Top 10 Strategic Technology Trends for 2018: Conversational Platforms

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Conversational platforms offer a fluid and natural interface, and will change how people use technology. Visionary enterprise architecture and technology innovation leaders are using conversational platforms to deliver strategic customer and employee innovations.

Key Findings

- "Conversational first" will be the most important, high-level design imperative through 2023.
- Conversational interfaces will become pervasive when complex and compound natural-language queries and commands can be handled easily.
- The market segments for chatbots, virtual customer assistants (VCAs), virtual personal assistants (VPAs) and virtual enterprise assistants (VEAs) will increasingly overlap. These role-based assistants will eventually merge into consolidated platforms that interface with knowledge bases, connected things, applications and third-party services.

Recommendations

Enterprise architecture (EA) and technology innovation leaders using EA to master emerging and strategic trends:

- Deploy conversational solutions internally now by examining use-case opportunities, including IT service desk, meeting scheduling and warehouse operations. This will enable you to learn about the technology and its limitations in a controlled-risk environment.
- Trial conversational solutions externally by making limited deployments targeting key touchpoints in the customer journey to assess the viability of the solutions.
- Choose vendors tactically through 2020 by matching available solutions to use-case opportunities. The technology is advancing too quickly to make strategic vendor choices.
- Plan for conversational interfaces to be integrated into commercial software by 2019 by scrutinizing vendors' product development plans. Prepare for the arrival of conversational interfaces in your organization by determining a user-support strategy.

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Strategic Planning Assumptions

By 2022, 30% of customer service experiences will be handled by conversational agents, up from 3% in 2017.[1]

By 2018, more than 2 billion people will use conversational artificial intelligence (AI) to interact with VPAs, VCAs, and other AI-enabled smartphones and connected devices on a regular basis.[2]

By 2019, 40% of enterprises will be actively using chatbots to facilitate business processes using natural-language interactions.[3]

Analysis

Why Conversational Platforms Is a Top 10 Trend

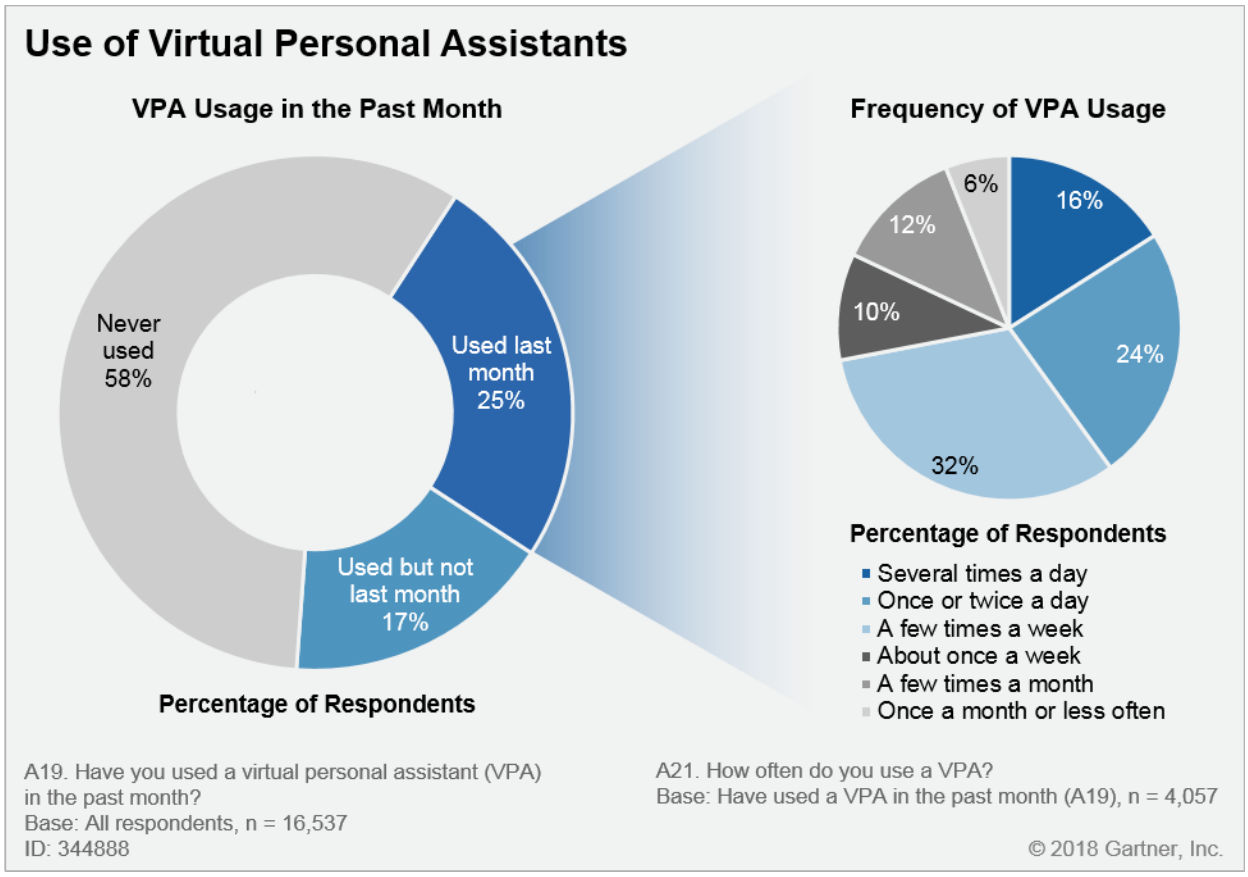
Conversational platforms transfer complexity from the user to the technology. Instead of people needing to be computer literate, computers are becoming people literate. The technology is still in

the early stages of development, but it will advance to include context, maintain a dialogue and handle more complex interactions. People will then rely on these platforms to give them information and perform tasks on their behalf. In the future, intelligent agents will proactively engage users when necessary.

Users of conversational platforms are no longer machine operators, needing to learn technology. Machine learning is shifting the responsibility for learning from the user to the technology. The technology has to interpret the user's intent and act on it. This is a fundamental change to how software is designed and, more importantly, how users interact with technology.

Conversational platforms will affect virtually every organization. Gartner's 2018 CIO Survey indicates that 4% of organizations have already invested in and employed conversational interfaces, and 17% are in short-term planning or actively experimenting with the technology.[4] A 2017 Gartner survey indicates that one quarter of respondents regularly use VPAs (see Figure 1).[5]

Figure 1. A Quarter of All Respondents to a Gartner Survey Used a Virtual Personal Assistant in the Previous Month



Source: Gartner (March 2018)

Conversational commerce enables organizations to interface with conversational platforms, and provides a new channel for offering goods and services. Interactions throughout the customer journey will increasingly be conversational. Employees will adopt conversational interfaces for many types of interactions with corporate systems. And people will become more reliant on personal assistants to proactively provide information and services whenever and wherever they need them.

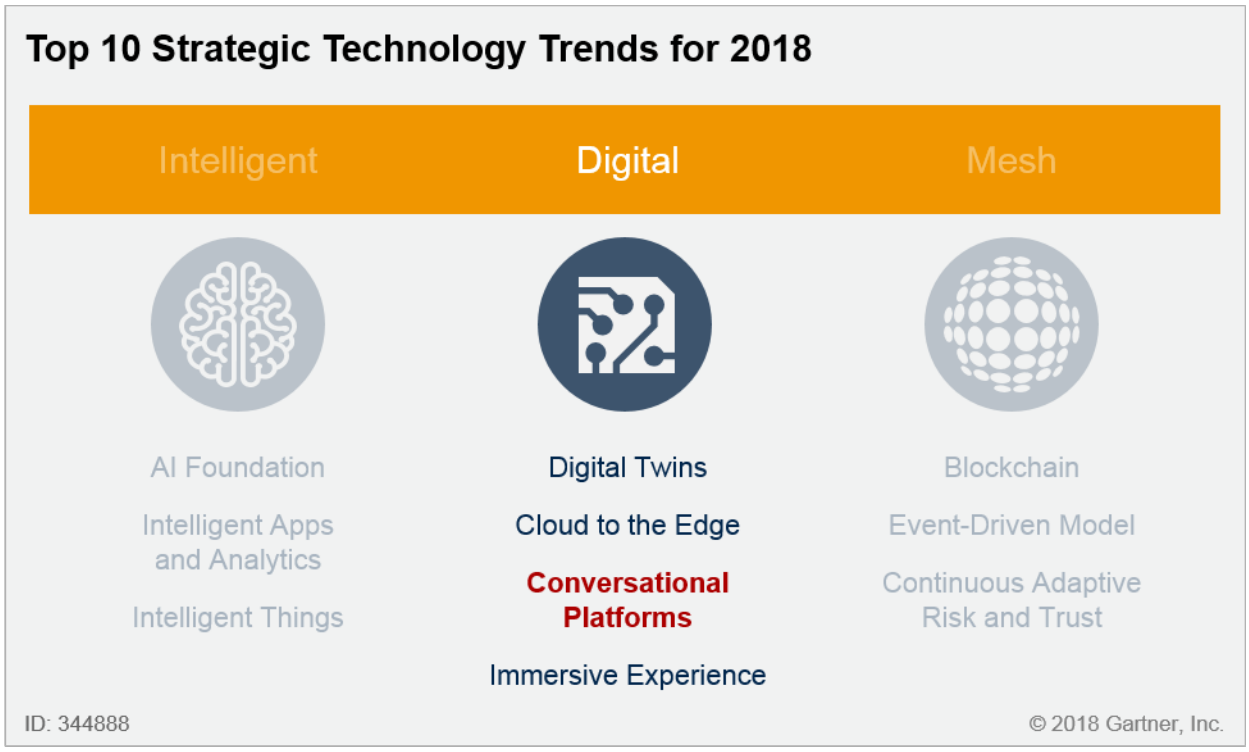
The current market for conversational platforms consists of VPA, VCA, VEA and chatbot segments. Between 2021 and 2023, these role-based assistants will converge toward a unified market. In November 2017, Amazon announced Alexa for Business with additional features for the office environment such as starting a meeting or ordering office supplies.[6] Through 2023, conversational platforms will remain a battleground for vendors. Major competitors will seek to dominate the market, control the user interface and relegate others to the status of third-party service providers. In the future, conversational platforms will gain better context and personalize text or voice interactions by augmenting them with:

- Biometric authentication (voice and facial)
- Gesture recognition
- Emotion detection
- Speaking style
- Cultural cues
- Historical preferences

Where Conversational Platforms Fits in the Top 10

This trend is part of the digital theme (see Figure 2), along with digital twins, cloud to the edge and immersive experience. The digital theme focuses on blending the digital and physical worlds to create a natural and immersive, digitally enhanced experience. As the amount of data that things produce increases exponentially, compute power shifts to the edge to process stream data and send summary data to central systems. Digital trends, along with opportunities enabled by AI, are driving the next generation of digital business and the creation of digital business ecosystems.

Figure 2. Where Conversational Platforms Fits in the Top 10 List of Strategic Technology Trends



Source: Gartner (March 2018)

Conversational Platforms Enable Users to Interact With Technology

Conversational platforms enable users to interact with technology using spoken or written natural language. Examples include Apple's Siri, Microsoft's Cortana, Amazon's Alexa, Google Assistant, Baidu's DuerOS and IBM's Watson Virtual Agent. Conversational platforms share similar technical foundations. What distinguishes them are their input mechanism (for example, text or voice) and their underlying capability focus (such as personal assistance, customer engagement or employee support).

Chatbots tend to have narrowly focused capabilities and are mostly limited to text-based interactions. Chatbots can be integrated into websites or mobile apps, but are often accessed through messaging platforms, such as Facebook Messenger, WeChat and Kik.

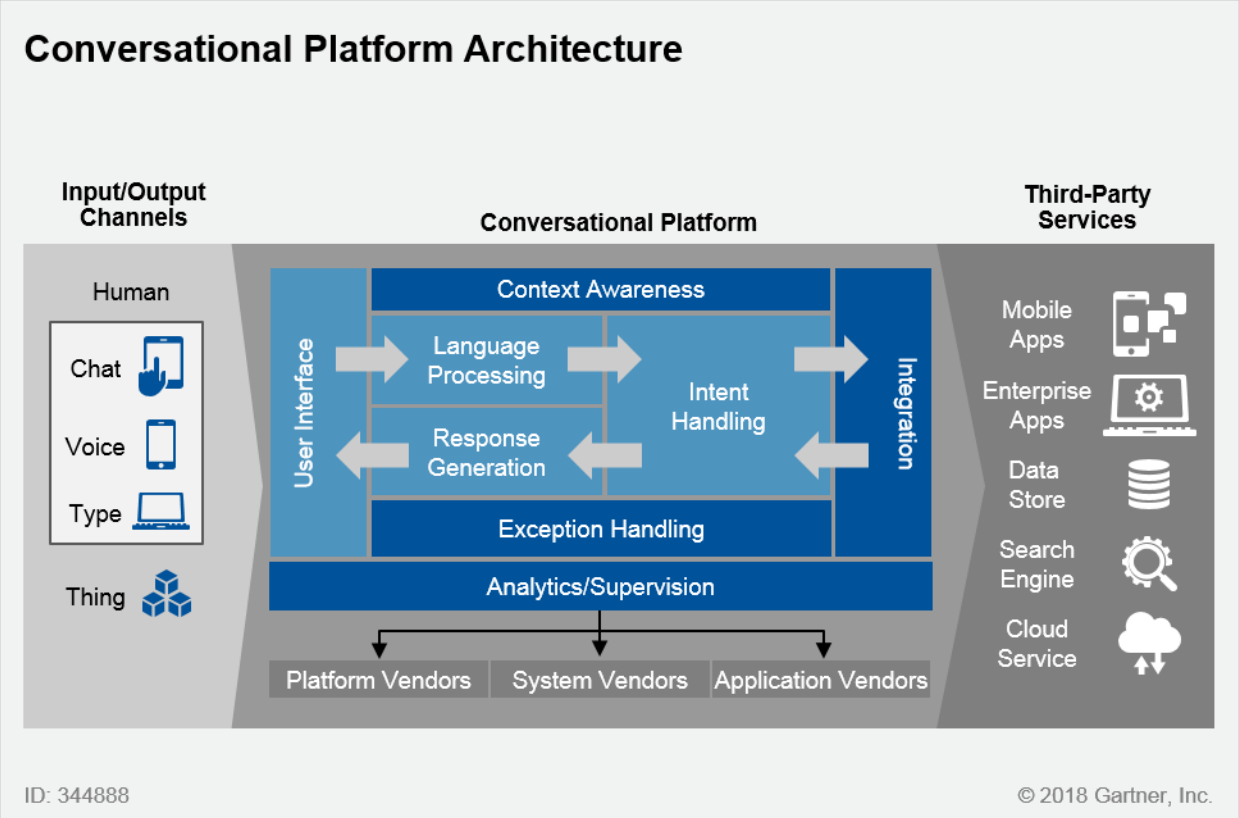
VPAs, VCAs and VEAs have broader capabilities and use voice-based interactions. These types of conversational platforms can be accessed through various general-purpose devices (such as mobile devices, PCs and smartwatches) or specialty devices (such as Amazon Echo and Echo Show, Google Home, Harman Kardon Invoke and Apple's HomePod). Their capabilities are implemented through integration with knowledge bases, connected things or third-party services.

The global breadth of conversational platforms is uneven, with some languages progressing faster than others. The battleground in the market today is the ability to maintain complex conversations

and understand the user's intent. Over time, conversational platforms will integrate with a growing ecosystem of third-party services that will exponentially drive the utility of these platforms. In the future, a primary differentiator between conversational platforms will be the robustness of the API and event models used to access, enable and orchestrate third-party services to deliver complex outcomes.

Conversational platforms use many discrete technologies (see "Architecture of Conversational Platforms"). But the platforms' core capability is to determine the user's intent and match that to a request handler that walks through a decision tree to provide the appropriate response (see Figure 3).

Figure 3. Logical High-Level Conversational Platform Architecture



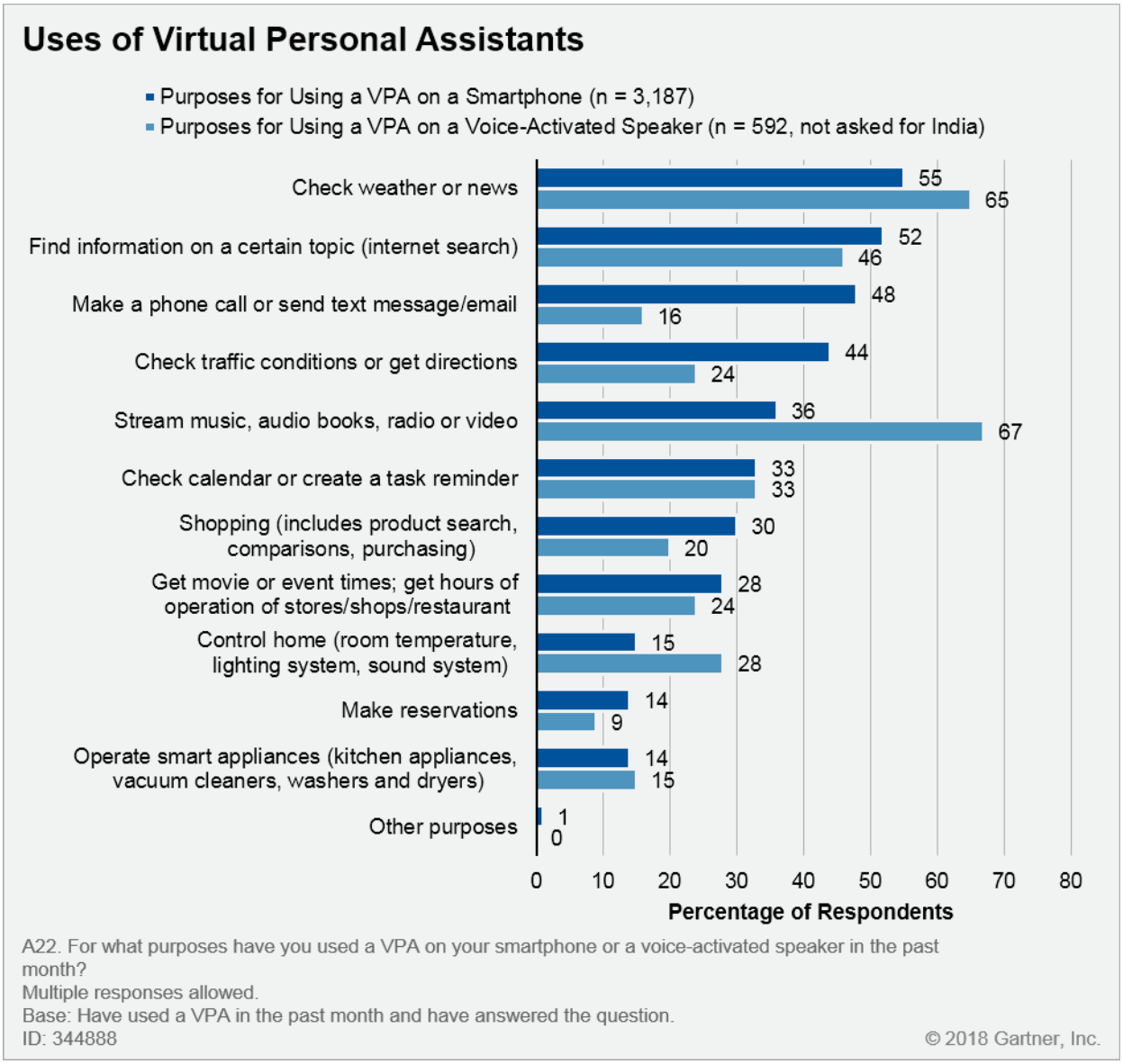
Source: Gartner (March 2018)

Conversational Platforms Make Mundane Tasks Easy

Conversational platforms use natural language to remove the complexity from the interface so users don't have to learn how to use the technology. Instead, users interact in their natural language. Currently, conversational interactions are limited by the machine's ability to understand user intent. Conversational platforms can usually understand and respond to simple queries and commands such as "What will the weather be like tomorrow?" or "Turn off the lights" or "Add mayonnaise to my

grocery list." Figure 4 shows the most common reasons for which respondents to a 2017 Gartner survey used VPAs.[5]

Figure 4. Virtual Personal Assistants Can Respond to Simple Queries and Commands



Source: Gartner (March 2018)

Conversational platforms make mundane tasks easy. It's much easier to say, "Start my 2 o'clock videoconference" than it is to start the videoconferencing application, look up meeting IDs and passwords, and then get the audio working. But don't underestimate the value of automating mundane tasks. We've all experienced meeting delays because nobody in the meeting room knows how the videoconferencing equipment works.

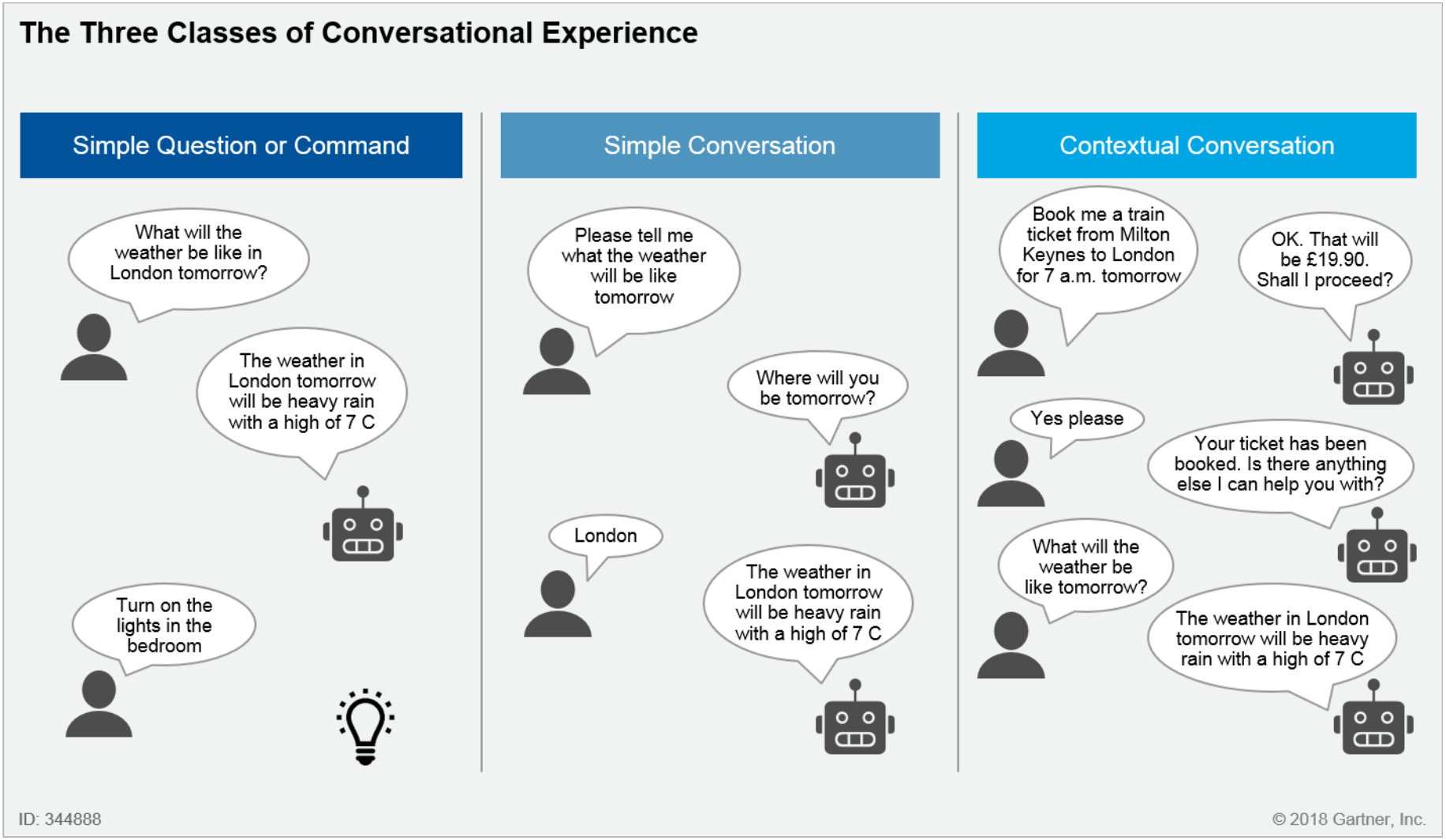
Complex bidirectional conversations such as "Order a pizza" are more challenging because the pizza size, crust and toppings, and the credit card and delivery address must be explicitly designed into the conversation flow. The challenges of more complex interactions are apparent in Amazon Alexa Skills reviews for Pizza Hut and Domino's, where more than 50% of skills reviews gave only one star.[7] This demonstrates the friction that conversational platforms can create.

The challenge that conversational platforms face is that once the initial intent is determined, request handling is completed through a decision tree, resulting in a scripted dialogue. This can be frustrating for users. We expect new ways of handling in the future. Indeed, capabilities such as multiple and compound intents will quickly increase decision trees to unmanageable sizes, making other handling methods vital. Friction will be reduced as the technology matures to handle multiple and compound intents.

There are three broad classes of conversational experience (see Figure 5):

- **Simple question or command:** Simple "once and done" interactions that succeed or fail.
- **Simple conversation:** Dialogue to identify intent and collect required parameter data.
- **Contextual conversation:** A dialogue in which the chatbot retains context about the user and the conversation, and can apply it when appropriate as the conversation continues.

Figure 5. The Three Classes of Conversational Experience Deliver Differing Degrees of Sophistication



C = Celsius

Source: Gartner (March 2018)

Simple questions and simple conversations are by far the most common type of conversational experience, and the easiest to deliver using commercially available technology. VPAs, VCAs and VEAs can deliver simple contextual conversations. However, the frameworks and services available for natural-language understanding don't learn directly from user interactions. This layer of contextual understanding must be explicitly designed into the conversation flow.

Voice-powered conversational platforms provide a hands-free means of interacting with technology. This is particularly useful for interactions while driving or exercising, or for any job that requires hands-free interactions (for example, field service, healthcare delivery, warehouse operations and utility line maintenance). For example, a salesperson can use a VEA in-car after meeting a client to record the details of the interaction and any follow-ups, saving time and improving accuracy.

VCAs are changing the way companies interact with customers throughout the customer journey. For example, companies can use a conversational agent to answer questions about invoices or provide advice on products. If the VCA can't answer a question, it will transfer the caller to a human customer service representative.

Current use cases for conversational platforms in organizations include applications using simple questions and simple conversations focused on employees or customers. Hands-free use cases are particularly compelling as they can take advantage of voice interaction with technology. Evaluate opportunities for using conversational platforms to make mundane tasks easier, particularly tasks that would benefit from hands-free operation.

Contextual conversations will become more viable as the technology develops. But conversational interfaces will never be the preferred choice for all uses. Some tasks (such as developing a spreadsheet, designing a part, or writing this research) lend themselves to traditional interfaces.

Actions

EA and technology innovation leaders:

- Evaluate opportunities now to exploit conversational platforms as the next paradigm shift in user interfaces.
- Devise a plan for dealing with conversational interfaces entering the enterprise as vendors integrate conversational capabilities into their software products.
- Prepare for the consolidation of the VPA, VCA, VEA and chatbot sectors, and make tactical deployments rather than strategic vendor selections.

Appendix: The Other Top Strategic Technology Trends for 2018

For information on the other top strategic technology trends for 2018, see:

"Top 10 Strategic Technology Trends for 2018: AI Foundation"

"Top 10 Strategic Technology Trends for 2018: Intelligent Apps and Analytics"

"Top 10 Strategic Technology Trends for 2018: Intelligent Things"

"Top 10 Strategic Technology Trends for 2018: Digital Twins"

"Top 10 Strategic Technology Trends for 2018: Cloud to the Edge"

"Top 10 Strategic Technology Trends for 2018: Immersive Experience"

"Top 10 Strategic Technology Trends for 2018: Blockchain"

"Top 10 Strategic Technology Trends for 2018: Event-Driven Model"

"Top 10 Strategic Technology Trends for 2018: Continuous Adaptive Risk and Trust"

Gartner Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Architecture of Conversational Platforms"

"Enterprises Must Prepare 'Now' for the Disruptive Power of Conversational AI Platforms"

"Redefine Your Application Strategy to Exploit Conversational AI for Digital Business Success"

"Four Use Cases for Chatbots in the Enterprise Now"

"When Will AI Virtual Support Agents Replace Your IT Service Desk?"

Evidence

[1] "Market Insight: How to Collaborate and Compete in the Emerging VPA, VCA, VEA and Chatbot Ecosystems"

[2] "Forecast Snapshot: VPA-Enabled Wireless Speakers, Worldwide, 2016-2021"

[3] "Four Use Cases for Chatbots in the Enterprise Now"

[4] "The 2018 CIO Agenda: Mastering the New Job of the CIO," Figure 31, n = 3,138. Gartner conducted the 2018 Gartner CIO Survey online between 20 April and 26 June 2017. It surveyed Gartner Executive Programs members and other CIOs. Qualified respondents were the most senior IT leader (CIO) for their overall organization or a part of their organization (for example, a business unit or region). The total sample was 3,160, with representation from all geographies and industry sectors (public and private). A team of Gartner analysts developed the survey collaboratively. Gartner's Research Data and Analytics team reviewed, tested and administered it.

[5] Gartner conducted the 2017 Gartner Personal Technologies Study online during June and July 2017. The 16,537 respondents ranged in age from 18 to 74 years. We applied quotas and weighting for age, gender, region and income ($10,000 and above in the U.S., €10,000 and above in Germany, and £6,000 and above in the U.K.). Results are representative of each country's online population.

Gartner analysts, familiar with the topics covered, developed the survey. Gartner's Research Data Analytics team reviewed, tested and administered the survey. We drew the respondents randomly from external consumer panels.

[6] "Amazon Is Putting Alexa in the Office," TechCrunch.

[7] Alexa Skills Ratings on Amazon.com on 24 November 2017:

Domino's: 197 reviews, one star = 53%

Pizza Hut: 166 reviews, one star = 63%

More on This Topic

This is part of an in-depth collection of research. See the collection:

- Top 10 Strategic Technology Trends for 2018: A Gartner Trend Insight Report

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