Powered and The Innovation Scout Advisor**

Most people default to the IVR days and think that you have to step a user through something: press 1 for this; press 2 for that. The power of VoiceFirst technology is that it can infer based on your spoken dialog.

Most voice assistants can respond in two different ways. The first way is similar to a mobile app experience. You "launch" the voice experience. In this example, the skill can walk the user through what the voice app is capable of doing. For example, "Hello John. I'm here to help you make a reservation. You can say make a dinner reservation or ask me for some dinner suggestions. What would you like to do?" Or you can interact with the voice assistant by simply doing what Evans refers to as a one-shot utterance. For example, "Ask Reserve to make me a dinner reservation", where Reserve is the name of the skill or conversation action. These differences need to be accounted for when designing a voice app. As for designing, you need to think through the user flow and make sure to avoid any "unhappy paths", which are dead ends for the user. The goal is to serve the user's needs efficiently, and then let them move on, feeling good about the experience. Remember, it's not IVR. If you have come up with the right design, you'll have multiple flows for the user to go through.

What should you be doing now (HINT: Testing)

It's time to think Voice First when it comes to your customers. Home Smart Speakers are showing the fastest technology adoption in history. As consumers quickly incorporate this new capability in their everyday lives, it reshapes customer journeys and with it, the product ecosystems. The on-coming train is now VOICE, enabling products & services to work as an integrated and soon to be essential, part of your life.

This emerging technology feels a bit different however. It feels like we are on the verge of giving life to non-life. Or at least to interacting (and thus developing feelings) for something that was, well; just a thing. Voice carries much more emotional depth. Harnessing this power of feeling, may well be the most important connection that marketing & branding has ever had.

Like every other power, it can be used for both good and not-good. Will we have a world, where things help us by meeting our needs - with just a word or even just a look as machine-learning reaches its' potential. Or will we have a Minority Report type of scenario, where everything you walk past, tries to engage and 'sell-you'. If the latter, will we have Alexa and Siri on the hot seat in Congress, pulling a Zuckerberg - testifying that they are sorry and won't do it again?

> **Stay tuned as our: EDGE for Voice continues with topics such as: Voice in Healthcare, Voice in Consumer Products, Voice in Marketing, etc., and; don't forget the EDGE Voice webinar on May 9th, 2018.**

About the Authors

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