Voice Payments:
An Introduction and Overview

A Payments Innovation Alliance Executive Briefing Series

Payments Innovation Alliance®

Introduction to the Executive Briefing

This Executive Briefing Series is a set of articles developed by Nacha's Payments Innovation Alliance. Future briefs will be issued on an on going basis and will cover a range of topics related to conversational payments that are relevant to financial services' participants. While conversational payments is a broad and complex topic, the objective of this introductory Executive Briefing is to deliver targeted, clear and concise information solely focused on voice payments and its enabling technology.

This article is the first in the series.

Key Terms

Artificial Intelligence (AI) – The concept of an intelligent (thinking) machine

Artificial Neural Network – A group of computers (nodes) that work together in a connected manner that mimics the structure of a human brain

Digital Assistants – A computerized program that provides answers to questions, access to databases (such as music or web searches), and can take action (such as completing a requested payments transaction) for the user (e.g., Siri or Alexa)

Natural Language Processing – The mechanism that allows for AI to learn how to understand and respond to the human language

Smart Speaker – Speaker enabled with voice recognition technology backed by the use of a voice assistant

Voice Assistant – AI-backed technology that uses natural language processing to accept and respond to user requests and queries

Voice Payments – Technology that allows a user to request a transaction verbally. This is typically done in conjunction with a digital assistant-enabled device (e.g., a smart speaker).

Voice Recognition – The ability of a computer or machine to understand a voice request

Payments
Innovation Alliance®

Executive Briefing #1

In early 2011, voice assistants made their mainstream splash. With IBM's Watson winning the televised quiz game show Jeopardy!, quickly followed by Apple's launch of Siri, the voice revolution was underway. At the time, few could have predicted how immensely popular talking to an inanimate object would become.

Voice assistants have made their way into all sorts of devices. For the purposes of this paper, voice assistants are defined as AI-backed technology that uses natural language processing to accept and respond to user requests and queries. From smartphones to smart speakers, showerheads, light bulbs, watches, automobiles, and household appliances, nearly every new type of gadget now has some form of voice functionality. This new convenience is here to stay.

Moreover, the coronavirus pandemic has driven the growth of no-contact payment methods such as voice payments. According to Zil Bareisis, a senior analyst at Celent: "While a lot of people talk about the rise of contactless cards and online payments throughout and after the coronavirus, I do think the pandemic will spur innovation adoption in 'contact free' payments more broadly, such as biometric contactless cards, digital wallets, QR codes, checkout-free shopping setups and potentially voice commerce."[i]

Voice-enabled person-to-person (P2P) payments through digital assistants are growing, as well. In 2017, 8% of the U.S. adult population used voice payments. This figure is projected to increase to 31% by 2022, largely due to the increasing popularity of voice assistants like Google Assistant, Apple's Siri, and Amazon's Alexa, which have added or are exploring P2P capabilities.[ii]

Payments Innovation Alliance®

As the technology behind voice assistants continues to grow, so too will the number of users. It is estimated that globally, 2.5 billion people use a voice assistant at least once a week. According to Juniper Research, that number is expected to jump to 8 billion by 2023 – more than tripling in just the next three years.[iii] In the U.S. alone, the numbers for smart speakers (defined as speakers enabled with voice recognition technology backed by the use of a voice assistant) are notable:

U.S. smart speaker owners rose 40% in 2018 to reach 66.4 million with total smart speakers in use rising to 133 million.[iv]

30% of households own three or more devices.[v]

It is no surprise that voice assistants are changing the way we live our lives. No longer constrained by early limitations, conversation is the new user interface connecting consumers to companies, products and services.

Initially, the voice assistant's conversational intelligence was limited and often required a "wake" word to initiate interaction. There were also limits on what could be asked and often the responses were not helpful. More recently, however, voice recognition has surpassed 90% accuracy and is quickly approaching the 99% threshold, while providing more helpful replies.[vi] These improvements were made possible with the advancement of artificial intelligence (AI) technology. AI-backed voice recognition includes natural language processing, the mechanism that allows for AI to learn how to understand and respond to human language, which will be critical to further market adoption.

US Consumers' Frequency of Voice Assistant Use

Daily	Weekly	Monthly	Rarely	Never
16%	13%	6%	19%	46%
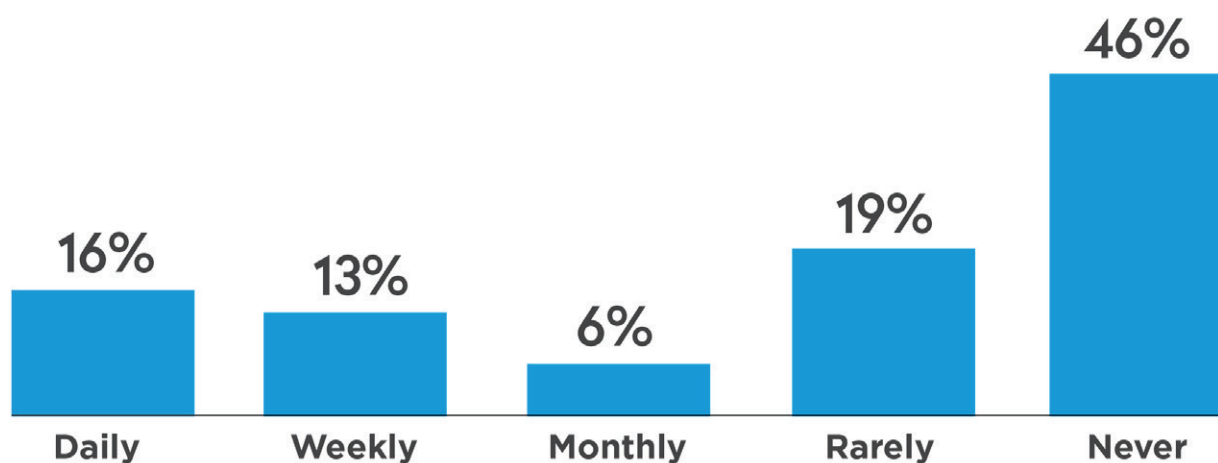
Published on MarketingCharts.com in June 2019 | Data Source: Sumo Heavy
Based on April 2019 survey of 1,046 US consumers ages 18 and older

Payments
Innovation Alliance®

Impact on Financial Services

Technology shifts occur approximately every 10-15 years. In the 1990s, it was the internet. In the early 2000s, it was mobile. Now it is voice, and it will have a major impact on commerce and banking in the future.

To what can we attribute this shift to a voice interface, specifically in regard to payments? It is primarily a culmination of three main factors:

» Changing user demands for frictionless interactions

» Financial institutions pushed consumers to digital and self-service channels during the last few decades, resulting in consumers migrating their interactions from brick-and-mortar to digital channels

» A new technology shift powered by voice

We see this shift taking hold from mobile apps, for example, to voice. Mobile apps require the user to download an app on every device, often with several layers of steps for verification – all adding friction and frustration before one is able to conduct a transaction. Voice, on the other hand, can offer a simple, convenient and frictionless user experience across multiple devices, which has long been a goal of financial institutions.

Financial institutions have started to enable voice technology to support payments. Some offer the ability to access account balances, make transfers between accounts, transfer funds within the financial institution to pay a credit card bill, and others allow bill payments to be made through voice assistants. Instructions can include a "pay now" or "pay on a specific date."

While voice technologies address some fundamental human needs, such as personalized experiences that are relevant and meaningful, there are some concerns that arise, which include:

» security

» privacy of data

» dispute resolution

» the correct Standard Entry Class codes for transactions processed through the ACH Network

These topics and more will be addressed in upcoming Executive Briefings, which will be available for download at nacha.org/alliance-project-teams.

i www.paymentssource.com/news/is-coronavirus-pushing-more -people-to-voice-payments

ii www.mattloganinc.com/blog/voice-payments-the-next-big-thing-everything-you-need-to-know-about-voice

iii The Digital Assistants of Tomorrow (white paper), Juniper Research, www.juniperresearch.com, February 2019, author: James Moar

iv https://voicebot.ai/2019/03/07/u-s-smart-speaker-ownership-rises-40-in-2018-to-66-4-million-and-amazon-echo-maintains-market-share-lead-says-new-report-from-voicebot/

v www.nationalpublicmedia.com/uploads/2020/01/The-Smart-Audio-Report-Winter-2019.pdf

vi 2018 Internet Trends Report, Kleiner Perkins, Mary Meeker, May 2018

Payments
Innovation Alliance®

About the Payments Innovation Alliance

The Payments Innovation Alliance is a 200-plus membership organization that brings together diverse, global stakeholders to support payments innovation. Through collaboration, discussion, debate, education, networking and special projects, the Alliance seeks to grow and advance payments and payments technology to better meet and serve the needs of the evolving industry. For more information and to learn how to join, visit nacha.org/alliance.

For more information about the Alliance or the Voice Payments Project Team, please contact Jennifer West at JWest@nacha.org.

About Nacha

Nacha is a nonprofit organization that convenes hundreds of diverse organizations to enhance and enable ACH payments and financial data exchange within the U.S. and across geographies. Through the development of rules, standards, governance, education, advocacy, and in support of innovation, Nacha's efforts benefit all stakeholders. Nacha is the steward of the ACH Network, a payment system that universally connects all U.S. bank accounts and facilitates the movement of money and information. In 2019, 24.7 billion payments and nearly $56 trillion in value moved across the ACH Network. Nacha also leads groups focused on API standardization and B2B payment enablement. **Visit nacha.org for more information.**

Payments
Innovation Alliance®