eBook

Getting Started with Natural Language Intelligent Virtual Agents

Learn what's attainable with today's technology and how to deploy it swiftly and successfully

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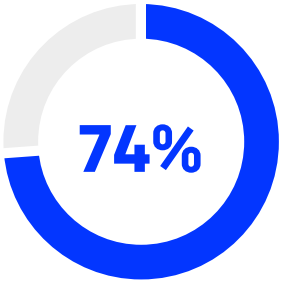
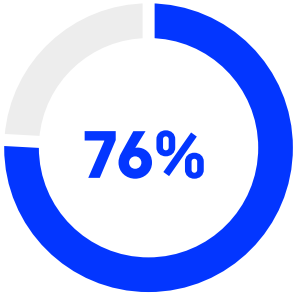
Introduction

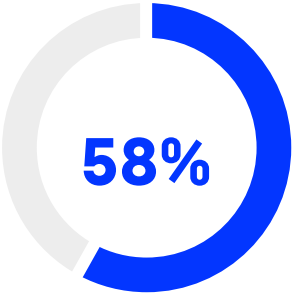
Just as consumers are having more conversations with their smart devices than ever before,[1] forward-thinking businesses are increasingly embracing natural language speech technology in their contact centers. And it's paying off. Consider these findings from a recent Capgemini survey:[2]



74% of respondents said that conversational assistants are a key enabler of their company's business and customer engagement strategy



76% have realized measurable benefits from voice and chatbots



58% said that the benefits met or exceeded expectations

1 Smart Audio Report, NPR and Edison Research, 2020. https://www.nationalpublicmedia.com/insights/reports/smart-audio-report/

2 Smart Talk, Capgemini, 2019. https://www.capgemini.com/wp-content/uploads/2019/09/Report-%E2%80%93-Conversational-Interfaces_Web-Final.pdf

It's also never been easier for businesses of any size to adopt natural language technology. The same conversational artificial intelligence (AI) that powers Google and Alexa smart speakers is now widely available via cloud-based services. Non-technical business professionals can now build applications that leverage those speech services thanks to the latest code-free developer tools. These innovations have dramatically reduced the cost and complexity of deploying natural language applications, including intelligent virtual agents (IVAs).

Natural language IVAs can effectively handle routine contact center tasks while delivering a more conversational self-service experience. Some key benefits of natural language IVAs include:

- **Higher automation rates that translate to cost savings**
- **Higher efficacy and lower customer effort**
- **Improved customer retention**
- **Increased revenue**
- **Improved employee satisfaction**

If you'd like to realize these benefits in your contact center, this eBook will show you how easy it is to hit the ground running and deploy your first natural language applications. You'll learn how to use those initial applications as a foundation for additional applications that will add value over time. You'll also gain insights about IVA application design and development gleaned from the experience of Five9 experts.

Get excited! You're one step closer to experiencing the power of natural language technology for yourself. Now let's get started.

Chapter 1: How Natural Language Transforms Self-Service

First, let's explore why natural language processing (NLP) is so powerful.

NLP makes it possible for IVAs to ask open-ended questions like, "How can I help you today?" or "Please tell me the reason for your call." This approach vastly improves upon directed dialog IVR systems *("press or say 'one' for sales"; "press or say 'two' for service")*. IVR systems often cause user error and frustration, particularly when there are loads of menu options.

With NLP, customers calling into your contact center can use natural speech to tell the IVA what they're trying to accomplish, or their "intent." For example, they can say, "I have a question about my bill" or "I want to place an order." The IVA determines the caller's intent by matching their utterances to pre-defined keywords and then completes the actions that have been assigned to those keywords in the call flow. Those actions could include responding to the caller with another prompt, routing the call to the correct department, or executing a task like credit card payment processing.

When executing a task, the IVA uses APIs to connect to your back-end systems and retrieve the information or application it needs to resolve the request. Customers can get what they need quickly, without waiting for a live person or answering tedious questions. The entire experience requires less effort, which research has shown can have a major impact on customer loyalty.[3] Additionally, because IVAs can access the intelligence and data they need to solve many requests without human intervention, you can increase your automation rates – and in turn your cost savings (an IVA typically costs about 10% of what a live agent costs).

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3 Effortless Experience Explained, Gartner, 2018. https://www.gartner.com/smarterwithgartner/effortless-experience-explained/.

It's best to start simple. That way, you can build natural language IVAs that you know will be effective, get them up and running quickly (often within days or weeks), and start enjoying the perks they provide sooner.

IVAs also use speech-to-text technology to transcribe what the caller has said in real time. It can pass that information to a live agent via screen pop if the call escalates. The IVA then logs and stores the interaction data, providing valuable insights on how to continue improving your natural language self-service experience. You can discover new intents to automate or how to adjust IVA prompts to reduce customer frustration.

Natural language IVAs make it much easier to update those audio prompts as well thanks to text-to-speech technology that is more human sounding than ever before. All you have to do is type what you want the IVA to say. There's no hiring voice talent or recording prompts over and over again for each of your stores. You can update your IVA scripts and apply those changes across all your locations in seconds. This benefit is a favorite of many businesses that use Five9 Intelligent Virtual Agent.

Finally, NLP enables IVAs to learn the many ways a customer might phrase an intent *("I have a question about my bill;" "I need to speak with someone in billing").* But this capability requires training the virtual agent to recognize that those phrases mean the same thing, which is why some tasks are more complicated to automate than others (more about that in Chapter 3).

It's best to start simple. That way, you can build natural language IVAs that you know will be effective, get them up and running quickly (often within days or weeks), and start enjoying the perks they provide sooner. The next chapter will cover an application that promises a short time to experience and can immediately make a difference in your customer service organization.

Chapter 2: A Natural Place to Start

When Pizza Hut Australia needed to update its fragmented legacy call system, it chose to build a new solution from the ground up using a natural language call steering application.

Pizza Hut's old system lacked flexibility, offered zero visibility into the causes of call abandonment, and often routed incoming calls to the wrong destination, resulting in expensive fees for the franchises.

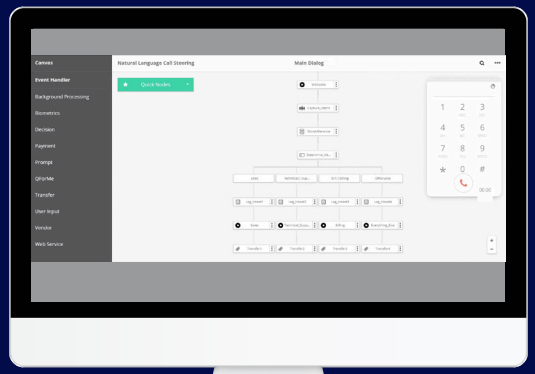
With the new system, an IVA answers Pizza Hut's main phone number and asks if the customer is "calling for pickup, delivery or something else." Once that question is answered, the IVA prompts the caller to say their address or postal code, and then routes the call to the customer's neighborhood restaurant. Or, if the caller says "something else," the call is routed to an external contact center where live agents are available to assist with the non-order-related requests. The application leverages Google's speech-to-text technology, which has been trained by the millions of conversations that Google has processed via consumer smart devices, to deliver a truly conversational and highly accurate experience.

The migration to the new system costs about the same as a month of the legacy system's operational expenses, and the total cost for operating the new system was reduced by 35%. Built in three-and-a-half weeks, the natural language call steering application lifted Pizza Hut's order conversion rate by 10%, and the cash flow from the increased conversions covered the cost of the solution. Interaction data captured by the IVA is being used to automate additional tasks for even greater efficiencies and cost savings.

Pizza Hut's story illustrates the power of natural language call steering, how quickly it can be implemented, and how it establishes the groundwork for continuous improvement.

That's why this application provides a natural entry point for delivering more conversational self-service.

Watch a demo of Natural Language Call Steering in action.



Benefits of Natural Language Call Steering

- **Improve accuracy by eliminating lengthy menu options**
- **Increase customer satisfaction through efficient steering**
- **Rapidly deploy a cost-effective solution**
- **Integrated reporting helps optimize performance**
- **IVA prompts are easily modified with life-like voices**

Check out our demo videos to watch natural language IVAs execute some common service tasks.

- **Frequently Asked Questions**
- **Change of Address**
- **Reporting a Service Outage**

What to Expect When Deploying Natural Language Call Steering

When building your first call steering application, you will need to consider the transfer destinations your IVA will route to, define the keywords that the IVA will match to those destinations, and create a call flow. User-friendly development platforms like Five9 Inference Studio allow you to easily build call flows using drag and drop components that tell the IVA what to say and do during the interaction.

Perhaps you already know which destinations your application should route to based on existing IVR call flows or data that has been collected in your contact center. Or perhaps you don't. In either case, you can gain insights by consulting front-line contact center agents and business leaders, along with the Professional Services and customer success resources provided by Five9. The number and types of destinations you choose will depend on your business goals and the way your customer service organization is set up.

A natural language call steering application can also route callers to another IVA that is designed to resolve common service tasks like booking an appointment, resetting a password, or answering frequently asked questions. Platforms like Five9 Inference Studio make designing these IVAs easier by providing a library of task templates that you can customize to integrate with your CRM and calendar systems, payment gateways, and FAQ documents. Read more about the Five9 Inference Studio Task Library here. You may find that some tasks are even better suited for virtual agents. Examples include processing PCI compliant payments or handling collections conversations.

Finally, your call steering solution will also include data stores and reports that log information such as time-stamped transcriptions of caller utterances, the detected intents, which prompts and/or transfer announcements have been played to the caller, and the final call destination. This information will help you understand how your application is performing and where you might be able to make improvements.

Five9 Inference Studio makes designing these IVAs easier by providing a library of task templates that you can customize to integrate with your CRM and calendar systems, payment gateways, and FAQ documents.

When you launch your first natural language call steering application, you should also choose prompts that set customer expectations about the IVA experience.

Best Practices for Beginners

Remember, natural language call steering aims to improve the customer experience by eliminating lengthy menu options. So, the IVA should begin the conversation with an open-ended prompt such as *"In a few words, how can I help you?"*

In many cases, the caller will answer by saying something straightforward like "billing" that the IVA will immediately recognize and match to the defined keyword and destination. But be aware that there will be instances where the IVA does not recognize the intended destination. Make sure to build in additional "fall back" prompts that provide more directed dialog options *(e.g., "I'm sorry. I didn't get that. Try saying something like "tech support" or "billing").* That way, the IVA still provides a conversational experience while capturing natural caller utterances that will help you fine-tune intent matching over time.

When you launch your first natural language call steering application, you should also choose prompts that set customer expectations about the IVA experience *(e.g., "Hi. I'm ABC Company's virtual agent, and I'm still learning. How can I help you today?").* Continue providing context throughout the call, keeping customers informed about where they are with respect to what they're trying to accomplish *(e.g., "I am transferring you to billing," or "Thanks for providing your account number. Next, we'll check your balance.").* It's always important, especially in these early stages, to give customers the opportunity to "barge in" and interrupt the conversation by pressing a number or using speech if they want to reach a live agent immediately.

If there's going to be a wait, let the customer know what's happening *(e.g., "Please hold on a moment while we look up your information.").* If the hold to reach a live agent will be a few minutes or more, allow the caller to request an automated callback. An IVA can wait in the call queue and then pass the interaction data on to the next agent who is available to return the call.

As information is either gathered or confirmed, your system will remember it, preventing the need for repeated questions and answers, which is a source of annoyance for most callers. By keeping contextual data intact, you've got a head start toward taking care of the customer's needs, even if it's necessary to return to a previous menu before being transferred to a live agent. Most callers will be relieved if the human who picks up the phone already has a good feel for what's happening.

Measuring Success

As mentioned earlier, reporting features in your natural language applications can help you understand how the solutions are performing. But how do you know what successful performance looks like?

By keeping contextual data intact, you've got a head start toward taking care of the customer's needs, even if it's necessary to return to a previous menu before being transferred to a live agent.

Below are a few questions and metrics that you can consider to define success.

- Is the IVA able to accurately route the caller to the right agent the first time?
- Has the solution reduced unnecessary transfers (and transfer fees)?
- Has first contact resolution, call abandonment, and/or average call handle time improved?
- Was the caller able to have their query resolved by the IVA without needing to talk to an agent?
- Did the interaction with the customer flow in a logical, consistent, and friction-free manner?
- If callers are having problems, where do they arise during the interaction?
- Did the customer need to call back?
- Has automating tasks allowed you to reallocate FTEs to focus on interactions or activities that drive more value?

Chapter 3: Automating More Complex Tasks

Using natural language applications to automate service tasks becomes more complicated as the dialog and/or integrations required to complete the task become more complex. The more complex the interaction dialog, the more intents and entities the IVA will need to recognize. (Entities include information such as dates, times, locations, product categories and sizes, etc.)

Whether you need NLP from Amazon or sentiment analysis from IBM Watson, you can easily access these tools using pre-built connectors within the interface.

Five9 IVAs get smarter and more accurate at recognizing intents and entities over time through a 30-60-90-day supervised learning approach. This approach involves using the data gathered from live caller utterances to train your virtual agents to match new keywords to intents so that the IVA can understand the different ways users phrase requests or questions. Supervised learning is an ongoing process because intents are constantly evolving as you update your applications, processes, products, and services.

You can work with your customer success team to establish KPIs that will help you measure the increase in virtual agent productivity over time.

Bells and Whistles

As we've highlighted throughout this eBook, the latest natural language platforms and services have made it far easier for businesses to build applications that can leverage advanced conversational AI technology. For example, Five9 Inference Studio brings together a selection of market-leading AI and speech services with the flexibility to switch between vendors at any time. Whether you need NLP from Amazon, sentiment analysis from IBM Watson, or text-to-speech from Google, you can easily access these tools using pre-built connectors within the interface.

Let's take a closer look at some of the bells and whistles that advanced natural language technology can provide.

Sentiment Analysis

Sentiment analysis looks for clues about the mood of the conversation, analyzing words and sentence structure from the speech-to-text transcription. Five9 Inference Studio integrates with IBM Watson's Tone Analyzer, allowing virtual agents to recognize seven sentiments in customer calls, all in real time, to control call behavior on the fly. The IVA can detect joy, fear, sadness, anger, and analytical, confident, and tentative tones, and then tailor an automated response to improve the interaction. For example, if the IVA "senses" that the customer's patience is wearing thin, it can promptly transfer to a human agent, perhaps one that specializes in customer retention.

Personalization

Five9 Inference Studio includes support for speech-synthesis markup language (SSML) which allows fine-grained customization of pronunciation and emotion. SSML gives you ultimate control of the way your IVAs communicate. For example, you can control the rate, pitch, volume or emphasis of your text-to-speech.

Small Talk

To make your IVA experience more conversational, you can tap into Small Talk technology from Google. Small Talk comes pre-programmed with basic remarks that are made in everyday, friendly conversation. This helps your IVA field casual questions that are outside the scope of your task without adding new intents.

Voice Biometrics

Voice biometrics technology is an identity authentication technology that captures a voice sample from a live speaker, compares it to a previously stored voiceprint, and produces a score of how closely the speaker's voice matches the voiceprint. Independent research has shown that a voiceprint is as unique to an individual as a fingerprint.

Enterprise Search

Enterprise Search technology applies text analytics and natural language processing to understand an organization's domain-specific language and accurately search through unstructured data sources in a timely manner. This allows virtual agents to mine an organization's knowledge bases, FAQ documents, product manuals, and supporting web links to retrieve more specific answers to customer questions.

Chapter 4: Next Steps

For more information, you can also check out the Five9 Intelligent Virtual Agent Solution Guide or eBook on upgrading your IVR to an IVA.

We hope this eBook has provided an informative overview of what's possible with natural language virtual agent applications and how they can transform your self-service experience.

Today's application development tools and speech services allow businesses of any size to deploy conversational technology swiftly and successfully, without breaking the bank. It's truly never been easier to get started.

And with benefits like higher automation rates, cost savings, and improved customer and employee satisfaction, why wait?

Learn More

Reach out to Five9 to discuss how to adopt natural language IVA applications in your customer service organization. We can't wait to wow you with a demo.

North America Headquarters
3001 Bishop Drive
Suite 350
San Ramon, CA 94583
925.201.2000

EMEA Regional Office
29 Throgmorton Street
London
EC2N 2AT
United Kingdon

LATAM Regional Office
Av. Roque Petroni Jr., 850
10º andar, Torre R. Jaceru
Jardim das Acacias – São Paulo – SP
04707-000
Brazil

APAC Regional Office
1 Market Street, Level 32
Sydney NSW 2000
Australia