# VOICE PAYMENTS

THE NEXT MAJOR INTERFACE FOR PAYMENTS

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BI INTELLIGENCE

## **KEY POINTS**

- Voice payments are beginning to catch on. Eight percent of respondents to a recent BI Intelligence survey said they used voice commands to buy something, send money to a friend, or pay a bill.
- It's a matter of time until mass adoption. Use of voice payments will nearly quadruple over the next five years to reach 31% of US adults 78 million consumers by 2022, BI Intelligence estimates. Three factors will fuel this growth: an explosion of voice-enabled devices, gains in artificial intelligence (AI), and a strong consumer value proposition for voice payments.
- Providers are moving into voice payments early to build a lead. Amazon,
   Apple, Google, and PayPal are part of the growing list of companies making these next-generation payments possible.
- Banks are betting on AI, too. Bank of America has announced a voice-based assistant that will deliver the personalization of an in-person interaction to millions of mobile banking customers. Meanwhile, Capital One has an integration with Amazon's Alexa, an SMS-based chatbot, and an upcoming integration with Microsoft's Cortana.
- Next-generation voice assistants will blow the current generation away.
   Over the coming years, voice payments will evolve from clunky and poorly scripted sessions to interactions as natural as one might have with a personal shopper or bank employee.
- Getting to the next generation will not be easy, but the payoff will be huge.
   With judicious investments in AI, grounded in realistic expectations of adoption, providers that accumulate first-mover advantages today will position themselves for success as adoption starts to pick up.

Download the charts and associated data in Excel »

## INTRODUCTION

A revolution in payments and banking is beginning as virtual assistants like Siri and Alexa gain the abilities of cashiers, personal shoppers, and bank tellers.

Already, Siri can help users make peer-to-peer (P2P) transfers with Venmo, Alexa can pay off Capital One credit card bills, and Google Assistant can let users shop with their voice from nearby stores, while Samsung's and Microsoft's virtual assistants are expected to gain payments abilities in time. As virtual assistants get more powerful, the seeds for mass adoption of voice in payments and banking are starting to grow.

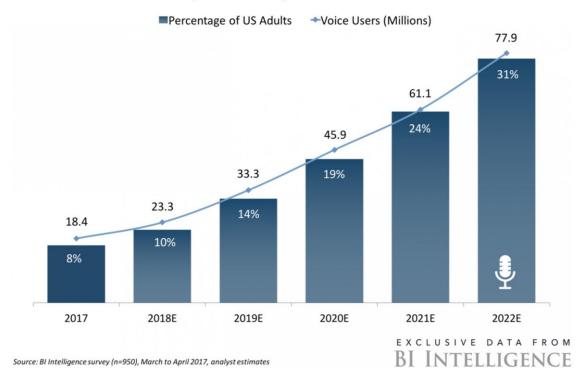
Every day, voice assistants get smarter through machine learning, devices compatible with voice assistants crop up in more places, and more banks and payments providers build support for voice capabilities. These advancements are helping to make voice a mainstream way to pay — one potentially nearly as common as touch, typing, or clicking. Voice assistant interfaces promise to replicate the selling and customer servicing abilities of trained employees — facilitating growing payments volume across billions of addressable devices.

While some of the largest providers have already bought in to the coming voice revolution, unanswered questions are keeping many others on the sidelines. Will users actually want to use their voice to pay or bank? Are voice upgrades worth the investment right now? Is a wait-and-see approach the better move in the near term? In today's digital-driven financial services environment, providers must prioritize digital investments for maximum impact, and voice payments' value is not apparent to all.

BI Intelligence surveyed consumers on voice payments and banking usage, their attitudes toward the technology, and their likelihood to adopt it in the future. We also communicated with leaders spearheading digital assistant initiatives at Bank of America and Capital One to hear their strategies. As the data and insights came in, it became apparent that voice payments are more than a frivolous investment. Voice payments have something fad technologies lack: value to users.

Voice interfaces make transactions faster, easier, and possible when users can't turn to their hands. Additionally, our data confirms the voice payments revolution has already begun — users are trying the feature, today, in higher-than-expected numbers. By tapping into a strong value proposition and riding a wave of voice-enabled devices, we expect the payment method to catch on rapidly in coming years — leaving late entrants scrambling to catch up to accumulated advantages of first-moving providers. This report will show how and why Amazon, Google, PayPal, Bank of America, Capital One, and more are positioning for a new frontier in voice payments and banking.

#### **FORECAST: US Voice Payments Adoption**



# WHY VOICE PAYMENTS ARE POISED TO TAKE OFF

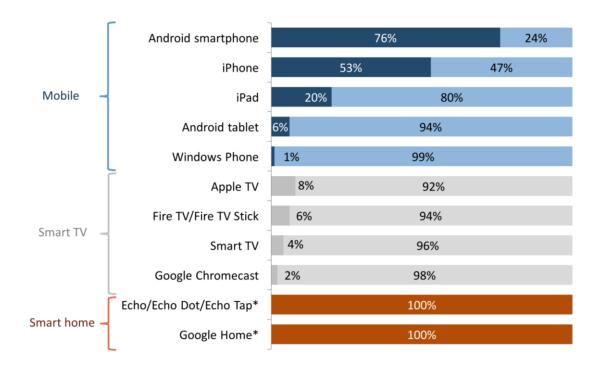
Despite being new and rare, voice payments are already starting to gain traction with users. Today, BI Intelligence estimates 8% of US adults have used some form of voice payments, which include voice commerce (such as shopping using speech on Amazon), voice-initiated P2P payments, and voice-controlled bill payments. Among those payment types, voice commerce is by far the most popular, followed by bill payment and P2P.

Looking ahead, favorable conditions and growth factors will spur voice payments adoption. Over the next five years, voice payments adoption will grow at a 31% compound annual growth rate (CAGR), reaching 31% by 2022. That would push the total number of users to 78 million from 18 million today. Voice commerce is expected to be the most popular voice payment type behind the ballooning adoption, followed at a distant second by P2P, and finally bill payment.

#### Three factors will account for the strong growth ahead:

- All kinds of devices are getting voice assistants. The cost of microphones, speakers, processors, and other hardware components that power voiceenabled virtual assistants are low today, and will continue to fall, letting voice hardware expand across devices.
- Al is becoming smarter and more connected. Advancements in Al are
  evolving voice assistants into something more than scripted robots they're
  becoming conversationally adept interfaces that will power payments volume
  growth.
- Voice assistants have a strong value proposition. All the hardware and
  integrations in the world will fail to get consumers to adopt voice payments if
  they see no clear payoff. Fortunately, our survey data shows users see a
  multifaceted value proposition in turning to virtual assistants over other
  interfaces.

#### **US Device Owners' Use Of Voice**



<sup>\*</sup>Adjusted based on analyst insight
Source: BI Intelligence survey (n=1,157), March to April 2017, analyst estimates



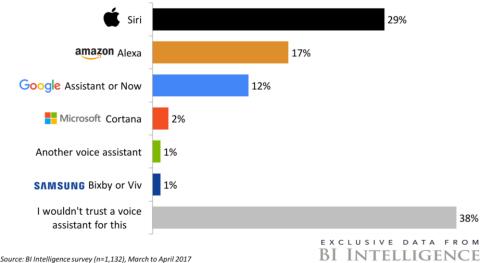
#### **Tech Adoption Is Setting The Stage**

The first factor fueling voice payments growth is increasingly common voice-capable hardware. The components needed to support voice interfacing — including microphones, speakers, and processors — are found in almost all smartphones. As the devices rise in popularity worldwide, the price of voice hardware is dropping. And thanks to low hardware costs, voice interfaces are making their way into a wide range of devices.

Voice payments will take off thanks to three device categories in particular: mobile, smart home, and smart televisions. High and growing use of voice to interface with these electronics will set the stage for voice payments growth.

- Mobile devices: Seventy-seven percent of US consumers now own a smartphone, and 51% own a tablet as of 2017, according to <a href="Pew Research">Pew Research</a>. With Google, Apple, Samsung, and Microsoft each supporting voice-based virtual assistants on mobile devices, there are hundreds of millions of US consumers with the necessary devices for voice payments. In 2017, 75% of iPhone owners had used Siri, while 63% of Android smartphone owners used a virtual assistant on their device.
- Smart home devices: Increasingly popular smart speaker devices like the flagship Amazon Echo or Google Home rely upon voice as their sole interface. That means there are no competing interfaces voice must contend with on these devices a boon to overall voice adoption, and voice payments in turn. Adoption of smart home devices is on an upswing: BI Intelligence forecasts the number of smart home devices installed in the US will rise from 39 million in 2017 to 73 million by 2022.
- Smart televisions: The average US consumer spends five hours and four minutes a day watching television, according to the latest Nielsen <u>research</u>. Smart televisions, set-top boxes, and sticks increasingly feature voice interfaces, which users are adopting quickly. One in three Amazon Fire TV owners uses voice to control their television. And Amazon has taken its first step toward letting users buy shows and movies by speaking to their televisions by letting Fire TV owners purchase music. Our data shows a large proportion of respondents would like to purchase TV shows via voice.

## Voice Assistant Trusted By US Adults To Securely Make A Payment



#### Al Enhancements Make Voice Payments Possible

#### Powerful Al is the second factor behind voice payments' rapid growth to come.

Advancements in two subcategories of AI have made voice assistants' popularity explode recently: natural language processing (NLP), or the ability for computers to understand speech, and machine learning, or the practice of teaching machines to learn contextual information based on information they already have access to.

To monetize the newfound abilities of voice assistants that growth in AI have made possible, Amazon and Google each have empowered their assistants with the ability to handle voice payments. It stands to reason that Microsoft and Samsung will follow suit with their assistants in time. Populating Amazon's and Google's voice payments ecosystems are providers like banks, merchants, and payments companies interested in staking out an early claim in the space.

But integrating with big-name virtual assistants is not the only option for providers looking to give users access to voice payments — some banks have launched voice assistants within mobile banking that can handle bill and P2P payments, either developed in-house or via white-labeled third-party solutions from partners.

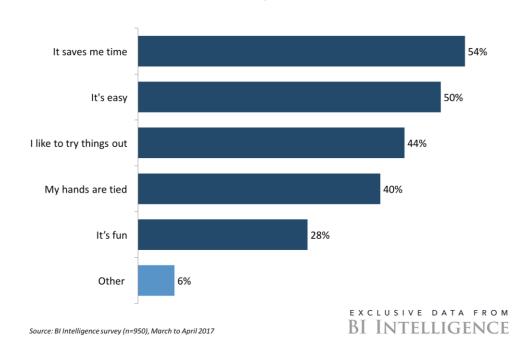
Here are the key virtual assistants that are poised to profit from voice payments' rise:

- Apple's Siri boasts few voice payments abilities, but has an untapped advantage. Apple has a big factor in its favor for voice payments nearly three in 10 (29%) respondents would trust Apple's Siri virtual assistant to make a payment. Apple hasn't yet taken much advantage of its leading trust, however Siri can only handle bill or P2P payments at a small handful of providers today.
- Amazon's Alexa ranks second in trust, yet leads in abilities. Today, Echo device owners can buy pizza from Domino's, order a coffee ahead of time at Starbucks, or purchase household goods on Amazon's shopping app, all by using voice. But despite its leading edge in features, Amazon's Alexa assistant trails Apple's assistant in perceived voice security only 17% of consumers trust it for secure voice payments.

- Google's assistants power some payments, but have a trust issue. On Android devices, customers can use Google Assistant to place orders without creating accounts and inputting information at restaurants or merchants. In addition, Google has integrated voice payments capabilities into Google Home, so users can order from Google Express, its fulfillment service. But the company scores poorly for voice payments trust — at 12%, Google trails Amazon and Apple.
- Microsoft's Cortana and Samsung's Bixby have an uphill battle. Microsoft's Cortana virtual assistant is trusted by only 2% of consumers for a voice payment, while Samsung's assistant trailed at 1%. Neither supports voice payments today. While Microsoft's limited voice assistant adoption means the company is minimally relevant in voice payments, Samsung's Bixby will power a large proportion of devices, so it could stand to benefit from voice payments adoption if it can overcome its low trust.

Although widely unknown to most consumers, Al companies Nuance and Personetics are the first choice for many banks looking to launch voice assistants. Nuance powers voice-capable assistants that reside in the mobile banking apps at USAA, Santander Bank, and others, while Personetics powers the virtual assistant, Ally Assist, in Ally's mobile banking app. Because Nuance's and Personetics' third-party assistants are contained in mobile banking apps, they can tap into customers' inherent trust for their primary banking provider.

#### **US Consumers' Reasons For Using Voice**

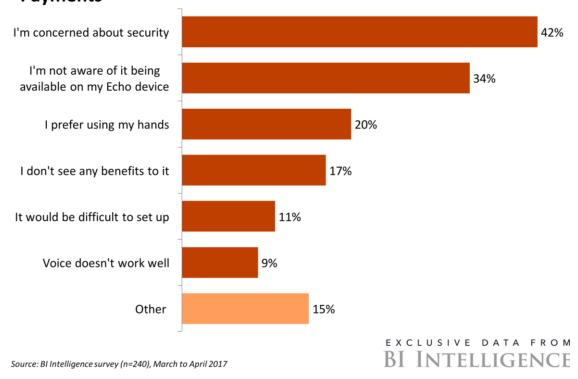


### Value Sets Voice Payments Apart From Fads

A compelling value proposition is the last key ingredient for voice payments' coming growth. The most powerful AI and ubiquitous voice-enabled hardware would not be enough to drive adoption if the feature didn't appeal to users. Promisingly, people see many reasons why voice interfacing for general purposes is valuable, which carry over to voice payments.

- Voice saves users time: Time efficiency is the top reason why respondents
  use voice interfaces. This could be a boon to voice pay adoption because it's
  quicker to say, "Alexa, pay my Capital One credit card bill," than to open a
  banking app and navigate through multiple screens to make a payment.
- People like voice because it's new: Many early adopters of any technology —
  voice payments included are driven by curiosity and the need to try new
  things. While novelty is useful in building early adoption, voice payments
  providers would be wise to account for its temporary effects by measuring
  success in terms of repeat engagement over one-off adoption metrics.
- Speaking is easy: Starting at birth, people spend their whole lives learning how to speak making speech uniquely low-effort as an interface, with a minimal learning curve. Over time, as voice assistants get better at recognizing natural language, this already small effort requirement will only drop. Users will find it's easier to say, "OK Google, reorder coffee beans," to their smart home speaker than to pull out their phone and navigate through multiple screens.
- It can also be used hands-free: When users are driving, cooking, or otherwise
  have their hands occupied, voice assistants are usable while touch interfaces
  are not. Asking a voice assistant to make sure a Starbucks coffee is waiting at
  the counter, or to pay for gas as a user pulls up to the pump, are the kinds of
  compelling use cases that could ignite voice payments adoption.

# US Echo Device Owners' Reasons For Not Using Voice Payments



### **Hurdles To Mass Adoption**

Even with multiple factors in its favor, voice payments will need to overcome a few large barriers to adoption. The primary hurdle will simply be getting capable hardware and software in as many hands as possible. But even when voice payments are available to consumers, as is the case with Echo device owners today, significant adoption barriers still remain. To identify what those hurdles are, BI Intelligence surveyed Echo owners who hadn't used payments capabilities on top reasons why they've held off.

Security unease, lack of awareness, and preference for existing payments methods are the biggest inhibitors. Among Echo owners who haven't used payments, most hold off because they're uncertain about the security of voice payments — 42% pointed to safety as the primary deterrent. Many others simply lacked visibility into the feature's existence — 34% of Echo device-owning respondents didn't use voice payments because they didn't even know they could. Tied for third place were users' preference for touch and a lack of perceived value in voice payments. Providers will need to take steps to chip away at these roadblocks for voice payments to catch on.

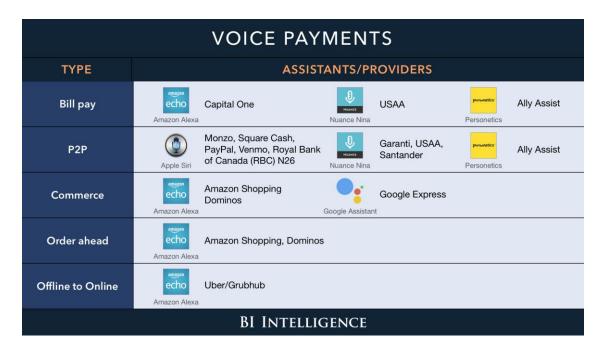
# THE VOICE PAYMENTS PROVIDER LANDSCAPE



On the voice payments provider side, a small crowd of first movers is building an early lead. The first technology providers, banks, merchants, and payments providers supporting voice payment or banking integrations are moving ahead because they see potential in the interface to provide value to customers. While few, if any, are achieving high adoption today, they're positioning themselves for success as voice payments catch on by working out issues and kinks in the technology's early days. And it truly is the early days — while no providers are sharing adoption figures, indications suggest uptick is low. For example, at the time of this writing, Capital One's Alexa skill had only 132 reviews, versus almost 400,000 reviews across both the Apple App Store and Android's Google Play Store. However, by offering a rare technology, providers like Capital One are attracting high-value, tech-hungry customers.

Down the line, voice payments and banking interfaces will pay off through cost savings, higher sales, and increased loyalty. By replacing employees reading from a script with automated responses driven by AI, voice payments providers stand to cut down on labor costs, just as the advent of ATMs sliced the cost of transactional branch servicing. Soon, as voice assistants gain in conversational and selling abilities, they can begin driving users to make more payments than they would through other interfaces, increasing providers' revenue.

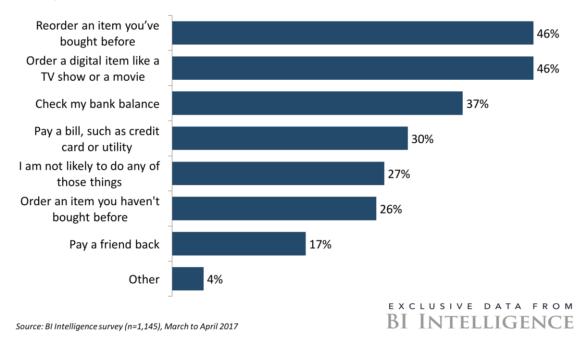
Years down the road, as voice assistant interactions become as natural and valuable as interpersonal interactions, the capabilities of voice assistants might even become a major driver of customer choice between different banks, merchants, and payments providers, much like how human-driven customer service drives provider choice today.



Here are the providers pioneering voice experiences across different categories of commerce, such as physical versus digital goods, and what they offer:

• Within physical goods sales, Amazon and Google are butting heads. On an Amazon Echo or Echo Dot, users can buy items by voicing commands like "reorder paper towels" or "order an Amazon Fire TV stick." iOS and Android device owners using the Amazon shopping app can similarly speak into their device's microphone to make purchases. Owners of the Google Home can also talk to their device to order goods to be shipped from nearby stores. That's made possible by the device's integration with Google Express.

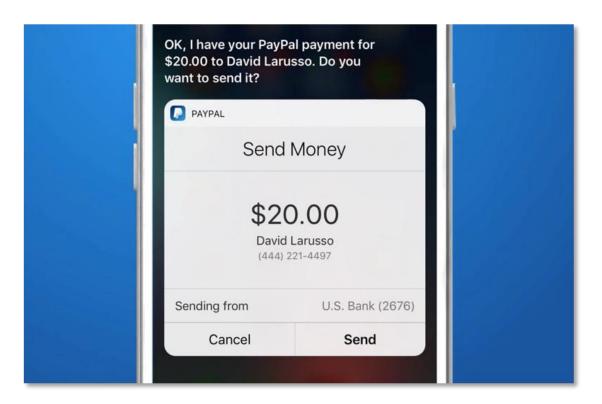
### Types Of Voice Payments US Consumers Would Be Likely To Make



- When it comes to buying digital content like music with voice commands, Amazon leads but others should follow. On Amazon's Alexa-powered devices, including the Echo, Echo Dot, and Amazon Fire TV, users can speak to buy music from the Digital Music Store. Amazon has a massive opportunity take that further, letting users also purchase TV shows and movies with voice respondents say they are most likely to purchase digital content like video over any other form of voice payments. Google, Apple, and others with television products, including cable providers, should also consider supporting voice purchases for video content.
- With voice payments in cars and at gas pumps, Ford and Exxon are the
  pioneers. ExxonMobil's Speedpass+ app allows drivers of compatible Ford
  SYNC 3 models to pay for their gas using voice commands before leaving the
  car, by speaking to a voice assistant.
- Order ahead integrations show potential, but only Amazon supports it.
   Amazon lets Echo device owners speak to reorder previously purchased items ahead of time at Starbucks or Domino's, though the features still have some kinks to work out, as evidenced by middling ratings on Alexa's skill store.

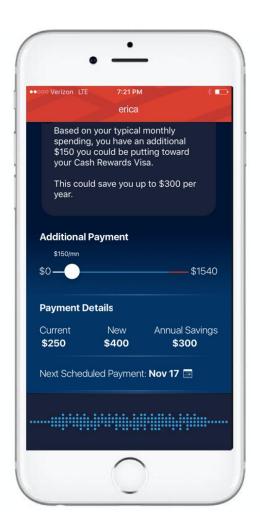
 Offline-to-online apps are ripe for voice interfaces. Today, however, few such providers support voice payments. Echo device owners can reorder past purchases from restaurant delivery service Grubhub.

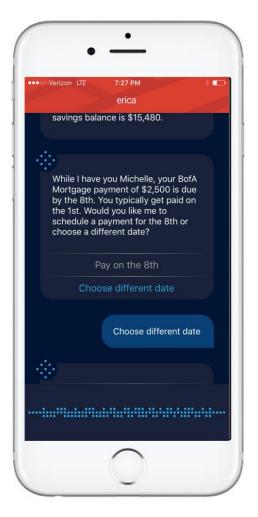
Many leading-edge providers aim to make P2P even easier with voice. Here are the companies that offer the feature:



- PayPal, Venmo, and Square Cash have integrated with Siri for P2P payments. PayPal's iOS app allows users send and receive money by speaking to Siri. Venmo, the P2P website and app owned by PayPal, also <u>allows</u> users to verbally send and receive payments along with descriptions via Siri. Square's P2P product Square Cash also <u>supports</u> Siri-based payments.
- A handful of banks are beginning to follow suit. UK challenger bank Monzo,
   German direct bank N26, and the Royal Bank of Canada (RBC) all offer P2P payments with Siri.
- Assistants within banking apps can also support P2P payments. Nuance's
  virtual assistant Nina, which powers voice interactions in banking apps from
  Turkish bank Garanti, Santander, and USAA, allows mobile banking customers
  to initiate P2P payments with voice. Personetics' similarly banking-app housed
  assistant allows users of Ally bank to make voice-initiated bill payments as well.

Voice will be a game-changer for banks. According to an Accenture <u>study</u>, the majority of banking industry professionals believe most banks will deploy AI as their primary channel for interaction. We spoke with leaders spearheading virtual assistant initiatives at Bank of America and Capital One to hear why they supported the feature, and what makes their implementations unique.





Bank of America will soon be the latest leading-edge bank to pioneer voice. In an interview with BI Intelligence, Michelle Moore, head of digital banking at Bank of America, said the bank's soon-to-be-released voice-enabled assistant, Erica, will give its millions of customers personalized experiences and recommendations they might otherwise only get one-on-one with a bank employee. Powering so many interactions like that with live employees would be logistically impossible, but virtual assistants will make it a reality.

Erica, due to be released later in 2017, will contain innovative payments abilities. For example, it can suggest that users change their mortgage payment date to coincide with their payday. By making smart recommendations to users, Bank of America will grow the value of both its virtual assistant and, by proxy, the bank it represents.

"What's the balance on my credit card?"	"How much money do I have in my savings?"	"When is my mortgage due?"
"What's my checking account balance?"	"Pay my credit card bill"	"How much did I spend at Amazon last week?"
"When do I have to pay my auto bill?"	"What's the due date for my credit card bill?"	"How much is my next car payment?"

Capital One is going "all in" on Al by integrating with Alexa and Cortana, as well as supporting an SMS chatbot. In an email interview with Bl Intelligence, Ken Dodelin, VP of digital product development at Capital One, answered a number of questions about the bank's wide-ranging virtual assistant strategy. Here are some highlights:

- Capital One went in early with Alexa to "test and learn." When Capital One, the first major bank to integrate with Alexa, decided that Amazon's technology might hold appeal with customers, it decided to move quickly to learn and work out any kinks in its voice payments offering before others jumped on the trend. Since rolling the feature out, it's continued to build it up with new abilities.
- Initially, the bank prioritized informational over transactional features.
   Capital One sought to develop features that were "easy to use" and natural for the platform, and determined that things like hearing balances and recent transactions fit the bill better than more demanding interactions like transferring to external accounts.

 Technology like Al will become central to banking. Capital One believes banking interactions are moving more "real-time, digital first" and capable of anticipating customer needs, and that voice or other conversational user interfaces will be central to that transition.

Bill payment is an easy use case for voice that banks are beginning to explore. Here's how:

- Again, Capital One <u>allows</u> users to inquire about scheduled credit card, auto, or mortgage bills using an Amazon Echo device, then pay those bills.
- Ally Bank also supports voice bill payments in its iOS and Android mobile banking apps, through an integration with Personetics.
- USAA supports voice-initiated bill payments on its Android and iOS mobile banking banking apps, through Nuance's Nina voice assistant.

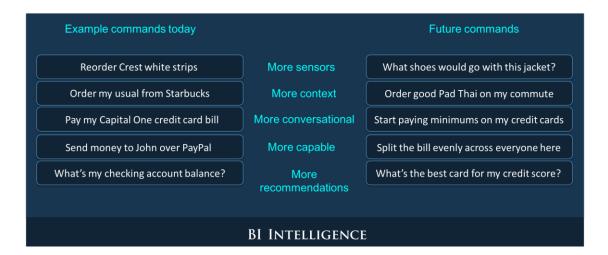
Banks are also rolling out support for voice-based authentication. To log in to mobile banking apps or authenticate at call centers, many banks have added support for voice-based biometrics, including Citi, HSBC, TD Bank, and USAA. Success stories for adoption of voice biometrics abound — for example, only one month after its release, Citibank enabled over 1 million customers in the Asia-Pacific region to use new voice biometrics when authenticating over the phone, according to Finextra.

# NAVIGATING VOICE PAYMENTS TOMORROW

The providers building out voice payments experiences today are staging a coming evolution in voice payments. The technology powering voice payments experiences will improve, shifting the behavior from a novelty indulged in only by technungry first-adopters to a commonplace payment method.

That shift will certainly not happen overnight. It will involve hard work on the back end by Al providers and the services that integrate into them. Many beyond the existing set will rise to the challenge — such as Wells Fargo and Citi, which are both rumored to be looking into developing integrations with Siri. Many more banks and payments providers will enter the fore. Those with unrealistic expectations of adoption will feel burned. Those ready to refine their products while adoption is low will reap benefits.

Ultimately, it will open the door for user experiences, and sales, not possible in digital interfaces today. Voice-powered assistants will evolve over the coming years from glorified IVR systems to something akin to a concierge at a five-star hotel — adept in interpersonal skills, hyper-capable and connected, and available 24 hours a day. They'll rely on more than just microphones and cameras. For example, Amazon's newly released device, the voice-powered Echo Look, contains cameras to take pictures of outfits and recommend certain looks over others. Voice assistant payment implementations in the future will have more in common with customer interactions with a top-performing employee than many of the simple, often buggy voice interactions today.



#### Next generation voice interactions will drive the technology into the mainstream.

Initially, simple household consumable items (e.g., paper towels or eggs) will fuel voice payments volume alongside digital content such as music and movies — a small but steady revenue stream. Years down the road, voice assistants will sell meaningful levels of increasingly high-ticket items such as electronics. They'll do so by getting better at answering questions for users about the products, by working alongside visual interfaces, and by leveraging machine-learning driven product recommendations. Furthermore, voice assistants will also more effortlessly allow users to make payments such as P2P by understanding and rapidly executing complex requests like, "Split the bill evenly across everyone sitting at the table." These new capabilities, high-ticket items, and payments will dial up the volume of voice payments.

However, to get from the current state of voice assistant-driven payments to the profitable mainstream, providers have a long way to go. Here are some best-practices that can help inform strategies to get there:

- Design iteratively. With a service as new and unfamiliar as voice payments, it's
  important to experiment and constantly adapt to user feedback. For example,
  Capital One used design thinking, a technique used by designers for solving
  complex problems, to remain agile while launching its voice payments features.
- Speak naturally. Designers of voice interfaces should anticipate informal speech by customers and conduct extensive testing when designing commands users make, and the responses the voice assistant gives. When Amazon first began designing conversations for the Echo, it had users in one room speak commands while a second user in a different room typed out responses to be spoken through the voice of Alexa. Afterward, users would fill out a sheet on how they liked Alexa's response to help determine which dialogue was best.
- Reinforce security. The top reason potential users avoid voice payments is due
  to security concerns. Providers can meet those concerns head-on by supporting
  forms of authentication that protect users like voiceprint biometric
  authentication, or spoken PINs. Today, USAA lets users log into mobile banking
  with a voiceprint.

- Combine channels. Voice is going to augment visual and tactile interfacing for payments, not replace it entirely. While allowing users to control their experiences entirely via voice, voice payments providers should also take advantage of connected screens to display content to them. Amazon's newest Echo device, the Echo Show, contains a screen to show users visual content.
- Spread the bets. Conversational interfaces are popular in both voice and chat
  forms. By using AI for voice and chatbot interfaces, providers can position
  themselves for success if either platform takes off first. Capital One is spreading
  its bets by supporting an integration with Alexa, an SMS chatbot, and a
  forthcoming integration with Microsoft's Cortana assistant.

Most importantly, voice providers should get back to good old fashioned customer service. The most effective employees in retail don't just ring customers up — they charm and cajole, they answer questions intelligently, and they deftly read emotions to determine when to nudge and when to back off. All these hallmarks of good customer service, which only recently and briefly fell to the wayside due to the limitations of modern devices, are becoming possible once again with Al. And once again, providers will live or die on the customer service of their representatives — in this case, digital ones. As voice interfaces catch on, providers should look to the past — employees' strong face-to-face customer service — when building out their voice assistants.

## THE BOTTOM LINE

- Voice payments are looking good with consumers 8% of respondents to a recent BI Intelligence survey said they used voice commands to buy something, send money to a friend, or pay a bill.
- Adoption is set to grow from 8% to 31% of US adults by 2022. Three factors
  will fuel this growth: an explosion of voice-enabled devices, generational
  gains in AI, and an ironclad consumer value proposition for voice payments.
- Payments providers are moving in: Amazon, Apple, Google, and PayPal are part of the growing list of companies making these next-generation payments possible.
- Banks are betting on AI, too. Bank of America, Capital One, USAA, and more are rolling out AI interfaces to their customers.
- Next-generation voice assistants will blow the current generation away.
   Voice payments will evolve from clunky and poorly scripted sessions to interactions as natural as one might have with a personal shopper or bank employee.
- Getting to the next generation will not be easy, but the payoff will be large.
   Grounded in realistic expectations of adoption in the years ahead, providers of voice payments and banking experiences stand to accumulate early advantages by moving in early.

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