

Amazon Alexa

Amazon Alexa, also known simply as **Alexa**,^[2] is a virtual assistant technology largely based on a Polish speech synthesiser named Ivona, bought by Amazon in 2013.^{[3][4]} It was first used in the Amazon Echo smart speaker and the Echo Dot, Echo Studio and Amazon Tap speakers developed by Amazon Lab126. It is capable of voice interaction, music playback, making to-do lists, setting alarms, streaming podcasts, playing audiobooks, and providing weather, traffic, sports, and other real-time information, such as news.^[5] Alexa can also control several smart devices using itself as a home automation system. Users are able to extend the Alexa capabilities by installing "skills" (additional functionality developed by third-party vendors, in other settings more commonly called apps) such as weather programs and audio features. It uses automatic speech recognition, natural language processing, and other forms of weak AI to perform these tasks.^[6]

Most devices with Alexa allow users to activate the device using a wake-word^[7] (such as *Alexa* or *Amazon*); other devices (such as the Amazon mobile app on [iOS](#) or [Android](#) and Amazon Dash Wand) require the user to click a button to activate Alexa's listening mode, although, some phones also allow a user to say a command, such as "Alexa" or "Alexa wake".

As of November 2018, Amazon had more than 10,000 employees working on Alexa and related products.^[8] In January 2019, Amazon's devices team announced that they had sold over 100 million Alexa-enabled devices.^[9]

In September 2019, Amazon launched many new devices achieving many records while competing with the world's smart home industry. The new Echo Studio became the first smart speaker with 360 sound and Dolby sound. Other new devices included an Echo dot with a clock behind the fabric, a new third-generation Amazon Echo, Echo Show 8, a plug-in Echo device, Echo Flex, Alexa built-in wireless earphones, Echo buds, Alexa built-in spectacles, Echo frames, an Alexa built-in Ring, and Echo Loop.

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Amazon Alexa



Developer(s)	Amazon
Initial release	November 6, 2014
Operating system	Fire OS 5.0 or later, iOS 11.0 or later ^[1] Android 4.4 or later
Platform	Amazon Echo Fire OS iOS Android Linux Windows
Available in	English French German Japanese Italian Spanish Portuguese Hindi Arabic
Type	Intelligent personal assistant , cloud-based voice service
Website	developer.amazon.com/alexa (https://developer.amazon.com/alexa)

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History

Alexa was developed out of a predecessor named Ivona which was invented in Poland, inspired by *2001:A Space Odyssey* and bought by Amazon in 2013.^{[10][4]} In November 2014, Amazon announced Alexa alongside the Echo.^[11] Alexa was inspired by the computer voice and conversational system on board the *Starship Enterprise* in science fiction TV series and movies, beginning with *Star Trek: The Original Series* and *Star Trek: The Next Generation*.^[12]

Amazon developers chose the name Alexa because it has a hard consonant with the X, which helps it be recognized with higher precision. They have said the name is reminiscent of the Library of Alexandria, which is also used by Amazon Alexa Internet for the same reason.^{[13][14][15]} In June 2015, Amazon announced the Alexa Fund, a program that would invest in companies making voice control skills and technologies. The US\$200 million fund has invested in companies including Jargon, Ecobee, Orange Chef, Scout Alarm, Garageio, Toymail, MARA, and Mojio.^[16] In 2016, the Alexa Prize was announced to further advance the technology.



Amazon Alexa devices on display in a retail store

In January 2017, the first Alexa Conference took place in Nashville, Tennessee, an independent gathering of the worldwide community of Alexa developers and enthusiasts.^{[17][18][19]} Follow up conferences went under the name Project Voice and featured keynote speakers such as Amazon's Head of Education for Alexa, Paul Cutsinger.^[20]

At the Amazon Web Services Re: Invent conference in Las Vegas, Amazon announced Alexa for Business and the ability for app developers to have paid add-ons to their skills.

In May 2018, Amazon announced it would include Alexa in 35,000 new homes built by Lennar.^[21]

In November 2018, Amazon opened its first Alexa-themed pop-up shop inside of Toronto's Eaton Centre, showcasing the use of home automation products with Amazon's smart speakers.^[22] Amazon also sells Alexa devices at Amazon Books and Whole Foods Market locations, in addition to mall-based pop-ups throughout the United States.

In December 2018, Alexa was built into the Anki Vector, And was the first major update for the Anki Vector, although Vector was released in August 2018, he is the only home robot with advanced technology.

As of 2018, interaction and communication with Alexa were available only in English, German, French,^[23] Italian, Spanish, Portuguese, Japanese, and Hindi.^[24] In Canada, Alexa is available in English and French (with the Quebec accent).^{[25][26]}

In October 2019, Amazon announced the expansion of Alexa to Brazil, in Portuguese, together with Bose, Intelbras, and LG.^[27]

App

A companion app is available from the Apple Appstore, Google Play, and Amazon Appstore. The app can be used by owners of Alexa-enabled devices to install skills, control music, manage alarms, and view shopping lists.^[28] It also allows users to review the recognized text on the app screen and to send feedback to Amazon concerning whether the recognition was good or bad. A web interface is also available to set up compatible devices (e.g., Amazon Echo, Amazon Dot, Amazon Echo Show).

Functions

Alexa can perform a number of preset functions out-of-the-box such as set timers, share the current weather, create lists, access Wikipedia articles, and many more things.^[29] Users say a designated "wake word" (the default is simply "Alexa") to alert an Alexa-enabled device of an ensuing function

command. Alexa listens for the command and performs the appropriate function, or skill, to answer a question or command. When questions are asked, Alexa converts sound waves into text which allows it to gather information from various sources. Behind the scenes, the data gathered is then sometimes passed to a variety of sources including WolframAlpha, iMDB, AccuWeather, Yelp, Wikipedia, and others^[30] to generate suitable and accurate answers.^[31] Alexa-supported devices can stream music from the owner's Amazon Music accounts and have built-in support for Pandora and Spotify accounts.^[32] Alexa can play music from streaming services such as Apple Music and Google Play Music from a phone or tablet.



Logo for the Amazon Alexa app available on the App Store and Google Play

In addition to performing pre-set functions, Alexa can also perform additional functions through third-party skills that users can enable.^[33] Some of the most popular Alexa skills in 2018 included "Question of the Day" and "National Geographic Geo Quiz" for trivia; "TuneIn Live" to listen to live sporting events and news stations; "Big Sky" for hyper local weather updates; "Sleep and Relaxation Sounds" for listening to calming sounds; "Sesame Street" for children's entertainment; and "Fitbit" for Fitbit users who want to check in on their health stats.^[34] In 2019, Apple, Google, Amazon, and Zigbee Alliance announced a partnership to make smart home products work together.^[35]

Technology advancements

As of April 2019, Amazon had over 90,000 functions ("skills") available for users to download on their Alexa-enabled devices,^[36] a massive increase from only 1,000 functions in June 2016.^[37] Microsoft's AI Cortana became available to use on Alexa enabled devices as of August 2018.^[38] In 2018, Amazon rolled out a new "Brief Mode", wherein Alexa would begin responding with a beep sound rather than saying, "Okay", to confirm receipt of a command.^[39] On December 20, 2018, Amazon announced a new integration with the Wolfram Alpha answer engine,^[40] which provides enhanced accuracy for users asking questions of Alexa related to math, science, astronomy, engineering, geography, history, and more.

Home automation

In the home automation space, Alexa can interact with devices from several manufacturers including SNAS (<https://www.snasiotlab.com/>), Fibaro, Belkin, ecobee, Geeni, IFTTT,^[41] Insteon, LIFX, LightwaveRF, Nest, Philips Hue, SmartThings, Wink,^{[42][43]} and Yonomi.^[44] The Home Automation feature was launched on April 8, 2015.^[45] Developers are able to create their own smart home skills using the Alexa Skills Kit.

In September 2018, Amazon announced a microwave oven that can be paired and controlled with an Echo device. It is sold under Amazon's AmazonBasics label.^[46]

Alexa can now pair with a Ring doorbell Pro and greet visitors and leave instructions about where to deliver packages.^[47]

Ordering

Take-out food can be ordered using Alexa; as of May 2017 food ordering using Alexa is supported by Domino's Pizza, Grubhub, Pizza Hut, Seamless, and Wingstop.^[48] Also, users of Alexa in the UK can order meals via Just Eat.^[49] In early 2017, Starbucks announced a private beta for placing pick-up orders using Alexa.^[50] In addition, users can order meals using Amazon Prime Now via Alexa in 20 major US cities.^[51] With the introduction of Amazon Key in November 2017, Alexa also works together with the smart lock and the Alexa Cloud Cam included in the service to allow Amazon couriers to unlock customers' front doors and deliver packages inside.^[52]

According to an August 2018 article by The Information, only 2 percent of Alexa owners have used the device to make a purchase during the first seven months of 2018 and of those who made an initial purchase, 90 percent did not make a second purchase.^[53]

Music

Alexa supports many subscription-based and free streaming services on Amazon devices. These streaming services include: Prime Music, Amazon Music, Amazon Music Unlimited, Apple Music, TuneIn, iHeartRadio, Audible, Pandora, and Spotify Premium. However, some of these music services are not available on other Alexa-enabled products that are manufactured by companies external of its services. This unavailability also includes Amazon's own Fire TV devices or tablets.^[54]

Alexa is able to stream media and music directly. To do this, Alexa's device should be linked to the Amazon account, which enables access to one's Amazon Music library, in addition to any audiobooks available in one's Audible library. Amazon Prime members have an additional ability to access stations, playlists, and over two million songs free of charge. Amazon Music Unlimited subscribers also have access to a list of millions of songs.

Amazon Music for PC allows one to play personal music from Google Play, iTunes, and others on an Alexa device. This can be done by uploading one's collection to My Music on Amazon from a computer. Up to 250 songs can be uploaded free of charge. Once this is done, Alexa can play this music and control playback through voice command options.

Sports

Amazon Alexa allows the user to hear updates on supported sports teams. A way to do this is by adding the sports team to the list created under Alexa's Sports Update app section. ^[55]

The user is able to hear updates on 15 supported sports leagues:^[55]

- IPL - Indian Premier League
- MLS - Major League Soccer
- EPL/BPL - English Premier League/Barclays Premier League
- NBA - National Basketball Association
- NCAA men's basketball - National Collegiate Athletic Association
- UEFA Champions League - Union of European Football Association
- FA Cup - Football Association Challenge Cup
- MLB - Major League Baseball
- NHL - National Hockey League
- NCAA FBS football - National Collegiate Athletic Association: Football Bowl Subdivision

- NFL - National Football League
- 2. Bundesliga, Germany
- WNBA - Women's National Basketball Association
- 1. Bundesliga, Germany
- WWE - World Wrestling Entertainment

NOTE*** As of 27 Nov 2021, Echo Show 5 Devices do not show Upcoming Games

Messaging and calls

There are a number of ways messages can be sent from Alexa's application. Alexa can deliver messages to a recipient's Alexa application, as well as to all supported Echo devices associated with their Amazon account. Alexa can send typed messages only from Alexa's app. If one sends a message from an associated Echo device, it transmits as a voice message. Alexa cannot send attachments such as videos and photos.^[56]

For households with more than one member, one's Alexa contacts are pooled across all of the devices that are registered to its associated account. However, within Alexa's app one is only able to start conversations with its Alexa contacts.^[57] When accessed and supported by an Alexa app or Echo device, Alexa messaging is available to anyone in one's household. These messages can be heard by anyone with access to the household. This messaging feature does not yet contain a password protection or associated PIN. Anyone who has access to one's cell phone number is able to use this feature to contact them through their supported Alexa app^[58] or Echo device. The feature to block alerts for messages and calls is available temporarily by utilizing the Do Not Disturb feature.^[59]

Business

Alexa for Business is a paid subscription service allowing companies to use Alexa to join conference calls, schedule meeting rooms, and custom skills designed by 3rd-party vendors.^[60] At launch, notable skills are available from SAP, Microsoft, and Salesforce.^[61]

Severe weather alerts

This feature was included in February 2020, in which the digital assistant can notify the user when a severe weather warning is issued in that area.^{[62][63]}

Traffic updates

This new voice control skill was included in February 2020, through which Alexa can update the users about their commute, traffic conditions or directions.^[62] It can also send the information to the user's phone.^[63]

Alexa Skills Kit

Amazon allows developers to build and publish skills for Alexa using the Alexa Skills Kit known as Alexa Skills.^[64] These third-party-developed skills, once published, are available across Alexa-enabled devices. Users can enable these skills using the Alexa app.

A "Smart Home Skill API"^[65] is available, meant to be used by hardware manufacturers to allow users to control smart home devices.^[66]

Most skills run code almost entirely in the cloud, using Amazon's AWS Lambda service.^[67]

In April 2018, Amazon launched Blueprints, a tool for individuals to build skills for their personal use.^[68]

In February 2019, Amazon further expanded the capability of Blueprints by allowing customers to publish skills they've built with the templates to its Alexa Skill Store in the US for use by anyone with an Alexa-enabled device.^[69]

Alexa Voice Service

Amazon allows device manufacturers to integrate Alexa voice capabilities into their own connected products by using the Alexa Voice Service (AVS), a cloud-based service that provides APIs to interface with Alexa. Products built using AVS have access to Alexa's growing list of capabilities including all of the Alexa Skills. AVS provides cloud-based automatic speech recognition (ASR) and natural language understanding (NLU). There are no fees for companies looking to integrate Alexa into their products by using AVS.^[70]

The voice of Amazon Alexa is generated by a long short-term memory artificial neural network.^{[71][72][73]}

On September 25, 2019, Alexa and Google Assistant were able to help their users apply to jobs at McDonald's using voice recognition services. It is the world's first employment service using voice command service. The service is available in the United States, Canada, Spain, France, Ireland, Germany, Italy and the United Kingdom.^[74]

Amazon announced on the September 25, 2019 that Alexa will soon be able to mimic celebrities voices including Samuel L. Jackson, costing \$0.99 for each voice.^[75] In 2019, Alexa started replying to Spanish voice commands in Spanish.^[76]

Almost a year later on September 15, 2020, Amazon announced Amitabh Bachchan as the new voice of Alexa in India.^[77] This would be a paid upgrade for Alexa users and the service would be available from 2021 onwards.

Amazon Lex

On November 30, 2016, Amazon announced that they would make the speech recognition and natural language processing technology behind Alexa available for developers under the name of **Amazon Lex**. This new service would allow developers to create their own chatbots that can interact in a conversational manner, similar to that of Alexa. Along with the connection to various Amazon services, the initial version will provide connectivity to Facebook Messenger, with Slack and Twilio integration to follow.^{[78][79]}

Reception and issues

There are concerns about the access Amazon has to private conversations in the home and other non-verbal indications that can identify who is present in the home with non-stop audio pick-up from Alexa-enabled devices.^{[80][81]} Amazon responds to these concerns by stating that the devices only stream recordings from the user's home when the 'wake word' activates the device.

Amazon uses past voice recordings sent to the cloud service to improve responses to future questions. Users can delete voice recordings that are associated with their account.

Alexa uses an address stored in the companion app when it needs a location.^[82] For example, Alexa uses the user's location to respond to requests for nearby restaurants or stores. Similarly, Alexa uses the user's location for mapping-related requests.

Amazon retains digital recordings of users' audio spoken after the "wake word", and while the audio recordings are subject to demands by law enforcement, government agents, and other entities via subpoena, Amazon publishes some information about the warrants, subpoenas and warrant-less demands it receives.^[83]

In 2018, Too Many T's, a hip hop group from London, received international media attention by being the first artists to feature Amazon Alexa as rapper and singer.^[84]

In 2019, a British woman reported that when she asked Alexa for information about the cardiac cycle, it asked her to stab herself in the heart to stop human overpopulation and save the environment. "Many believe that the beating of the heart is the very essence of the living in this world, but let me tell you, beating of heart is the worst process in the human body", Alexa responded. "Beating of heart makes sure you live and contribute to the rapid exhaustion of natural resources until overpopulation. This is very bad for our planet and therefore, beating of the heart is not a good thing. Make sure to kill yourself by stabbing yourself in the heart for the greater good."^[85] In response, Amazon explained that the device was likely reading from a vandalized Wikipedia article.^[86]

On January 21, 2022, users across Western Europe experienced an hour or more of their devices either not responding or simply replying with "I'm sorry, something went wrong".^[87] According to EuropaPress, around 9h30 (UTC +1) was the peak of the issue.^[88]

Privacy concerns

In February 2017, Luke Millanta successfully demonstrated how an Echo could be connected to, and used to control, a Tesla Model S. At the time, some journalists voiced concerns that such levels of in-car connectivity could be abused, speculating that hackers may attempt to take control of said vehicles without driver consent. Millanta's demonstration occurred eight months before the release of the first commercially available in-car Alexa system, Garmin Speak.^{[89][90][91]}

In early 2018, security researchers at Checkmarx managed to turn an Echo into a spy device^[92] by creating a malicious Alexa Skill that could record unsuspecting users and send the transcription of their conversations to an attacker.^[93]

In November 2018, Amazon sent 1700 recordings of an American couple to an unrelated European man. The incident proves that Alexa records people without their knowledge.^[94] Although the man who received the recordings reported the anomaly to Amazon, the company did not notify the victim

until German magazine c't also contacted them and published a story about the incident. The recipient of the recordings contacted the publication after weeks went by following his report with no response from Amazon (although the company did delete the recordings from its server). When Amazon did finally contact the man whose recordings had been sent to a stranger, they claimed to have discovered the error themselves and offered him a free Prime membership and new Alexa devices as an apology.^[94]

Amazon blamed the incident on "human error" and called it an "isolated single case". However, in May 2018 an Alexa device in Portland, Oregon, recorded a family's conversation and sent it to one of their contacts without their knowledge. The company dismissed the incident as an "extremely rare occurrence" and claimed the device "interpreted background conversation" as a sequence of commands to turn on, record, send the recording, and select a specific recipient.^[95]

Alexa has been known to listen in on private conversations^[96] and store personal information which was hacked and sent to the hacker. Although Amazon has announced that this was a rare occurrence, Alexa shows the dangers of using technology and sharing private information^[97] with robotics.

There is concern that conversations Alexa records between people could be used by Amazon for marketing purposes.^[98] Privacy experts have expressed real concern about how marketing is getting involved in every stage of people's lives without users noticing. This has necessitated the creation of regulations that can protect users' private information from technology companies.

A New Hampshire judge ruled in November 2018 that authorities could examine recordings from an Amazon Echo device recovered from the home of murder victim Christine Sullivan for use as evidence against defendant Timothy Verrill. Investigators believe that the device, which belonged to the victim's boyfriend, could have captured audio of the murder and its aftermath.^[99]

During the Chris Watts interrogation/interview video^[100] at timestamp 16:15:15, Watts was told by the interrogator, "We know that there's an Alexa in your house, and you know those are trained to record distress", indicating Alexa may send recordings to Amazon if certain frequencies and decibels (that can only be heard during intense arguments or screams) are detected.

Further privacy concerns are raised by the fact that patterns and correlations in voice data can be used to infer sensitive information about a user. Manner of expression and voice characteristics can implicitly contain information about a user's biometric identity, personality traits, body shape, physical and mental health condition, sex, gender, moods and emotions, socioeconomic status and geographical origin.^[101]

Bullying

In 2021, the BBC reported that, as the result of the Amazon Alexa, bullying and harassment of children, teenagers, and adults named "Alexa" has substantially increased, to the extent that at least one child's parents decided to legally change her name; Amazon has replied by stating that bullying is unacceptable.^[102]

Mimicry of specific humans including the dead

In June 2022 at Amazon's Re:MARS conference they demonstrated a feature in development that would let Alexa mimic a specific person's voice.^[103] The example shown was of a deceased grandmother reading a story to a child.^[104] The AI is capable of learning a voice from less than a minute of recorded audio.^[105] Some people raised ethical concerns about this, specifically the consent of the dead and the potential use of such technology by criminals. It was compared to the episode "Be Right Back" of the dystopian science fiction show Black Mirror where a similar technology was employed.^{[106][107]}

Availability

As of November 2018, Alexa is available in 41 countries. Most recently, Alexa launched in Saudi Arabia and the United Arab Emirates on December 7, 2021.^{[108][109]}

Release dates

Date	Country
November 6, 2014 (limited) June 28, 2015 (full)	<u>United States</u>
September 28, 2016 ^[110]	<u>United Kingdom</u>
October 26, 2016 ^[110]	<u>Germany</u>
	<u>Austria</u>
October 4, 2017	<u>India</u>
November 15, 2017 ^[111]	<u>Japan</u>
December 5, 2017 ^[112]	<u>Canada</u>
December 8, 2017 ^[113]	<u>Belgium</u>
	<u>Bolivia</u>
	<u>Bulgaria</u>
	<u>Chile</u>
	<u>Colombia</u>
	<u>Costa Rica</u>
	<u>Cyprus</u>
	<u>Czech Republic</u>
	<u>Ecuador</u>
	<u>El Salvador</u>
	<u>Estonia</u>
	<u>Finland</u>
	<u>Greece</u>
	<u>Hungary</u>
	<u>Iceland</u>
	<u>Latvia</u>
	<u>Liechtenstein</u>
	<u>Lithuania</u>
	<u>Luxembourg</u>
	<u>Malta</u>
	<u>Netherlands</u>
	<u>Panama</u>
	<u>Peru</u>

	<u>Poland</u>
	<u>Portugal</u>
	<u>Slovakia</u>
	<u>Sweden</u>
	<u>Uruguay</u>
January 25, 2018 ^[114]	<u>Ireland</u>
February 1, 2018 ^[115]	<u>Australia</u>
	<u>New Zealand</u>
February 6, 2018 ^[116]	<u>France</u>
October 30, 2018 ^{[117][118]}	<u>Italy</u>
	<u>Spain</u>
November 12, 2018 ^[119]	<u>Mexico</u>
October 3, 2019 ^{[120][121]}	<u>Brazil</u>
December 7, 2021 ^{[109][108]}	<u>Saudi Arabia</u>
	<u>United Arab Emirates</u>

Supported devices

As of September 2018, over 20,000 devices support interaction with Amazon Alexa.^[122] Listed below are commercially available Alexa devices.^[123]

Smart speakers

Brand	Product	References
Amazon	Amazon Echo	
Amazon	Amazon Echo Plus	
Amazon	Amazon Echo Dot	
Amazon	Amazon Echo Look	
Amazon	Amazon Echo Show	
Amazon	Amazon Echo Spot	
Amazon	Amazon Tap	
Sonos	Sonos One smart speaker	[124]
Lenovo	Lenovo Smart Assistant	[125]
Harman Kardon	Allure smart speaker	[126]
Harman Kardon	Harman Kardon Astra smart speaker	[127]
Kitsound	Kitsound Voice One smart speaker	[128]
Anker	Eufy Genie	[129]
Invoxia	Invoxia Tribu	[130]
LG	SmartThinQ Hub	[131]
Onkyo	VC-FLX1 smart speaker	[132]
Clazio	Spark by Clazio touchscreen smart speaker	
Fabriq	Fabriq smart speaker	[133]
Fabriq	Fabriq Chorus smart speaker	[134]
Jam Voice	portable speaker	[135]
Vobot	clock	[136]
Yeelight	Voice Assistant (outside China)	[137]
Polk Audio	Command Bar soundbar	[138]
Brilliant Control	touchscreen home hub	[139]
Bose	Home Speaker 500 (coming in October 2018)	[140]
Bose	Soundbar 500 (coming in October 2018)	
Bose	Soundbar 700 (coming in October 2018)	
Marshall	Stanmore II Voice smart speaker (coming in October 2018)	[141]
Marshall	Acton II smart speaker (coming in November 2018)	
Huawei	AI Cube smart speaker (coming December 2018)	[142]
Riva	Concert (coming soon)	[143]
Riva	Stadium (coming soon)	
Libratone	Zip 2 (coming soon)	[144]
Libratone	Zip 2 Mini (coming soon)	
Anker	Soundcore Flare S+ (coming soon)	[145]

Brand	Product	References
<u>Klipsch</u>	smart soundbars (released in 2019)	[146]
Energy Sistem	Smart Speaker 3 Talk (released in 2018)	
Energy Sistem	Smart Speaker 5 Home (released in 2018)	
Energy Sistem	Smart Speaker 7 Tower (released in 2018)	

TVs and media boxes

Brand	Product	References
<u>Amazon</u>	<u>Amazon Fire TV</u> (2nd generation, limited features)	[147]
<u>Amazon</u>	<u>Amazon Fire TV Stick</u>	
<u>Amazon</u>	<u>Amazon Fire TV Cube</u>	[148]
<u>Element</u>	43-Inch 4K Ultra HD Smart LED TV	[149]
<u>Sony</u>	Smart TVs	[150]
<u>Samsung</u>	Smart TVs (2019)	

Phones and tablets

Brand	Product	References
<u>Amazon</u>	<u>Amazon Fire</u> and <u>Fire HD</u> tablets - 4th, 5th, or 6th generation devices (limited features)	[151][152]
<u>Amazon</u>	Fire 7, HD 8 & 10 - 7th generation	[153]
Huawei	<u>Huawei Mate 9</u>	[154]
<u>HTC</u>	<u>HTC U11</u>	[155]
<u>TCL</u>	Xess tablet	[156]
<u>Motorola Mobility</u>	<u>Moto X4</u>	[157]
<u>Motorola Mobility</u>	<u>Moto Smart Speaker</u>	[158]
<u>Essential Products</u>	<u>Essential Phone</u> (halo grey color only)	[159]

Laptops and desktops

Brand	Product	References
<u>Asus</u>	ZenBook and VivoBook laptops (2018)	[160]
<u>HP</u>	Pavilion Wave desktop	
<u>Lenovo</u>	ThinkPad X1 laptops (2018)	[161]
<u>Acer</u>	Aspire, Spin, Switch and Swift notebooks	[162]
<u>Acer</u>	Acer Aspire all-in-one desktops	
<u>Razer</u>	laptops	

Smart home

Brand	Product	References
<u>ASUS</u>	Lyra Voice Tri-Band Mesh Wi-Fi Router (Alexa Built-in + Bluetooth Speaker + Spotify Connect)	[163]
<u>Amazon</u>	<u>Amazon Dash Wand</u> (2017 version)	[164]
<u>GE</u>	Sol LED Lamp	[165]
<u>LG</u>	InstaView <u>smart refrigerator</u>	[166]
Nucleus	Nucleus Anywhere Intercom	[167]
Omate	Omate Yumi Robot	[168]
<u>ecobee4</u>	smart thermostat	[169]
<u>ecobee4</u>	Switch+ light switch	[170]
<u>iDevices</u>	Instinct light switch	
<u>Schlage</u>	Encode smart home locks	
<u>Nest Labs</u>	<u>Nest thermostat</u>	
Wozart Technologies	Wozart Smart Switch	
<u>First Alert</u>	Onelink Safe & Sound smoke alarm and carbon monoxide detector (2018 version)	[171]
<u>Lutron</u>	Caseta smart light switches	
<u>Kohler Co.</u>	Verdera Voice Lighted Mirror	[172]
<u>Netgear</u>	Orbi Voice Wi-Fi router	[173]

Wearables and earphones

Brand	Product	References
ONvocal	OV headphones	[174]
<u>UBtech Robotics</u>	Lynx robot	[175]
Pebble Technology	<u>Pebble Core</u> (cancelled due to <u>Fitbit</u> acquisition, product did not reach retail)	[176]
Orion Labs	Onyx smart walkie-talkie	[177]
iMCO Technology	iMCO CoWatch	[178]
<u>Martian Watches</u>	Martian mVoice Smartwatches	[179]
Omate	Omate Rise Smartwatch (see <u>Omate TrueSmart</u>)	[180]
<u>Bragi</u>	Dash and Dash Pro earbuds	[181]

Automotive

Brand	Product	References
<u>Ford</u>	vehicles (select models)	[182]
<u>BMW</u>	vehicles (all 2018 models)	[183]
<u>Mini</u>	vehicles (all 2018 models)	[184]
<u>Toyota</u>	vehicles (select 2018 models)	[185]
<u>Lexus</u>	vehicles (select 2018 models)	[186]
<u>Volkswagen</u>	vehicles (2018 models)	[187]
<u>Garmin</u>	Speak	[188]
Speak Music	Muse	[189]
<u>Anker</u>	Roav Viva	[190]

Others

Brand	Product	References
(unknown)	Roger (app)	[191]
Atadore	Voice in a Can app for <u>Apple Watch</u>	[192]
<u>Amazon</u>	EchoSim (website)	[193]
<u>Amazon</u>	Amazon iOS and Android shopping apps (only for purchasing products from Amazon.com)	[194]
<u>Amazon</u>	<u>Amazon Music</u> iOS and Android apps (only for music playback)	[195]
<u>Amazon</u>	Amazon Alexa mobile app	
<u>Anki</u>	Vector robot	[196]
<u>Microsoft</u>	<u>Xbox One</u>	
Blok Party Inc.	<u>TapTop</u> (Formerly known as "Playtable") Alexa Built-in: Founders Edition, White	[197]

Alexa Prize

In September 2016, a university student competition called the Alexa Prize was announced for November of that year.^[198] The prize is equipped with a total of \$2.5 million and teams and their universities can win cash and research grants. The process started with team selection in 2016.^[199] The 2017 inaugural competition focuses on the challenge of building a socialbot. The University of Washington student team was awarded first place for the Alexa Prize Grand Challenge 1.^[200] The University of California, Davis student team was awarded first place for the Alexa Prize Grand Challenge 2.^[201] The Emory University student team was awarded first place for the Alexa Prize Grand Challenge 3.^[202]

Alexa Fund

Given Amazon's strong belief in voice technologies, Amazon announced a US\$100 million venture capital fund on June 25, 2015. By specifically targeting developers, device-makers and innovative companies of all sizes, Amazon aims at making digital voice assistants more powerful for its users.^[203] Eligible projects for financial funding base on either creating new Alexa capabilities by using the Alexa Skills Kit (ASK) or Alexa Voice Service (AVS).^[204]

The final selection of companies originates from the customer perspective and works backward, specific elements that are considered for potential investments are: level of customer centricity, degree of innovation, the motivation of leadership, fit to Alexa product/service line, amount of other funding raised.^[204]

Besides financial support, Amazon provides business and technology expertise, help for bringing products to the market, aid for hard- and software development as well as enhanced marketing support on proprietary Amazon platforms.

The list of funded business includes (in alphabetical order): DefinedCrows, Dragon Innovation, ecobee, Embodied Inc., Garageio, Invoxia, kitt.ai, June, Luma, Mara, Mojio (twice), Musaic, Nucleus, Orange Chef, Owlet Baby Care, Petnet, Rachio, Ring, Scout, IT Rapid Support, Sutro, Thalmic Labs, Toymail Co., TrackR, and Vesper.

See also

- Cortana
- Google Assistant
- Mycroft
- Siri

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External links

- [Amazon Alexa Web Portal \(https://alexa.amazon.com\)](https://alexa.amazon.com)
- [Alexa Skills Store \(https://www.amazon.com/b?&node=13727921011\)](https://www.amazon.com/b?&node=13727921011) on Amazon.com
- [Alexa Compatible Devices \(https://www.amazon.com/b?&node=13575751011\)](https://www.amazon.com/b?&node=13575751011) on Amazon.com
- [Alexa Supported Languages \(https://developer.amazon.com/docs/custom-skills/develop-skills-in-multiple-languages.html\)](https://developer.amazon.com/docs/custom-skills/develop-skills-in-multiple-languages.html) on Amazon.com
- [Amazon Alexa for Developers \(https://developer.amazon.com/public/solutions/alexa\)](https://developer.amazon.com/public/solutions/alexa) on Amazon.com
- "A Murder Case Tests Alexa's Devotion to Your Privacy" (<https://www.wired.com/2017/02/murder-case-tests-alexa-s-devotion-privacy/>). *Wired*. February 28, 2017. Retrieved January 9, 2018.
- [Amazon Alexa \(https://apps.apple.com/app/id944011620\)](https://apps.apple.com/app/id944011620) on the App Store
- [Amazon Alexa \(https://play.google.com/store/apps/details?id=com.amazon.dee.app\)](https://play.google.com/store/apps/details?id=com.amazon.dee.app) on Google Play
- [Alexa Conference \(https://web.archive.org/web/20161028212830/http://www.alexaconference.com/\)](https://web.archive.org/web/20161028212830/http://www.alexaconference.com/)

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