

The Integrated Voice Assistant Speaker: Opportunities and Challenges for U.S. Firms

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Over the past five years, the integrated voice assistant speaker (“smart speaker”) has emerged as one of the fastest growing products in the smart home technology industry. Leading U.S. technology firms like Amazon, Google, and Apple have invested in either the technology behind smart speaker systems or in the production of the speakers themselves. With over 10 million (8 percent) U.S. households currently using a voice assistant speaker and continued consumer interest expected, this industry may be poised to achieve substantial growth, encouraging U.S. firms to continue making investments. However, further market growth—both within and beyond the United States—may be constrained by challenges, including language barriers, the siloing of technology within company ecosystems, and concerns over the protection of consumer privacy and data, all of which may discourage future investment.

What makes the voice assistant speaker different from other smart home devices?

While some consumers use smart speakers to replace conventional household speakers, *Business Insider* found most consumers valued voice assistance speakers for their multipurpose capabilities and for their ability to communicate with other smart devices. Beginning with Amazon’s introduction of the Echo to U.S. markets in 2014, more than 10 million smart speakers have been purchased for home use. These speakers, which now include the Google Home and Apple HomePod, can complete a range of tasks including playing audio files, giving information, entertaining users (Amazon has released several games that can be played with its Echo device), and providing command connectivity¹ to other devices (box 1). The speakers’ ability to integrate other smart devices into one central speaker is a signature attribute for consumers, and suggests substantial market growth potential; as consumers purchase other unrelated smart appliances or devices for home use, the value of a smart speaker rises without any changes to its own technology due to its ability to integrate with new devices.

Box 1 Selected capabilities and features of voice assistant speakers

 <p>Apple HomePod</p> <ul style="list-style-type: none"> • Connects to Voice Assistant Siri • High quality woofer and amp • Can only be operated with iPhone • Connects with Apple Music 	 <p>Google Home</p> <ul style="list-style-type: none"> • Can contact your lost smartphone • Language capabilities • Locate and recommend local businesses • Operates Google Play 	 <p>Amazon Echo</p> <ul style="list-style-type: none"> • Can call and text via Voice • Links with Audible and Kindle • Music streaming from Spotify • Connects to Amazon account and can order groceries
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Source: CNET, The Verge, Apple website. Photos courtesy of company websites.

The U.S. voice assistant speaker market

According to CNET, since 2014 the U.S. market for smart speakers has grown more than 4-fold. Amazon, which currently controls approximately 70 percent of the U.S. smart speaker market, experienced a doubling in

¹ Command connectivity, otherwise known as “command and control” devices, are devices whose functions can be directed or altered by voice command.

purchases during 2014–16 and is looking to expand its investment in the Amazon Alexa devices. According to Statista, the market for these devices in the United States as of 2017 was \$4 billion and is part of the larger \$18 billion smart home devices market. This growth has led to attention from the tech world, particularly following exhibitions at the 2018 Consumer Electronic Show.

There are several reasons why the industry for smart speakers is projected to expand over the short term. First, the emergence of competitors to the market, like Samsung, will likely encourage companies that offer smart devices, appliances, and digital services to produce smart speakers to manage their devices. Second, the increasing sophistication of smart speakers and their effectiveness at interfacing with consumers will broaden the base of likely consumers beyond technophile consumers. Finally, there is room for growth within its current market, particularly among millennials.² By 2022, 38 percent of millennials are projected to have smart devices in their home, an increase from 23 percent in 2017.

The growth of the speaker market also has potential implications for trade in goods and services. Consumer use of smart speakers can elevate digital services and platform use, and smart speakers used to replace other tech home goods or upgrade non-smart appliances or devices to smart ones could change the trade in these goods.

Challenges for the industry

Despite growing consumer interest in smart speakers to integrate increasingly complex home devices and appliances, several barriers and competitive limitations on both the supply and demand side may restrict smart speaker manufacturers like Apple, Google, and Amazon from offering their products to a wider audience. On the manufacturer side, voice assistant speakers are currently only available from the three major U.S. voice assistant firms in English, Japanese, and German. This limits potential sales in the Americas, Asia, and Europe. The second major challenge is the technical ability of these devices to sync with dozens of new devices. More advanced devices coming online could challenge older technology. The potential siloing³ of these speakers to fit with other goods and services sold by the speaker company could limit adoption (the Apple HomePod does not play Google Music, and the Amazon Echo does not have iTunes).

Another limitation relates to concerns over privacy and data security⁴; several consumer groups and governments have highlighted the potential privacy issues with interactive smart devices due to their numerous microphones and in some cases cameras. Data security also remains a concern for consumers, particularly as devices collect rising levels of personal information, including health information, schedules, and contact data.

Sources: CNET ("[Bezos say Amazon plans to double down on Alexa](#)"), Tech Crunch ("[Amazon to control 70 percent of the voice-controlled speaker market this year](#)"), The Verge ("[Samsung's first smart speaker will reportedly arrive in early 2018](#)"), Business Insider ("[People mainly use smart speakers for simple requests](#)")

² The millennial demographic is defined as those born between 1980 and 2000.

³ Siloing describes a pattern where users of a device from one company find it difficult or impossible to use competing technologies or services from other firms even when the device is designed to be integrated with other devices.

⁴ For more information regarding the nexus between privacy laws and digital trade, please refer to the USITC's *Global Digital Trade 1: Market Opportunities and Key Foreign Trade Restrictions*.