Bots Aren’t Ready To Be Bankers
Bank Execs Should Focus On Foundational Digital Initiatives Now To Take Advantage Of Next-Gen Bots In Two To Three Years
by Peter Wannemacher
August 31, 2016

Key Takeaways

Digital Business Leaders At Banks Are Launching Or Considering Chat Bots
Bank of America plans to roll out a chat bot on Facebook’s Messenger platform soon, while Capital One customers can pay bills and track spending by talking to any Alexa device via bot technology. China Merchants Bank, meanwhile, is just one of the many Chinese banks that employ chat bots on WeChat.

Today’s Bots Aren’t Ready For Prime Time When It Comes To Banking
Forrester’s research shows that while chat bots on messaging platforms can be effective in some circumstances, the customer experience overall is uneven. And while someone may not fret much when ordering a taco is clunky or doesn’t work, the stakes are too high when it comes to actions and advice related to people’s money.

Digital Banking Teams Should Take Actions Now To Prepare For Next-Gen Bots And AI
Digital executives at banks outside of China should focus on foundational digital initiatives such as data infrastructure now so they are ready in two to three years when the underlying artificial intelligence (AI) has improved to yield better bots.

Why Read This Report

Many companies are betting on bots, chat-based software built to simulate human conversation and help consumers complete tasks. But while bots and the technologies that enable them are evolving rapidly, the customer experiences they offer today are often either poor or uneven. Digital leaders at most banks should hold off on launching customer service or chat bots on messaging platforms. Instead, digital teams should work with their technology partners to focus on foundational digital initiatives that will enable better bots and artificial-intelligence-based services in two to three years.
## Bots Aren’t Ready To Be Bankers

**Bank Execs Should Focus On Foundational Digital Initiatives Now To Take Advantage Of Next-Gen Bots In Two To Three Years**

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### Notes & Resources

Forrester interviewed nine vendor and user companies: Bank of America, Facebook, Fulton Financial, Garanti Bank, Kasisto, Nuance Communications, Personetics Technologies, and two other large banking providers.

### Related Research Documents

- **Brief: Facebook Messenger Bets On Bots**
- **Case Study: Scotiabank Boosts Sales With Targeted Mobile Cross-Selling**
- **Good Alone, Better Together: Integrating Chat And Virtual Agents**
- **Mobile Messaging: Catalyst And Core Channel For Commerce**
Companies Are Getting Bot Happy

Many firms, including Silicon Valley giants like Facebook, are betting big on chat bots, software built to simulate human conversation and to help consumers complete tasks.¹ Hype around chat bots has spiked in recent months: According to Google Trends, which uses news, headlines, and internet searches to track different topics, interest in “chat bots” and “chatter bots” more than tripled between December 2015 and April 2016.² Forrester’s ongoing research on this topic shows that:

 › Bots are not a new concept. The idea that software can prove useful by imitating human conversation is an old one: ELIZA, a computer program many would call a kind of proto-bot, dates back to the 1960s. More recently, Google Trends data shows that interest in chat bots was actually higher in 2004 than it is today.³ So the idea of bots is neither new nor inherently revolutionary. Still, recent advances in machine learning, a type of artificial intelligence (AI), are fostering renewed interest in bots, leading many to wonder whether bots might be the next big thing.”⁴

 › Some bots are more equal than others. The underlying technology that bots are built on — or variations of that technology — is used for many different implementations.⁵ These include different types of internet bots, chat bots, and other computer programs built to take on specific functions.⁶ The potential value of different bot implementations varies widely based on customer context, business objectives, the underlying technology, and the degree to which a firm has integrated and updated back-end systems and processes. The technology, in particular, exists on a wide spectrum: Many bots use relatively basic machine learning, rather than “deep” AI-like neural networks.⁷

 › Virtual agents are already well established in retail banking. One variety that many executives are well aware of is virtual agents, which provide interactive Q&A capabilities powered by natural language processing.⁸ Virtual agents have evolved from simple, self-service chat bots to today’s more personalized, data-driven answer engines that deliver customer value in both sales and service engagements.⁹ Virtual agents are typically designed for websites and smartphone apps.¹⁰

 › Mobile messaging’s popularity is driving increased interest in chat bots. Like bots, mobile messaging is an old technology. But mobile messaging is an old dog that keeps learning new tricks.¹¹ And innovative mobile messaging services are encouraging messaging use: In the US, for example, messaging volumes grew by 100% from 2014 to 2015 among established messaging platforms and by well over 200% for some newer players.¹² As more companies look to meet customers on messaging platforms, automated options like chat bots seem more enticing.
Facebook Messenger and other platforms are encouraging firms to develop bots. In April 2016, Facebook announced that it will now enable developers to create chat bots on Messenger — part of a broader push to transform Messenger into a relationship platform. This push is, in turn, fostering a wider interest in the potential for chat bots. In China, consumers and companies alike are using chat bots on messaging platforms like WeChat, which have become the primary means by which many people access the wider internet.

Banks Are Exploring The Potential For Chat Bots On Third-Party Messaging Platforms

Digital business leaders at banks have kept a keen eye on what their peers in other industries are doing. So it is not surprising that the hype around bots on messaging platforms has caught the attention of many bankers. For example:

- **Multiple Chinese banks have bots on WeChat.** WeChat grew from a relatively simple messaging service to become many consumers’ primary means of connecting to a wide range of online and digital services. Along with more than 650 million active users, tens of millions of companies are present on WeChat. And banks are right in the thick of it: Bank of China, China Construction Bank, and China Merchants Bank are just three of the many banks that employ chat bots on WeChat.

- **A couple of big providers are trying out banking services via Alexa.** In March 2016, Amazon and Capital One announced that customers can now pay their bills just by talking to Alexa, Amazon’s intelligent personal assistant on its Echo device, enabled via bot technology. Citi and Wells Fargo have likewise said they’re looking into banking services via Alexa. A digital team member at one of these firms explained that banks’ efforts today are mainly “an experiment . . . at this point we are just exploring that space.”

- **Bank of America will roll out a bot on Facebook Messenger soon.** When Facebook announced its push for bots on Messenger, more than 20 companies immediately announced plans to provide bot-based services via the platform, and Bank of America was one of them. Digital business leaders at Bank of America say they see chat bots on messaging services as part of a broader strategy to increase “convenience and value for our clients.”

Chat Bots On Messaging Platforms Will Disappoint Bankers

Bots and the technologies that enable them — including machine learning and other types of AI — are evolving rapidly. Digital business leaders at most banks should think carefully before launching chat bots on third-party messaging platforms because:

- **Today’s bots offer uneven — or worse — experiences for customers.** Chat bots on messaging platforms are meant to simulate human conversations to help customers complete tasks, but today many either fail to communicate accurately or offer clunky and awkward exchanges. Bot conversations often fall short of great customer experiences. For example, Poncho — one
of the more popular bots already present on Facebook Messenger and other platforms — sometimes helps people quickly obtain weather information. But other interactions with the bot yield nonsensical conversations that leave the consumer confused and frustrated (see Figure 1). 20 Likewise, the retailer H&M’s bot on the messaging platform Kik sometimes offers fun outfit ideas but can also veer into unworkable conversations or fail to understand specific requests or questions (see Figure 2). 21

› **Money is an area where people are least willing to put up with mediocre bots.** Having a weird chat with a bot about the weather can be mildly irritating, but it’s unlikely to bother most people much because the stakes are low. In contrast, conversations and interactions about a person’s finances can be highly sensitive, so chats that go awry can be problematic for the bank. If a person using a chat bot has a problematic or potentially incomplete bot interaction regarding their money, they can be left annoyed, upset, or even scared. If Taco Bell’s TacoBot misunderstands a person’s request and orders three tacos instead of one, the results are unlikely to be catastrophic. If, however, a bot interaction accidentally leads to the same person sending money three times or paying a bill wrong, the results can be costly.

› **Bots and other AI-based services will improve — but banks won't drive this evolution.** Digital business leaders have good reason to be optimistic about the future of AI and bots: Innovations like neural networks are leading to substantial leaps. But while bots and their underlying technology are set to get much better over the next two to three years, banks will not be the companies advancing this technology. That’s not a bad thing: Tech companies are better staffed and equipped to push AI and bots to the next level, and banks can reap the rewards of these advances. But given these circumstances, most banks outside China will not gain from investing in bots on third-party platforms in the near term.
Bank Execs Should Focus On Foundational Digital Initiatives Now To Take Advantage Of Next-Gen Bots In Two To Three Years

**FIGURE 1** People’s Conversational Experiences With Chat Bots Can Go Awry

Source: Poncho bot on Facebook Messenger
Bank Execs Should Focus On Foundational Digital Initiatives Now To Take Advantage Of Next-Gen Bots In Two To Three Years

FIGURE 2 Bot Interactions Sometimes Fail To Achieve Consumers’ Objectives

Source: H&M bot on Kik
Bank Execs Should Focus On Foundational Digital Initiatives Now To Take Advantage Of Next-Gen Bots In Two To Three Years

Source: H&M bot on Kik
Bank Execs Should Focus On Foundational Digital Initiatives Now To Take Advantage Of Next-Gen Bots In Two To Three Years

**FIGURE 2** Bot Interactions Sometimes Fail To Achieve Consumers’ Objectives (Cont.)

![Image of H&M bot on Kik interaction]

Source: H&M bot on Kik
Bank Execs Should Focus On Foundational Digital Initiatives Now To Take Advantage Of Next-Gen Bots In Two To Three Years

Recommendations

Focus On Foundational Digital Initiatives To Prep For Next-Gen Bots

To quote the character Richard Hendricks from the TV show Silicon Valley, “Being too early is the same as being wrong.” So while digital business leaders at banks are right to be intrigued by the potential for bot-based services, most should hold off on rolling out chat bots in two to three years. As an executive at one technology company put it: “Bots can only be as good as the systems behind them... outdated platforms, poor integration, or ineffective architecture can severely hinder chat bots, which can lead directly to less-than-ideal customer experiences.” Digital teams at banks should partner with their business technology peers and use the next two to three years to invest in foundational digital initiatives that put them in position to take advantage of future AI and next-gen bot technologies.

Forrester recommends that digital banking teams:

- **Re-engineer back-end data systems to enable real-time info and actions.** The shift from batch processing to real-time data in banking is gathering pace. Forrester predicts that more banking providers will be investing heavily in updating and rebuilding data infrastructure, alongside improved data governance models and other prerequisites for real-time data. For example, one of the largest banks in the world has spent the past four years re-engineering its entire back-end data infrastructure, enabling the digital team to plan ahead for a range of next-generation digital offerings. Chat bots, along with virtual assistants and other digital services, will be far more effective when they have access to real-time data and systems of insight.

- **Make progress on platform improvements — or replacements.** Banks have spent decades running their digital efforts on top of borderline-antique legacy systems, some dating back to the Nixon administration. Likewise, many banks' digital platforms are old, built in-house with various components “bolted” on over the years. Moving toward digital core banking will have many benefits, including putting the bank on a better foundation to roll out improved bot-based services in the future.

- **Embrace APIs to allow for faster, more dynamic changes in the future.** Application programming interfaces (APIs) top the business technology agenda of many financial services firms — and with good reason. Ideally suited to the digital business model, in terms of both meeting rapidly evolving customer expectations and opening up digital ecosystems, APIs have a role to play internally, collaboratively, and in delivering the new climate of openness within banking. APIs will play an important role in future bot implementations, so banks that recognize the value of APIs will be in a better position to quickly act on, and adapt to, shifts in the chat bot and messaging landscape. Already, APIs are often essential to bot offerings: Kik’s own open API is a major reason why developers build bots for the platform.
Bank Execs Should Focus On Foundational Digital Initiatives Now To Take Advantage Of Next-Gen Bots In Two To Three Years

Supplemental Material

Companies Interviewed For This Report

We would like to thank the individuals from the following companies who generously gave their time during the research for this report.

Bank of America
Facebook
Fulton Financial
Garanti Bank
Kasisto
Nuance Communications
Personetics Technologies

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Endnotes

1 As this report will outline, bots’ underlying technology is the basis for multiple types of digital services. These include chat bots on third-party messaging platforms like WhatsApp, as well as virtual assistants like Aetna’s virtual agent “Ann” and BBVA’s “Lola.” Although this report focuses largely on the former, the current and future state of AI-based bots — and the implications for digital business leaders at banks — are shared across all categories of bot use cases and implementations. For more information on virtual agents, see the “The Business Case For Virtual Agents” Forrester report.

2 This is based on Google Trends’ “interest over time” metric combining data on the terms “chat bots” and “chatterbot” over the past 12 months. Source: Google Trends (http://www.google.com/trends).

3 While Google Trends data is not a perfect metric of changing business strategy, it is a valuable proxy to determine which concepts are growing more popular and influential. Source: “Explore,” Google Trends (https://www.google.com/trends/explore?date=all&q=chat%20bots&tz=Etc%2FGMT%2B4).


5 These underlying technologies include natural language processing, predictive analytics, machine learning and other types of artificial intelligence, and other enabling technologies.

6 This report focuses on chat bots on third-party messaging apps. But Forrester’s research includes analysis of many other types of bots. See the “Programmatic Transforms Digital Media Buying” Forrester report.

7 Forrester defines artificial intelligence (AI) as the theory and capabilities that strive to mimic human intelligence through experience and learning. AI capabilities include elaborate reasoning models to answer intricate questions and solve complex problems. Machine learning is a type of AI that gives computers the ability to learn without human programming. Neural networks (more recently called “deep learning systems”) are complex nonlinear models with very large numbers of parameters. The prediction equations are generally sums of exponentials. The equations behind neural networks tend to be so complex that they are effectively a black box. The latest advances in neural network-based AI allow programs to uncover more complex patterns such as analogical relationships (e.g., “short is to shortest as big is to biggest) and linguistic regularities (e.g., “king” + “woman” is close to “queen”). Cognitive computing can also attempt to automatically build word classes and taxonomies (e.g., “carnivore” and “cormorant” both relate to animals). Beware: AI is still in its infancy and is by no means plug-and-play. Real battle-hardened, mission-critical AI applications still require significant investments in training these systems with domain knowledge and expertise. See the “Artificial Intelligence Can Finally Unleash Your Business Applications’ Creativity” Forrester report.

8 Forrester predicts that AI and virtual agents will play an important role in the future of mobile, a future in which mobile experiences will evolve along three dimensions — channel, context, and construction — and in four stages — from siloed apps to blended experience ecosystems. In this future, virtual agents will assemble fragments of content and services based on two driving criteria — user context and historically similar use cases. A mobile device will then offer up streamlined task flows and curated content for consumers. Development models will evolve from known-state diagrams to functional, reactive programming models. For more on the future of mobile, see the “The Future Of Mobile: From App Silos To Open Ecosystems” Forrester report.

9 Although technology sophistication and the level or personalization varies, many virtual agents have evolved from simple, self-service chat bots to today’s more personalized, data-driven answer engines that deliver customer value in both sales and service engagements. See the “The Business Case For Virtual Agents” Forrester report.

10 For example, TSB Bank uses virtual agent technology to power its primary search field. When a user enters her question, the virtual agent will render its single best answer on one side of the page and tap into the site’s underlying search capabilities to display search results on the other. See the “Get Better Results — Virtual Agents Are Key To Improving Site Search” Forrester report.
The combination of mobile apps and smartphones seemed destined to make simple text messages obsolete. But while traditional SMS text messaging has plateaued in many markets, an overall decline in messaging simply has not happened. Instead, mobile messaging players have continued to innovate and, as a result, find new customers and increasing demand among existing users. For more information, see the “Mobile Messaging: Catalyst And Core Channel For Commerce” Forrester report.

Effective mobile messages deliver value when they are well-timed, simple, and contextual. This is why leading messaging companies are seeing such high and growing demand. Unfortunately, too few digital business professionals today leverage real-time data to send the types of messages that consumers expect. Source: Forrester interviews with messaging platforms and other companies. For more information, see the “Mobile Messaging Fails Customers Today” Forrester report.

As usual, Facebook is playing its cards close to its vest; based on the F8 keynote, the core value proposition for marketers offered by the combination of Facebook’s main app, Facebook Messenger, and WhatsApp is not clear. But Forrester expects more information to come, especially in terms of commerce and payment opportunities. To see more of Forrester’s take on this announcement, see the “Brief: Facebook Messenger Bets On Bots” Forrester report.

In Asia, WeChat is much more than just a messaging app — it’s become a mobile ecosystem filled with powerful features and services that make life easier for both consumers and marketers. See the “Reinvent Customer Relationships With WeChat Mobile” Forrester report.

Following WeChat-obsessed Chinese consumers, banks have embraced the innovative platform and are providing advanced mobile banking services to customers on their WeChat public accounts. Forrester evaluates Chinese banks’ services via WeChat as part of our mobile banking benchmark. For more information, see the “2016 China Mobile Banking Functionality Benchmark” Forrester report.

This garnered many big headlines, plus both paid and earned media. Here’s one example from GeekWire. Source: James Risley, “Amazon’s Alexa can now pay credit card bills with Capital One integration,” GeekWire, March 11, 2016 (http://www.geekwire.com/2016/alexa-can-pay-your-credit-card-bills-with-new-capital-one-integration/).

Source: Interview with multiple members of a large US bank’s “digital channels” team, May 2016.


Source: Interview with a digital banking executive at Bank of America, June 2016.

Forrester spent just under 10 minutes interacting with the Poncho bot. Some of the bot’s answers were clear and valuable, while others were awkward and valueless.

As with Poncho, Forrester’s testing yielded some accurate fashion offerings from the H&M bot. Forrester spent 15 minutes interacting with the H&M bot on Kik, with mixed results.

The episode this quote comes from was written by Clay Tarver. Source: “Silicon Valley,” IMDb (http://www.imdb.com/title/tt5218498/?ref_=ttep_ep9).

Note that although we believe most banks should wait on launching chat bots on messaging platforms, this does not mean that digital business leaders should ignore the potential for bot-based customer interactions and experiences entirely. But business success in this wider space — sometimes called conversational commerce — will mainly revolve around simple, lower-consideration customer journeys, such as buying beauty products or ordering food. For example, the French beauty and personal care brand Sephora built a chat bot for Kik that gives straightforward beauty advice and guides users to products based on their conversations with the bot. Taco Bell, meanwhile, built a bot for Slack that enables people to quickly and easily order tacos for their teams while they work. Forrester predicts that more marketers will use a conversational approach on messaging services. See the “2016 Mobile And App Marketing Trends” Forrester report.
Forrester’s own application development experts predict rapid improvement in bot software over the next 18 to 36 months. Tech companies’ battles to win the larger war over AI and “deep learning” will yield much-improved programs that offer better conversational experiences for consumers.

Although they will not know or use the exact phrase “real time,” a majority of mobile banking customers will soon expect real-time financial information and transactions. As one bank executive told us, “It won’t be long before customers find it absolutely preposterous that it takes two to three days for their money to get where they want it to go.” Disruptors like Venmo in the US and Singapore’s fastacash offer immediate, real-time value transfers between consumers. Not to be outdone, established firms like BBVA Compass are enabling real-time payments and money movement. See the “Predictions 2016: Financial Services Execs Wake Up To Digital Transformation” Forrester report.

Multiyear, back-end engineering initiatives will enable far more than better chat bot offerings. For example, real-time data will allow banks’ digital teams to improve location-based, cross-touchpoint services. An existing customer at a car dealership could receive an in-app alert with a personalized loan offer that can be completed via a short phone call. This is just one of the context-driven scenarios a bank’s digital team is considering and planning for in collaboration with enterprise architects and other parts of the organization. See the “Design Better Cross-Channel Banking Journeys” Forrester report.

Companies must personalize digital experiences using all available insights — not just clickstream and thinly defined profiles. New technologies are coming online — including predictive analytics and machine learning — to make it possible to customize an experience in real time based on all the data. Forrester defines systems of insight as the business discipline and technology to harness insights and consistently turn data into effective action. For more information, see the “Digital Insights Will Power Great Digital Experiences” Forrester report.


Forrester recommends that banks move towards “digital core banking.” The “new core” separates customer interactions and data. Combined with modern architectural approaches, this decoupling supports constant change and can also reduce risk. See the “An Introduction To Digital Core Banking” Forrester report.

Building an API strategy can be confusing and fraught with technical jargon. To cut through the complexity, digital business executives should focus on how four common API use cases power their digital business: internal APIs, B2B APIs, open web APIs, and product APIs. See the “Four Ways APIs Are Changing Banking” Forrester report.

Leading banks will leverage the fragmented value chain to create new business opportunities with partners — including fintech and third-party marketplaces — that are in touch with target customer segments. Any and all new business models will need highly flexible application landscapes, and well-defined sets of APIs will be crucial ingredients. See the “APIS Turn Disruptions Into Business Opportunities” Forrester report.

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