

THE POWER OF AI — DELL TECHNOLOGIES PERSPECTIVE SERIES

Guide to Conversational AI for Financial Services

Artificial intelligence, machine learning, and natural language processing are helping financial companies improve customer satisfaction and engagement, reduce costs, and achieve competitive advantage.

ABSTRACT

Today, most banks, insurance companies, and other kinds of financial services firms have deployed chatbots that can address some of their customer service needs. But most of these chatbots fall short of organization's goals for the technology. To get to the next level, financial companies will need to deploy conversational AI that makes these interactions feel more like talking to a live human being. This paper examines the current state of chatbots, the benefits and challenges of conversational AI, and key considerations for designing conversational AI applications, as well as examining the infrastructure necessary for supporting these systems.

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THE CURRENT STATE OF CONVERSATIONAL AI FOR FINANCIAL SERVICES

Financial services firms all over the globe are investing heavily in artificial intelligence (AI). According to [IDC](#), worldwide spending on AI will likely top \$204 billion by 2025, and the banking industry is the second biggest spender, surpassed only by retail.

And when it comes to how firms are spending those AI dollars, the IDC researchers say the number one use case is automated customer service agents.

This use case is particularly relevant to the financial services industry, where digital assistants or chatbots are becoming the norm for interacting with customers. [Juniper Research](#) found that successful banking chatbot interactions increased by an incredible 3,150% between 2019 and 2023. In fact, the firm predicts that chatbots will account for 79% of successful mobile banking interactions in 2023.

But while financial services firms recognize that chatbots are the future, most also say that their current chatbot capabilities fall far short of their hopes for the technology.

For example, a [Forrester report commissioned by vendor ADA](#) found that 95% of financial firms say that it is important or very important for their chatbot to “understand the value of the customer and their history of transactions/interactions with the company.” However, only 55% said that their chatbots could do that today. Similarly, 91% of respondents wanted their chatbots to automate actions based on customer responses, but only 52% said their current technology had that capability.

In many cases, these financial services firms could fill in the gap between their expectations and their current capabilities by deploying a chatbot with conversational AI capabilities.

CONVERSATIONAL AI AND CHATBOTS — WHAT’S THE DIFFERENCE?

Before we can delve more deeply into the details of conversational AI, we should back up and define some terms.

Artificial intelligence (AI) refers to a wide-ranging category of technology that allows computers to function more like human beings. The analysts at [Forrester](#) define it as “the theory and capabilities that strive to mimic human intelligence through experience and learning.”

In more practical terms, most current AI focuses on analysis — analysis of language, imagery, video, and data. [Gartner’s definition](#) reflects this reality, describing AI as “applying advanced analysis and logic-based techniques, including **machine learning (ML)**, to interpret events, support and automate decisions and to take actions.”

As Gartner notes, a lot of current AI technology, including conversational AI, relies heavily on machine learning. In simple terms, ML allows computer systems to improve over time without being explicitly programmed. In essence, they learn from their experience.

Natural language processing (NLP) is a form of artificial intelligence that allows a computer application to understand human language, either spoken or written. It encompasses technologies like voice-to-text, text-to-voice, language translation, keyword extraction, summarization, and sentiment analysis. NLP often relies on machine learning to improve its understanding of human language over time.

Conversational AI is an advanced application of NLP that allows people to have a spoken or written conversation with a computer system. The very best conversational AI systems come close to passing the [Turing test](#), that is, they are very difficult to distinguish from a human being. However, most of the tools used by financial institutions are not nearly this advanced. In fact, many of today's financial chatbots don't have any AI capabilities.

Chatbots are conversational interfaces that allow people to interact with computers by speaking or typing a language. Some of them rely on conversational AI. Some of them use NLP technology but don't rise to the level of conversational AI. And many are simple rules-based interfaces that follow a prescribed flow without any AI at all.

For example, if you click the chat icon on your bank's website and you see text that asks you to pick from three or four simple actions like checking your balance, finding out branch hours, or opening account. That's probably a chatbot without any AI capability.

However, while using the mobile app for another bank, you might hear a voice that says, "How can I help you today?" If you say, "I'd like to check my balance," the chatbot will probably reply with something like, "OK, I can help you check your balance. Please say your account number." That chatbot is using some NLP technology to extract keywords from your spoken responses. But if you ask for something more complicated, the computer will probably tell you to try your request another way or ask you to hold while it connects you with a live agent. This application is using a rudimentary form of AI, but it's still a lot different than talking to a person.

A few highly advanced conversational AI systems will allow you to ask more complicated questions. For instance, you might be able to ask, "How much did I spend in Paris last month?" And the chatbot would be able to understand what you were asking, run analytics on your purchases, and give you a total. If you followed up that question by saying, "And what about in Dubai?" conversational AI would understand from the prior context that you were asking how much you spent.

Many financial services firms are hoping to get closer to this level of AI, but for most, it isn't a reality yet.

BENEFITS OF CONVERSATIONAL AI FOR CUSTOMERS

Deploying this kind of highly advanced conversational AI has some clear advantages for customers. First, it is far less frustrating than other kinds of chatbots. Because of their advanced NLP capabilities, these tools are much more likely to understand what customers need and provide the appropriate service. With other chatbots, customers often have to wade through a long series of pre-programmed questions and responses, and in the end, they may discover that the chatbot simply isn't able to address their particular issue.

Conversational AI can also be much faster than other methods of receiving customer service, especially when compared to calling customer service personnel. According to [Gartner](#), three-quarters of customers who contacted customer service by phone said that it took longer to get help than expected.

Customers are particularly averse to being put on hold. One [survey of more than 2,500 consumers](#) conducted by a chat vendor found that out of "Nearly 60 percent of respondents believe that one-minute is too long to be on hold. In addition, 32.3 percent of consumers believe that customer service departments should be answering immediately – with no hold time."

Unlike humans, chatbots and conversational AI can respond to every request for help right away, and while it can take a long time to navigate through the options offered by a chatbot,

conversational AI can often provide a direct answer to customers' most pressing questions within seconds. Sometimes conversational AI is so fast that it solves problems before customers even know they exist. That's because many firms use their chatbots to provide proactive customer service, sending notifications about issues that customers aren't aware of yet.

Another advantage of conversational AI is that customers can call or chat anytime, around the clock. Instead of having to wait for "bankers' hours," they can get assistance whenever they need it. In addition, some financial institutions take availability a step farther by making their chatbot available on multiple channels. For example, customers might be able to interact with conversational AI through mobile apps, phone, online chat, text message, or social media.

And no matter what channel customers' use to contact their financial institution, conversational AI provides a more consistent experience than human interaction. Unlike men and women, computers don't have days where they are feeling grouchy or ill. They will offer the same polite service no matter the time of day or night, and if they have been programmed to offer certain messages or benefits or sales pitches, they will deliver them exactly the same way every time.

In addition, conversational AI has the opportunity to offer greater personalization than most non-AI chatbots. While legacy chatbots can sometimes insert customer names or other details into audio conversations, it often sounds clunky or forced if the system doesn't have modern NLP and ML capabilities.

In some cases, talking to conversational AI also feels safer than talking to a living person. Customers with privacy concerns don't have to worry anyone is judging them for the size of their bank account. And many financial customers — especially younger Millennials and Gen Z — simply prefer solving their own problems with the assistance of a computer over dealing with a person.

Infrastructure designed for conversational AI

Many banks, insurance companies, and other financial services firms find that, in order to comply with the relevant regulations in their region, they need to host their conversational AI on their own servers in their own data centers.

So what kind of hardware do you need for your conversational AI application?

The answer depends on the scope of your application and your throughput needs. Some conversational AI implementations rely heavily on machine learning tools that incorporate neural networks and deep learning techniques. Many of these more advanced chatbots run best on [high-performance computing \(HPC\)](#) clusters with dozens of PowerEdge server nodes, NVIDIA GPUs, and fast storage.

Other organizations choose to deploy conversational AI that is more limited in scope — perhaps it supports text-only rather than voice and doesn't incorporate ML techniques. These firms achieve excellent performance with superior ROI on [Dell Validated Designs for AI](#). These systems also have the advantage of being modular to support rapid scaling as usage of your chatbot increases.

The [Dell Connected Finance](#) website can connect you with resources and Dell Business Advisors who can help you determine which hardware would be best for your unique needs.

BENEFITS OF CONVERSATIONAL AI FOR THE FINANCIAL INDUSTRY

Of course, conversational AI also provides a number of benefits for the companies that use it. Most obviously, it can improve customer service, leading to higher customer satisfaction rates and higher retention rates. Because churn is a major issue for many financial firms, that retention can be very important.

And while many firms deploy chatbots because they hope that it will result in fewer calls to their customer service centers and fewer in-person visits, researchers say that conversational AI actually increases customer engagement. In other words, customers become more likely to call, chat, or visit with human staff after they have interacted with the conversational AI. But that isn't bad. These more engaged customers are often buying additional products or services and becoming even more loyal to their financial institution.

That isn't to say that conversational AI doesn't reduce costs. Most firms do report positive ROI on these technology investments. In fact, [Juniper Research](#) forecasts that in 2023, the global operational cost savings from chatbots in banking will reach \$7.3 billion, and for insurance, the savings will approach \$1.3 billion.

But these monetary savings, while significant, are often less important in the long run than the time savings. By handling most low-level tasks, the conversational AI can free up staff for other value-producing activities. And that not only benefits customers, it can also increase morale among the employees.

Another benefit that sometimes gets overlooked is the treasure trove of customer data that conversational AI collects. Of course, firms also get data from non-AI chatbots, but in those cases, customers are often selecting from pre-defined options. That means the company might be missing things that are important to their customers if they aren't included in the pre-defined menus. Conversational AI provides greater insight into customers' intentions and emotions than other kinds of chatbots or even people can provide. And because the conversation is already digital, it doesn't need to be recorded and transcribed before becoming available for analysis.

Conversational AI also provides significant branding and upsell opportunities. [Gartner](#) found that when customer service interactions are used to reinforce the value of the product, customers have an "82% probability of being retained, 86% probability of spending more money, [and] 97% probability of sharing positive word of mouth." Of course, people can deliver these same sorts of sales and marketing messages, but not with the same level of consistency. And sales pitches from a non-AI chatbot often feel unnatural.

In addition, because conversational AI relies on NLP, translation is much easier than with people. In some cases, you can even select the regional dialect or accent the AI uses so that your customers hear a voice they can understand and that feels very comfortable. This can broaden the reach of financial institutions, giving them global capabilities that might be much more difficult with other kinds of customer support.

Taken together, all these benefits add up to a significant competitive advantage for banks, insurance firms, and other financial services firms.

POTENTIAL CHALLENGES OF CONVERSATIONAL AI

These benefits of conversational AI make the technology extremely attractive to financial services firms. But before you start kick off your conversational AI project, you need to be aware that deploying these kinds of chatbots also comes with some significant challenges:

Compliance, privacy, and security. Financial services firms are one of the most heavily regulated in the world. Before you deploy any new chatbot project, you need to make sure that you are complying with any relevant laws or rules. In particular, you will need to make sure you have adequate safeguards in place to make sure that you are protecting your customers' personal data and that you aren't opening the door to potential fraud or identity theft. Be aware that in some parts of the world, compliance requirements may mean that you have to host your conversational AI application and store the related data on servers that you manage yourself rather than subscribing to a cloud-based service.

Bias. AI researchers have come to realize that bias is one of the most difficult obstacles for ML models to overcome. For example, if the data you use to train your conversational models comes exclusively from one gender or one dialect or one kind of accent, you can end up with a chatbot that can serve only a small fraction of your customer base. In the worst-case scenario, your chatbot might even say something that certain groups of people find offensive.

Understanding human emotion and idioms. AI has gotten much better at sentiment analysis, but it is still far from perfect. If one of your customers makes a joke, will your chatbot understand that they are trying to be humorous or will it attempt to fulfill what might be a ridiculous request? You'll need to have a good understanding of your chatbot's limitation and have tested it well under real-world conditions before making it widely available.

Technical bugs. No technology deployment goes 100% perfectly. You will need to have systems in place for identifying when the chatbot isn't operating as expected and processes for mitigating and resolving issues. Most importantly, you need to have an additional way for customers to contact you if and when the conversational AI is temporarily offline.

Data integration. Most financial services firms have siloed data spread through many disparate applications. You'll need to decide which of this data the chatbot will need to be able to access, and you'll need a plan for integrating those systems. This can be one of the most difficult and most time-consuming parts of a conversational AI project.

Infrastructure and scalability. As customers become increasingly comfortable using conversational AI, usage will likely expand rapidly. You need to make sure you have a plan for scaling rapidly if necessary.

KEY CONSIDERATIONS WHEN DESIGNING CONVERSATIONAL AI SYSTEMS

Once your firm has made the decision to kick off a conversational AI project, you'll need to think about different questions before you begin identifying and evaluating solutions. Those questions include the following:

- 1. What user interface options will you support?** Text-only chatbots are much easier to deploy, but consumers increasingly expect voice interfaces. You'll need to think about which options will give you the best customer experience while also staying within your budget.
- 2. What platforms will you support?** Will customers access your chatbot through your mobile app? Through your website? Both? Will they be able to call or text your chatbot or interact through social media? You should also think about whether you want to integrate with popular voice assistants like Apple's Siri, Amazon Alexa, or Google Assistant.
- 3. Will you build your own conversational AI or rely on a vendor?** The do-it-yourself approach gives you a lot of control over your conversational AI, but it also requires expertise you may not currently have in-house. And if you use a vendor, you'll have to consider whether a single vendor will be able to supply everything you need or if you'll need an integrator to help you put together the end-to-end system.
- 4. What kind of infrastructure will you need?** Will your conversational AI be hosted in a public cloud service or do you need to host it in your own data centers for compliance and security reasons? If you need to host it yourself, as many financial firms do, you'll need to investigate what kind of hardware you need and whether vendors you are considering have systems designed specifically for conversational AI.

FOR MORE INFORMATION

Want to learn more about conversational AI and other technologies that can help financial services firms innovate for the future? Check out the following links:

- [Dell Connected Finance](#) offers a wealth of resources designed to help you determine which technologies are the best fit for your needs, including analyst research, executive briefings, case studies, and more.
- [Transforming the Business of Finance](#) is an ebook from Dell Technologies and Intel that examines which trends are having the biggest impact on the financial services industry.
- [How NLP Helps Financial Services Companies Overcome 7 of Their Biggest Challenges](#) takes a look at the broader category of natural language processing, with a specific focus on how the financial industry is benefiting from these technologies.
- [Proving the Art of the Possible with Natural Language Processing](#) takes a more in-depth look at NLP, with a particular focus on language-to-language translation, text-to-voice, and the Dell Technologies HPC & AI Innovation Lab.
- [Leveraging Natural Language Processing in the Enterprise](#) examines how enterprises in a variety of industries, including finance, are harnessing the power of NLP.

To learn more, visit DellTechnologies.com/AI.