

Listen to your customers

Why financial services companies use
natural language, real-world results,
and six reasons to invest now

Why Consider Natural Language Speech Technology?

Self-service solutions over the phone, Web, and in mobile applications are integral to most financial service companies' customer service strategy, but their menu-based navigation isn't always effective. Menus are limiting, offering only the most common requests. Customers are forced to "listen closely" and spend time navigating down through spoken or visual menus to see if their need matches an available option. This can be frustrating, often causing customers to abandon self-service.

To improve navigation and help customers get help more quickly, companies have adopted a variety of solutions, but each has shortcomings. One solution is to offer different customer service phone numbers for different types of requests. One number may provide credit card services, another supports banking, and yet another addresses mortgage questions. Different mobile applications may be offered for discrete service capabilities, like pay a bill or make a deposit. While parsing services into different applications may shorten the menu, it adds a burden on the customer to find and identify the right application.

Another solution is to let a customer express what they need in their own words and use key word spotting. Key words the caller might use are identified and tied to the right support tool. Over the phone, this might be self-service tasks or routing to an agent. On the Web, this would be specific Web pages and information. This can be problematic, though, if the vocabulary is not large or precise enough. On the Web, search tools have proven to be ineffective as they only serve up a lengthy list of pages to review that might address the question. The key word approach often fails to fully understand and address the customer need.

Customers need an easier, faster, way to find the information they need across all financial products. New solutions using natural language understanding (NLU) and virtual assistants are the answer, facilitating more natural conversations that understand what a caller needs and deliver the right information immediately.

Number of Search Results on Bank Web Sites

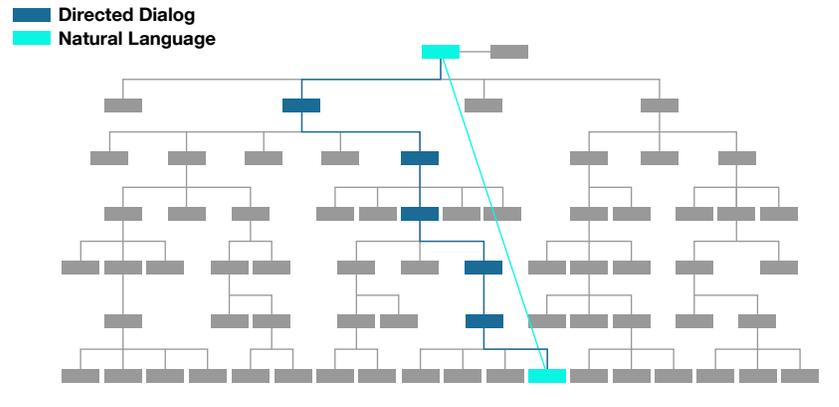
Bank	Results	Title of Top Page Listed
Bank A	38 page results	How to Put Remote Check Deposit to Work For You – “Bank A”
Bank B	117 page results	“Bank B” Article - Banking Basics: Types of Checking Accounts
Bank C	40 page results	Direct Deposit Advance Service - Get Help with Unexpected Expenses – “Bank C”
Bank D	2 “recommended links”	Checking Accounts
Bank E	13 page results	Checking Account Advance – Frequently Asked Questions – “Bank E”

A search for the “minimum deposit amount for new checking account” returned these results. The titles of the top page listed don’t directly address the request.

How natural language understanding and virtual assistants improve the self-service experience

Natural language understanding (NLU) makes automated systems more sophisticated and user friendly. Instead of a directed dialogue menu which constrains users to a list of choices, NLU technology allows them to communicate using natural spoken words. With NLU, both straightforward user requests such as “travel notification” and potentially ambiguous ones such as “I’m, um, calling because I’m going to, um, Europe and need my card to work” result in the caller being quickly connected with the appropriate resource. If the intent is unclear, the system can ask clarifying questions to ensure proper routing. The benefit of this simpler approach is a potentially significant reduction in average call time, which is accompanied by an improvement in caller satisfaction.

True natural language technology circumvents the need to manually create a comprehensive vocabulary that explicitly anticipates everything a caller might say. A caller’s perfectly reasonable request (such as “Umm, I’d like to see if a check I wrote last Friday cleared”) would not be rejected simply because it wasn’t on the hard-coded list of responses. NLU helps a system better understand naturally spoken words because it can recognize a wider variety of responses, even if it has never heard them before. It does so by studying examples of what people have said and creating statistical models that help



it understand the user's intent. The result is that, unlike speech solutions that require building extensive vocabularies, true NLU systems leverage extensive learned language models to enable more natural, conversational dialogs.

Interest in NLU technology is exploding and for good reason. This can be attributed in part to the popularity of Siri on Apple® devices and the buzz created when IBM's Watson supercomputer applied natural language processing to hold its own against human contestants on Jeopardy! in 2011. But more important, NLU is gaining traction because the technology has advanced by leaps and bounds in recent years, delivering unprecedented levels of sophistication and accuracy that enable users to interact with greater ease than ever before. For example, [Nuance Nina Web](#), which uses NLU technology to respond to requests typed into a Web site, has been specifically designed to understand the way that people communicate online and can process requests containing slang, misspellings, or grammatical errors. [Nuance Nina Mobile](#) employs NLU technology in mobile applications and uses dynamic decision-making algorithms to ensure that customers don't receive repetitive answers or reach navigational dead ends. NLU technology doesn't just listen for or match keywords; it works to truly understand meaning and intent to engage in a conversation and deliver answers.

Virtual assistants like Siri take natural language dialogs to the next level by adding personality and personalization. The assistant's visual avatar and conversational style can be customized to fit a company's brand or regional conversational styles. For example, Kaspersky Lab first launched "Lena", their virtual assistant on their Web site for the German market, and later launched "Sasha," for the UK, French, American and Canadian markets. Sasha was modeled after Lena but had modifications for cultural norms and different business processes.

Virtual assistants have been shown to provide a high degree of user satisfaction. In one survey, 83 percent of respondents rated their virtual assistant experience as "fantastic" or "good," and 79 percent found it easier than searching on the Web.

Natural language and virtual assistants enable customers to easily interact with self-service systems by speaking in their own words and engaging in a natural dialog that mimics a live agent. This superior experience is a clear differentiator that has the power to help attract and retain key financial customers.

Six reasons why financial services companies should invest in natural language solutions

1: It's a better self-service experience, and customers prefer better experiences.

Menu-based solutions require customers to search and find answers to the questions. With natural language and virtual assistants, the customer just states what they need. Then, the automated system helps find them the specific answer. If needed, follow-up questions, delivered in the form of a conversational dialog, help to clarify their need and answer the question. It's just easier than searching through layers of information, and branded virtual assistants make it more fun, too.

"We believe that the virtual assistant has tremendous potential to make it simpler, faster and more satisfying for our members to manage their financial affairs on their mobile devices."

—Neff Hudson, assistant vice president of emerging channels at USAA



[Watch television news video report of USAA launching voice command mobile banking](#)

2: It can provide a single customer access point for all products. (That's also a better experience.)

It's hard to create a service menu for a customer who uses all of a company's banking products, including checking accounts, credit cards, and mortgages. There are too many options to offer. Once they drill down into service for one product, they then must go back to a main menu to drill down into service offerings for another product. Natural language, though, makes it easy for a customer to jump between products for help. For example, they could ask for "the balance on my credit card" and then ask to "transfer money from my savings to my checking account", without having to go back to a main menu. Simplifying the experience increases switching costs to other companies and helps to retain valuable customers.

3: It will cause customers to use more self-service capabilities.

There are three reasons that using natural language results in customers using more self-service capabilities. First, natural language helps to reduce the time a customer spends searching for information. Data shows that shorter interactions correlate with more requests being successfully completed with self-service. Callers are likely less frustrated and more willing to engage with a helpful automated system. Second, natural language helps callers "discover" that self-service functionality exists for their request. When menu options with common requests are presented, callers might not know that there are other, less-frequently requested services available in the automated system. As a result, they immediately request a live agent. Using natural language helps to immediately route a customer to the automated service and increase the overall usage of that service. Third, by analyzing customer utterances, companies can identify frequent customer requests and develop new self-service capabilities. For example, if a caller asks to "speak to an agent," they can be prompted with the following: "I understand you would like to speak with someone. To get you to the right place, please tell me the reason for your call." Their stated reasons can help a company further understand caller intents and identify additional self-service opportunities.

"Our speech recognition IVR has fundamentally changed how we manage customer calls for our Cards Business." – John Zgrdja, head of digital channel solutions at GE Money

4: It reduces costs.

Letting customers state their request in their own words offers clear benefits that translate into significant cost savings.

- **More customers use self service.** Because self service is more cost-efficient than live agents, the business saves money.
- **The interaction duration is shorter.** Customers no longer have to navigate step-by-step through tiered menu mazes. Instead, they state their request and are immediately transferred either to a self-service system or to an agent. For phone calls, this reduces the time spent on the phone and decreases the companies' telephony costs.
- **There are fewer agent-to-agent transfers so agent handle time is reduced.** When callers don't hear their need in the menu options, they opt out to an agent. The agent must then spend time to assess the reason for their call and potentially transfer the caller to the right skilled agent group. With natural language, the reason for their call is automatically identified, the agent does not spend time gathering call intent, and the caller can be

routed directly to the right agent the first time. This reduces the number of agent-to-agent transfers, reduces the time callers spend on the phone, and reduces the total agent handle time. This saves the company money in terms of telephony costs and increases available agent time. Agents can spend more time on higher value activities, such as upselling customers or providing superior customer care, and less time routing calls. This increases overall customer service quality.

- **Fewer agents are needed to triage calls.** When the caller's need is clearly identified and they can be immediately routed to the correct skilled agent, fewer agents are needed to triage and transfer calls. Even inquiries that must be handled by a different business unit can be seamlessly transferred, without sending the customer to a separate menu. With fewer agents required, overall labor costs are reduced.

5: The investment can be leveraged across all channels - phone, mobile and Web – to deliver a consistent experience.

Regardless of whether the customer speaks or types in their request, the same fundamental technology is used to understand their intent and help provide service. A natural language solution, therefore, can be deployed in all of the service channels to provide a similar experience. While each channel has its unique benefits or challenges (for example, Mobile and Web can use visual cues while the phone needs audible prompts), a customer can be assured that the same question will be handled in a relatively similar way.

6: If other companies are offering it, can you afford not to?

As customer experience becomes equally important as monetary costs when customers are choosing a vendor, it's critical for companies to stay ahead or at least on par with others. Financial services companies are deploying natural language solutions in the IVR, as presented in the following pages. Interest continues to grow for virtual assistant solutions on the Web and mobile applications, with USAA being the first to offer a virtual assistant approach on their mobile application. To continue to compete, can your business afford not to consider natural language solutions?

Financial Companies' Real-World Results with Projects Including Nuance Natural Language Call Steering*

In Self-Service Adoption	In Improved Call Experience	In Improved Agent Efficiency
<ul style="list-style-type: none"> – Self-service adoption increased 20% – Call containment increased from 79% to 80% – Overall containment improved 5.6 percentage points – Increased call containment 4 percentage points – Callers who are fully automated increased 4.5 percentage point 	<ul style="list-style-type: none"> – Routing accuracy improved 4.7 percentage points – Average call duration decreased from 2 minutes to 1.7 minutes – Average call IVR call duration reduced from 90 seconds to 43 seconds. – Increased customer net promoted score (NPS) by 7 percentage points – Customer satisfaction increased 5% 	<ul style="list-style-type: none"> – Contact center productivity rates improved by 20% – 86% of calls transferred to the right agent the first time – Misrouted calls reduced 5% – Transferred calls reduced 5-10% – Agent call duration decreased by 5%

* Deployments of natural language Call Steering frequently include other solution improvements

Explore real-world deployments of natural language in phone IVR systems

Financial services companies are deploying natural language. The following case studies explain the company's situation and the results of IVR projects that included natural language deployments.

Case Study: Credit card and financial services company

Environment:

- High volume of calls were being handled by agents
- Customer service costs were too high

Solution:

- Natural language speech IVR

Results:

- Contact center productivity rates improved by 20%
 - Misrouted calls reduced 5%
 - Transferred calls reduced 5-10%
 - Agent call duration decreased by 5%
 - Customer satisfaction increased 5%
 - Self-service adoption increased 20%
 - ROI payback period of 15 months
 - Annual cost savings of \$0.6 million (AUD)
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Case Study: Retail bank

Environment:

- Touchtone IVR applications were outdated
- Call center was experiencing outages
- Overall customer experience was negative

Solution:

- Applications upgraded to include speech recognition technology
- Main menu structure redeployed with natural language Call Steering

Results:

- 86% of calls transferred to the right agent the first time
 - Automated completion rate of 93-99% for simple tasks
 - Intelligent IVR transfers high-balance customers to premier service agents
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Case Study: Retail bank

Environment:

- Press or say IVR applications
- Wanted to make customer experience simpler
- Wanted customers to reach right agent quickly

Solution:

- Engaged with Nuance Business Consulting to identify improvement options
- Implemented incremental navigation and functionality improvements and, in addition to menu, new option for customers to state reason for call in own words

Results:

- Call containment increased from 79% to 80%
 - Average call duration decreased from 2 minutes to 1.7 minutes
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Case Study: Retail bank

Environment:

- DTMF IVR was widely viewed as confusing, antiquated and counter to their brand attribute of ease
- The IVR was underperforming as measured by KPIs
- These problems were magnified when they acquired a new organization in 2009, doubling call volume from ~5 million to 11 million calls/month

Solution:

- Engaged with Nuance Business Consulting to develop 3 year roadmap, with an overall goal to increase containment
- Replaced DTMF solution with a directed dialog speech main menu with a natural language back off prompt
- Converted authentication and account selection to speech

Results:

- Following the release of the retail application, overall containment improved 5.6 percentage points
 - Callers who are fully automated increased 4.5 percentage points
 - Routing accuracy improved 4.7 percentage points
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Case Study: Retail bank

Environment:

- DTMF solution on a platform that had reached the end of its supported life
- Recently acquired another large retail bank and needed to consolidate applications
- Needed to maintain or exceed company's high call containment and user satisfaction

Solution:

- New integrated speech and touchtone solution with optional natural language prompt

Results:

- Exceeded previous overall containment rates by 3 points, resulting in tens of thousands of additional non-agent (fully automated) calls
 - Increased individual task completion rate for functions like account balance by 2 percentage points above the touchtone version
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Case Study: Retail bank

Environment:

- Hosted directed dialog solution
- Committed to providing the best possible service to its members and was continually seeking to enhance their service solutions
- Issued an RFP to identify the company best suited to partner with them through the next decade

Solution:

- Engagement with Nuance's Business Consulting team confirmed that replacing their directed dialog menus with Nuance's natural language Call Steering solution would significantly improve the member experience
- As part of migration to Nuance's hosted platform, implemented natural language Call Steering as main prompt



Results:

- More than 20% of callers are now getting directly to a self-service application or an agent after saying the reason for their call. Previously, all callers had to go through a series of disambiguation menus to confirm how to handle their call. This provides an average savings of 15 seconds per call.
 - By letting callers say the reason for the call instead of selecting from a menu, more calls are being identified as requiring a sales agent for support instead of a service agent, indicating positive opportunities for the company
 - Through customer satisfaction surveys, customers have reported that the new natural language Call Steering solution made using the phone system easier, saying it “zeros in on exactly what I need” and they “don’t have to talk to the computer as much”
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Case Study: Retail bank

Environment:

- Outdated IVR platform with old touchtone applications with limited capabilities
- Different phone numbers reached different IVR functions and agents were frequently having to assess true intent and transfer caller to another agent
- Inconsistent experience and branding in each IVR application
- Extremely limited reporting that provided no real technical or business insight into customer experience
- At bottom of J.D. Power and other CSAT rankings in comparison to competition

Solution:

- Leveraged a single toll-free vanity number as the main contact number
- Offered a natural language prompt at the main menu with directed dialog menus as secondary options and implement improved intent-based routing strategies to agents or self-service functions
- New applications included comprehensive reporting to enable continued improvements

Results:

- Successfully identified intent for 80% of calls
 - 72% of calls were contained in the IVR
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Case Study: Mortgage services company

Environment:

- Press or say menu options were often confusing
- Calls being unnecessarily transferred to agents
- Multiple operational areas performed similar tasks but had developed independent service applications

Solution:

- Engaged with Nuance Business Consulting to identify improvement options
- Consolidated applications and integrated them across various business groups
- Implemented natural language Call Steering
- Added personalization features that predict why a customer might be calling.

Results:

- Increased call containment increased 4 percentage points.
 - Increased customer net promoted score (NPS) by 7 percentage points.
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In summary

Intelligent systems featuring NLU and multichannel virtual assistants offer financial services companies the opportunity to consolidate fragmented customer service processes and systems, reduce call center costs and expand customer service to new channels. By listening to the voice of the consumer—literally—financial services companies can provide a superior customer service experience in an increasingly competitive marketplace.

About Nuance Communications, Inc.

Nuance Communications is reinventing the relationship between people and technology. Through its voice and language offerings, the company is creating a more human conversation with the many systems, devices, electronics, apps and services around us. Every day, millions of people and thousands of businesses experience Nuance through intelligent systems that can listen, understand, learn and adapt to your life and your work. For more information, please visit nuance.com.
