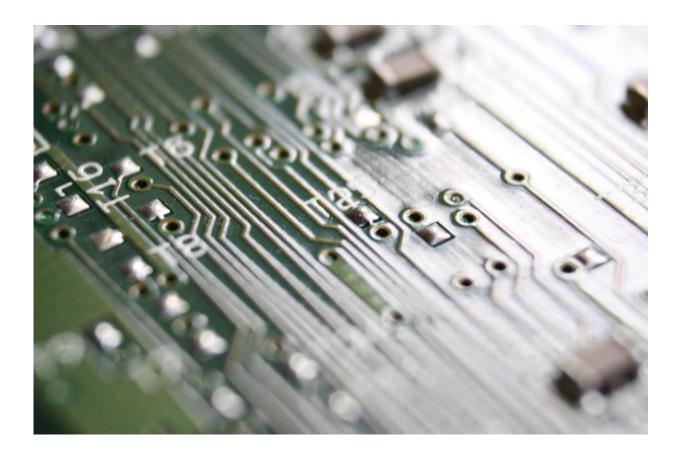


## One bot to rule them all? Not likely, with Apple, Google, Amazon and Microsoft virtual assistants

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Credit: Public Domain

It's no wonder titans of tech are locked in an epic battle of the bots, racing furiously to produce the best virtual assistant.



Their respective help-bots - Apple's Siri, Google's Assistant, Amazon's Alexa and Microsoft's Cortana - promise consumers one of the most valuable commodities in the world: free time.

Thanks to the sudden acceleration of artificial intelligence and advancements in speech recognition and big-data storage, the technology behind virtual assistants is rapidly spreading from phones to cars and homes, and the truly useful helper is approaching fast. The four giants are fighting for the biggest share of a market expected to grow to \$12 billion by 2024.

"There's a tremendous amount of promise for these agents to help and assist with many different tasks that we face every day," said Ross Rubin, principal analyst at Reticle Research. "The more the agent can help you with, the more value it holds."

The ultimate goal is our own personal genie in a bottle that awakens with a word or touch to liberate us from all our mundane tasks, organize our days and nights, and free us from the stress of lives that have become so terribly busy. But that's not going to happen quite yet.

Today, the aid these virtual assistants provide remains limited. Most users of Google Home and Amazon Echo devices - which host Assistant and Alexa, respectively - stream music, play audio books, and control smart-home devices, according to surveys by San Francisco analytics firm VoiceLabs.

Still, the virtual agent's foundation in AI means the more it learns about a user's preferences and behaviors, the better job it can do. So while experts predict a handful of firms will dominate in this field - most agree Apple, Google and Amazon will be major players, with Microsoft in a lesser role - they're split on whether consumers will be served best by one bot, or more.



"People want one assistant, they don't want two," said Jan Dawson, chief analyst at Jackdaw Research in San Jose. "You want one assistant, to be very readily available wherever you are."

However, the various assistants will likely end up somewhat specialized in their expertise, with Google's Assistant, for example, excelling in providing knowledge and managing schedules, and Microsoft's Cortana leading on gaming, said VoiceLabs CEO Adam Marchick. In a few years, many people will use two or three different assistants, Marchick predicted.

The industry stands at a critical moment, because the first highly effective help-bot to get a foothold in a consumer's home, phone or car will likely stay, creating a barrier to competitors, Marchick said.

In order for a virtual helpmate to run your life, it needs to engage with the providers of all the services you rely on, from your calendar app to your Uber ride. Those providers must either partner with the company operating the assistant, or design their app to integrate with the assistant. So Spotify will stream music upon request via Alexa, and Honeywell's smart-home thermostat, via Assistant, will bump up the temperature 15 minutes before Grandma's expected arrival.

For providers, "if there is a competitive advantage to be gained, then absolutely they will do it," said Brett Sappington, senior director of research at market research firm Parks Associates.

For all the major players, virtual assistants provide important data that fuels the AI that powers and improves them, making both the assistants and the products they live in ever more marketable. For Amazon, Alexa is an enthusiastic purchasing agent for the e-commerce that drives the firm. For Google, Assistant is a turbocharged vacuum for the data the company collects to sell ads targeted directly at users.



Underlying the projected expansion of virtual assistants is the "voice first" approach to personal technology, said Brian Roemmele, a Los Angeles tech entrepreneur and expert in voice computing. Voice operation keeps hands free and it's faster, he noted, because speaking conveys information more quickly than typing.

So far, both Google and Amazon have focused largely on home-based assistants. Google's new Pixel phones host Assistant, but it has an uphill battle because Apple has far more phones equipped with Siri on the market, said Tim Bajarin, an analyst with San Jose market research firm Creative Strategies.

The popularity of Amazon's Echo and Alexa notwithstanding - the company has sold more than 8 million Echo devices since rolling them out in late 2014, according to Consumer Intelligence Research Partners - most people want their virtual assistant on their phones, Bajarin said.

"When you're driving, that's critical, or if your hands are busy," Bajarin said. "The phone will continue to dominate as the vehicle for delivering the virtual assistant."

Putting these robo-helpers into cars' onboard systems has become a priority for major firms, including Microsoft, which seeks to extend the reach of its PC-based Cortana through the "connected-vehicle" platform it announced this year.

In January, Nissan announced it would integrate Microsoft's platform into its cars. Siri already can be used in a car via a phone or Apple's CarPlay system, or in cars sold with Siri integration built in. Hyundai is bringing Alexa and Google's Assistant into some of its cars so, for example, an owner could start their car from their living room.

While building the supreme help-bot is clearly a priority for many major



tech firms, experts say the software today lacks the knowledge base to take the next big leap: to enable <u>virtual assistants</u> that can predict our needs to serve us better.

"Some of it is just raw amounts of data and understanding about how the world works and what humans expect," Reticle's Rubin said.

Which companies rise to dominance depends both on the capability of their bots and the draw of the gadgets that house them.

"The story has not been written on what success is going to be in this space," Sappington said.

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