



intetics

Where software concepts come alive™

Conversational AI

The new era of the
human-like automated communication.

White Paper

Table of Content

Objective	3	How to Choose the Right Conversational AI Solution	17
What Is Conversational AI and How It Works?	4	• Chatbots	17
• The Scope of Conversational AI	5	• Voice Assistants	18
Why Is Conversational AI Important for Your Business?	5	• Why We Recommend Predesigned Packages	19
Conversational AI Overview	7	Main Applications and Impact Delivered	20
Market Leaders of Conversational AI	8	Business Solutions and Use Cases	21
Brief History of Development	9	• Use Case: Virtual Website Assistant	21
• The Very Beginning: ELIZA	9	• Use Case: Healthcare	22
• PARRY	9	• Use Case: Computer Software	23
• Jabberwacky	9	• Use Case: Internet of Things Devices	24
• Dr. Sbaitso	10	• Online Customer Support	25
• ALICE	10	Standards in Use	26
• SmarterChild	10	Industry Associations, Magazines, Social Media Groups	27
• Siri	10	Top Contributors to the Conversational Platforms Market	28
• Google Now	10	Available Certifications for Practitioners	29
• Cortana	11	• Rulai Institute	29
• Alexa	11	• Microsoft AI School	29
Total Market Volume	12	Healthcheck for Your Business	30
• Expert Market Opinions	14	Resources and Readings to Dive Deeper Into Conversational AI Technology	31
Main Tech Components	15	Statistics on Conversational AI	32
Main Tech Architectures, Tools, Stacks Used	16	Summary and Conclusions	33
• Chatbots	16		
• Intelligent Virtual Assistants	16		
• Customer Service Assistants	16		

Objective

Conversational AI falls under the Artificial Intelligence domain; this application deals with text-based or speech-based AI agents that are able to simulate verbal interactions and conversations. The proliferation of voice assistants, chatbots, and other conversational AI agents can be attributed to two major developments.



The first: deep learning and machine learning are required to develop very accurate AI models. Such learning methods have advanced significantly in recent years – this is due to higher research interest in these areas alongside improvements in computing power (with the help of TPUs, GPUs, and other specialized hardware).

The second: because of the nature of conversational AI’s design and Natural Language interface, they can naturally fit into many applications like customer service, healthcare, education, and e-commerce. Now, more than ever, conversation AI is an innovative field, full of novel research, heightened practical implementation, and robust demand.

New, complex models for Conversational AI’s individual architectural core components are being developed and introduced at a rapid rate. In this whitepaper, we will bring your attention to the most up-to-date research regarding Conversational AI architecture development. What’s more, we will show the advantages that Conversational AI has over its traditional counterparts.

What Is Conversational AI and How It Works?

Conversational AI brings together messaging apps, speech recognition, and artificial intelligence. It is designed to enable software to interact with people using intuitive, natural languages. Businesses can use conversational AI to deliver personalized, automated communication experiences.

Software that combines the above-mentioned three features, using them to carry on a simulated (even human-like) conversation, could be called a “bot.” Text-only bots are referred to as “chatbots.”



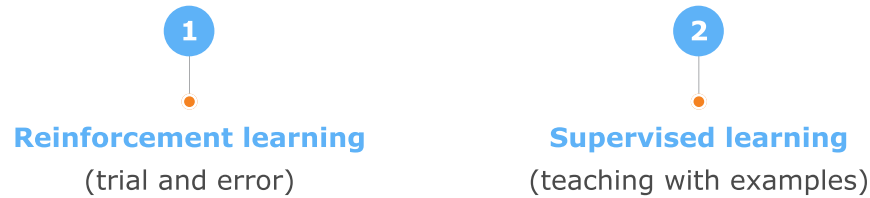
If you have used Amazon Alexa, Google Assistant, or a similar virtual assistant, then you have experience using conversational AI. The conversational experiences provided by such “assistants” are maturing due to deep learning. AI bots are moving away from rule-based decision trees – rather than being based on if/then logic, they now learn as they go. Conversational AI bots can identify the user’s intention and the situation’s context – thus, they are better able to deliver an experience tailored to the user’s specific query. As such, conversational interfaces are ever-evolving, aiming to deliver helpful, enjoyable user experiences.

And how can those experiences be rich and useful? Imagine that your customers have access to a smart assistant, which can communicate and empathize with them, understand their needs, and provide assistance accordingly. A conversation like this can help bring the user closer to the final action more quickly than a menu, touch screen, or mouse click ever could.

Integrating conversational AI throughout automated, customer-facing touchpoints can negate the need for click-driven interactions. Customers no longer need to sort through pages of information to find the answer they need.

The Scope of Conversational AI

The AI-human relationship has not yet reached its fullest potential. However, scientists have been experimenting with machine learning so that computers can be provided with as much context as possible. There are two specific techniques used to accomplish this:



Due to the continuous advances in cognitive technologies, it is becoming possible to give customers more accurate and relevant dialogues – thus, conversational AI solutions are more commonly used within B2B and enterprise applications. You can find conversational AI used in all sorts of niche services. Nowadays, bots are able to schedule appointments, answer queries about services and products, and even provide additional resources to users – essentially, they can virtually eliminate the need for a “real live” operator.

It is highly likely that future conversational AI applications will provide personalized assistants that can predict user needs – not just fulfill them.

Why Is Conversational AI Important for Your Business?

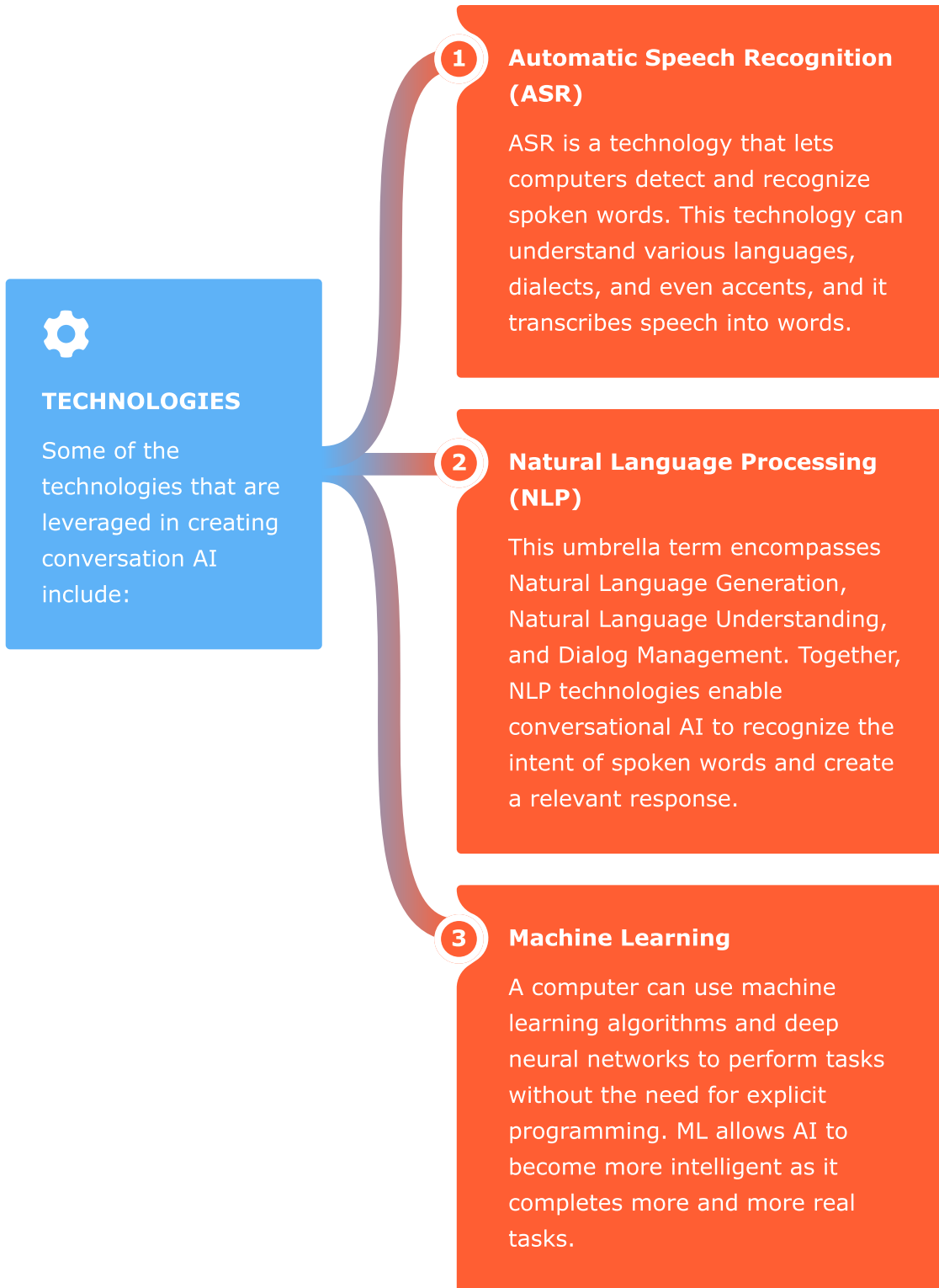
Why is there such a strong drive for the adoption of conversational AI? It is driven by a dual mandate: while it’s true that brands want to cater to their customer’s needs, they also need to stay innovative so they can have a large share within a competitive marketplace. Conversational AI holds the answers to both goals: it empowers brands to provide an intelligent, personalized, and superior user experience in an innovative way.

When a business uses automated conversations to engage with customers, it can easily scale that experience across several devices, platforms, and channels, effectively catering to the whole user base. Conversational AI solutions can be interwoven throughout all touchpoints – social media, mobile apps, messaging platforms, websites, voice-based assistants, and more – in order to facilitate a friendly, easy, and seamless experience.

There are various other reasons that organizations worldwide are diving into Conversational AI, including:

- **Time savings for the customer:** Customers can receive quick responses, and they don't have to go through the hassle of waiting on hold for answers to generic questions.
- **Increased organizational efficiency:** Typically, high call and email volume take a large toll on customer service teams. But, with conversational AI, this is no longer the case. Companies can leverage lowered customer acquisition costs and automated operations to place a priority on other business functions.
- **Simple, real-time access:** Customers can use the channel of their choice to seamlessly connect with a chatbot. What's more, the conversations are synchronous across devices, so there is a lowered risk of information discrepancy.
- **Online relationship management:** Brands can manage social media engagement and interactions via personalized, synchronized conversations.
- **Lowered complaints:** Because sales questions can be answered before the actual transaction, friction during the buying process is reduced.
- **Management of the customer cycle:** A customer can place an order, get detailed information about the purchase, and receive after-sales information. The entire loop is covered by conversational AI – from seeking information about a product to delivering product feedback.
- **Increased collective intelligence:** Conversational AI technology is able to track shopping patterns, monitor customer data, and use the results to deliver the best real-time, personal support. As more customers use the bot, the interactions will only get better.
- **Lowered cart abandonment rate:** When customers have access to a persistent, forward-driving communication channel, they are ready to browse and buy more. Customers can also put the conversation on pause and return later without having to start the process again from scratch.

Conversational AI Overview



Market Leaders of Conversational AI



Siri, Alexa, and Google Assistant are all household names at this point, as they are the market leaders of conversational AI. However, there are several successful startups that have built similar products for their customer base. These include:

- **Kore.ai:** It lets enterprises automate their digital interactions with employees, partners, and customers. Kore.ai lets enterprises create their own virtual assistants or use pre-built ones for HR, banking, insurance, and IT Support applications.
- **Houndify:** This large-scale speech recognition and NLU solution helps brands develop custom voice experiences for any product. Some of Houndify's domain partnerships include Yelp, Uber, and Accuweather.
- **iSpeech:** It uses voice cloning technology, providing pleasant and familiar voices across a wide range of applications, products, and services. Some use cases include audiobook narration, voices in animated movies, celebrity voice cloning, navigation apps, and interactive training.

Brief History of Development

We've included a list of chatbots organized by chronological progression – starting with ELIZA. While ELIZA was not AI-powered, it marks the start of chatbot development, so it is a necessary inclusion.

1960s

The Very Beginning: ELIZA

MIT professor Joseph Weizenbaum developed the world's first chatbot in the 1960s, called ELIZA. Essentially, users would enter words into a computer, and ELIZA would compare them to a list of scripted responses. The script mirrored responses that psychotherapists might give, which led to users confiding their innermost thoughts to ELIZA.

As variants of this chatbot popped up at universities throughout the US, experts began to proclaim that chatbots would soon be indistinguishable from humans. However, Weizenbaum disagreed; he argued that chatbots were meant to be tools and that their understanding of speech is highly dependent on content – according to him, computers would never have a general understanding of human language.

1972

PARRY

In 1972, American psychiatrist Kenneth Colby developed PARRY in an attempt to simulate a patient with schizophrenia. Parry used a complex system of attributions, assumptions, and "emotional responses" that were triggered by variable weights attached to verbal input. The Turing test was used to validate the system; testers were unable to distinguish PARRY from human schizophrenic patients with more than random accuracy.

1988

Jabberwacky

British developer Rollo Carpenter created Jabberwacky in 1988, which aimed to simulate natural human conversation via contextual pattern matching. Unlike more traditional conversational AI, Jabberwacky wasn't used for corporate representation or for computer support systems – it didn't really go beyond a form of entertainment.

1992

Dr. Sbaitso

Dr. Sbaitso, created in 1992 by Creative Labs, was one of the first attempts to incorporate conversational AI into a chatbot. The program took on the persona of a psychologist; when it interacted with users, it would give responses like “Why do you feel that way?”

1995

ALICE

ALICE, which stands for Artificial Linguistic Internet Computer Entity, was pioneered by Richard Wallace in 1995. This chatbot used heuristic pattern matching to hold rudimentary conversations, albeit ones that were unable to pass the Turing test.

“Alice” has the appearance of a young woman, and she is able to converse with the user – she provides facts about herself (such as her age, hobbies, and so on) and can answer the user’s dialog.

2001

SmarterChild

Developed in 2001 by ActiveBuddy, SmartChild can be considered Siri’s precursor. It was available on MSN Messenger and AOL IM, and it had the capabilities to carry on fun conversations while also providing information on the news, weather, stock information, sports matches, and more.

2010

Siri

Siri was a groundbreaking AI bot that was developed for Apple’s iOS in 2010; it paved the way for all future conversational AI bots. While Siri’s capabilities have certainly evolved since 2010, it was originally designed to be a “do bot” – in other words, users could hold conversations with the Internet, and then Siri would make a decision and perform an action based on the conversation.

2012

Google Now

Google Now was launched by Google in 2012; it is able to answer questions, make recommendations, and perform actions based on requests. Initially, Google Now’s aim was to give users more contextually relevant information based on the time of day and their location. Now, however, it provides a wide array of information on “cards,” using data pulled from the user’s Gmail account.

2014

This includes hotel and restaurant reservations, flight information, movie tickets, and more. Cards can also be created based on the user's search history.

Cortana

Cortana is another "do bot"; it responds to voice commands and performs tasks like sending texts and emails, setting up reminders, playing games, finding facts, and pulling up file locations. It was first demonstrated in 2014 at Microsoft's Build conference, and it has since been integrated into Windows 10 PCs and Windows phones.

Alexa

Amazon introduced Alexa in 2014; it was built into the Amazon Echo device, but there is now an Alexa app that can be used on third-party devices. Users can give Alexa voice commands, and she will control your smarthome products, play audiobooks, set alarms, search the web, play music, and much more. Developers can even create and publish their own skills for Alexa.

Total Market Volume

According to the [2019 P&S Analysis on the Global Conversational AI Market](#), the industry's value in 2018 was \$3.2 billion. The Analysis predicts that the market will hit the \$15 billion mark by 2024, with a compound annual growth rate of 30.2%.

GLOBAL CONVERSATIONAL AI MARKET



Out of all regions, North America had the biggest market share in 2018: 42%. This is attributed to several factors:

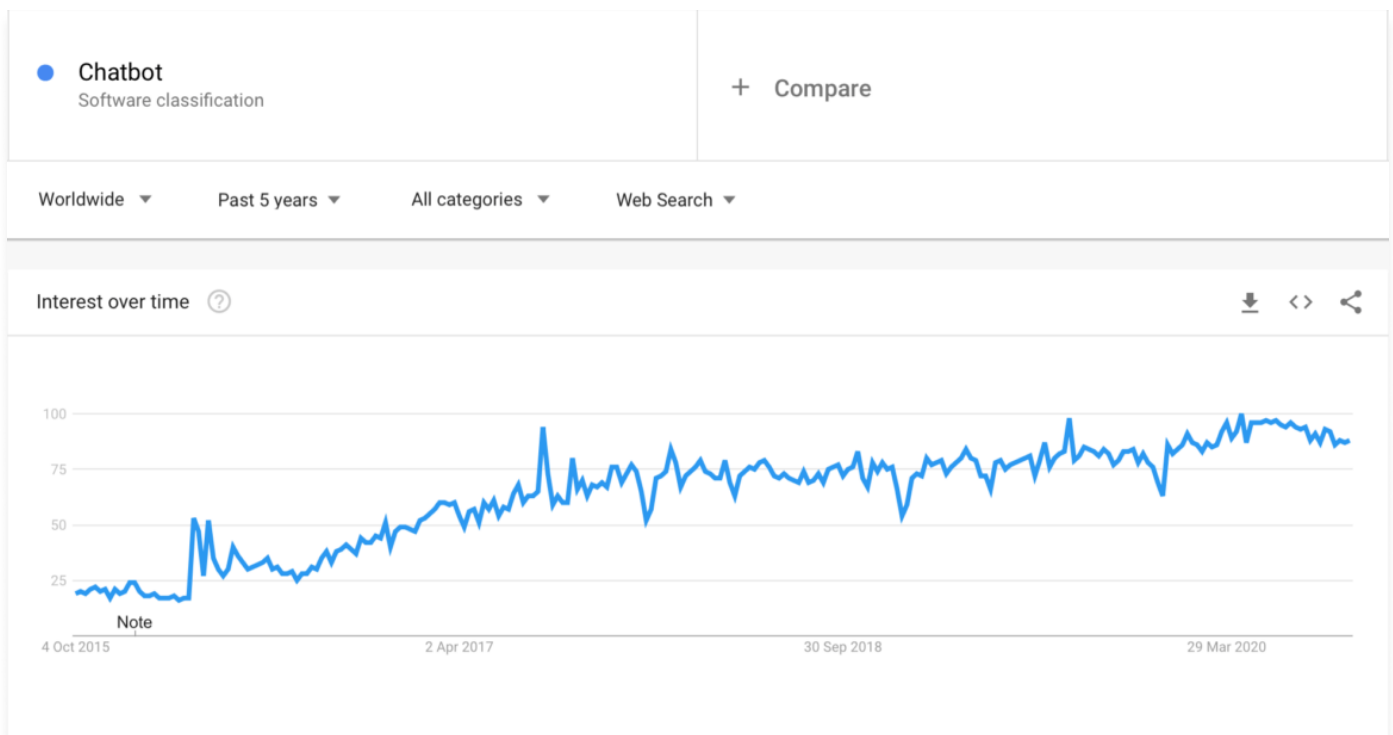
- Heightened technological advancements in the region
- The presence of Google, Microsoft, Apple, and other conversational AI vendors
- Increased investments in the integration of NLP and machine learning

The same analysis found that chatbots count for the largest share within the conversational AI market – and their share will be over 45% in 2024. Their domination of the market is due to the increasing demand for chatbots within social media and the consumer preference for intelligent customer support.



Expert Market Opinions

- According to a [study by Cognizant](#), the global chatbot market could reach \$1.25 bn by 2025, with a compound annual growth rate of 24%. The study found that 37% of AI startup founders believe virtual agents and chatbots will be the top consumer AI application.
- [Juniper Research](#) predicts that chatbot eCommerce transactions will have a value of \$112 bn by 2023.
- According to Google Trends, there has been a five-fold increase in chatbot interest during the last five years.



Main Tech Components

Conversational AI combines machine learning with natural language processing (NLP). There is a constant feedback loop occurring between both facets in order to continuously strengthen AI algorithms. These principal components of conversational AI allow it to process and understand texts, as well as to create natural-sounding responses.

COMPONENT 1: MACHINE LEARNING.

This sub-field of AI consists of a set of data sets, features, and algorithms that improve themselves over time. As the platform receives more input, the machine improves at pattern recognition and can use it to create more accurate predictions.

COMPONENT 2: NATURAL LANGUAGE PROCESSING.

This is when conversational AI analyzes language (with the help of machine learning). Breaking it down further, NLP has four steps: input generation, input analysis, output generation, and reinforcement learning. Throughout these steps, unstructured data is transformed into a readable format, which the computer then analyzes and uses to craft a response.

Let's take a closer look at the four steps of Natural Language Processing:

- » **Input generation:** Users use an app or a website to provide voice- or text-based input.
- » **Input analysis:** Conversational AI will use natural language understanding (NLUE) to decipher the meaning of text-based input. On the other hand, for voice-based input, the AI uses automatic speech recognition (ASR) in addition to NLU.
- » **Dialogue management:** Natural Language Generation (NLG) creates a response.
- » **Reinforcement learning:** Lastly, to improve accuracy, machine learning algorithms refine dialogue responses over time. This is often done by accepting corrections from end-users.



Main Tech Architectures, Tools, Stacks Used

Nowadays, Conversation AI shows up in three main types of data products: chatbots, intelligent virtual assistants, and customer service assistants.



Chatbots

This is certainly Conversational AI's most common application. They are often found in a website's FAQ section, and they are able to guide users through various website features - their main action is to deliver responses to a text query and guide the user to the relevant page. Chatbots will typically answer questions about topics like shipping and sizing, but they can also cross-sell products or even provide personalized advice. However, this is quite basic; these chatbots don't have deep-learning capabilities and, thus, cannot improve their future interactions.



Intelligent Virtual Assistants

These are a more advanced application of Conversational AI; Amazon's Alexa, Apple's Siri, Samsung's Bixby, and Google Assistant all fall under this category. Some, such as Alexa, are used as home-based voice assistants, while others, like Bixby, are mobile assistants that offer navigation, address search, and quick reply capabilities.



Customer Service Assistants

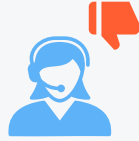
These applications target specific problems related to business services; their goal is to provide customers with efficient and relevant support. Bad customer service is directly correlated to a loss of customers; using well-developed AI customer service assistants will help increase client buy-in. Better support = higher customer satisfaction.

Consumer Reaction to Bad Customer Service



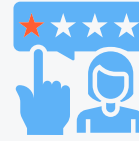
1 / 3

of consumers would consider switching companies after a single instance of bad customer service.



27%

of US customers say that ineffective customer service is their top frustration.



72%

of consumers say they have to explain problems to multiple agents as poor customer service.

How to Choose the Right Conversational AI Solution

While you can use custom AI options for your website, including AI chat interfaces, we are going to look at pre-built solutions that you can deploy today. Pre-built solutions are quick and easy to use, and there's the added benefit that they are already on familiar platforms.

Chatbots

There are plenty of pre-built, text-based chatbots to choose from for platforms like Twitter, Slack, and Facebook Messenger. The first thing to do is choose a platform that your customers already use – or are at least familiar with – and make sure it includes the necessary features.

How do you go about choosing a platform that your customers use? Check to see which are already using to get in touch with your staff. You can also do demographic research to find out if your customers would prefer to use other channels.

Next, decide if you want the entire experience to be automated via chatbot. The alternative is for the chatbot to automate the beginning of the conversation and then route the customer to a human employee.

Lastly, check to make sure the platform has robust security, social media integration, and any other features you'd like to prioritize. These features can make or break the customer experience; by utilizing quality-of-life features, you can tap into customer service psychology and cultivate a successful platform.

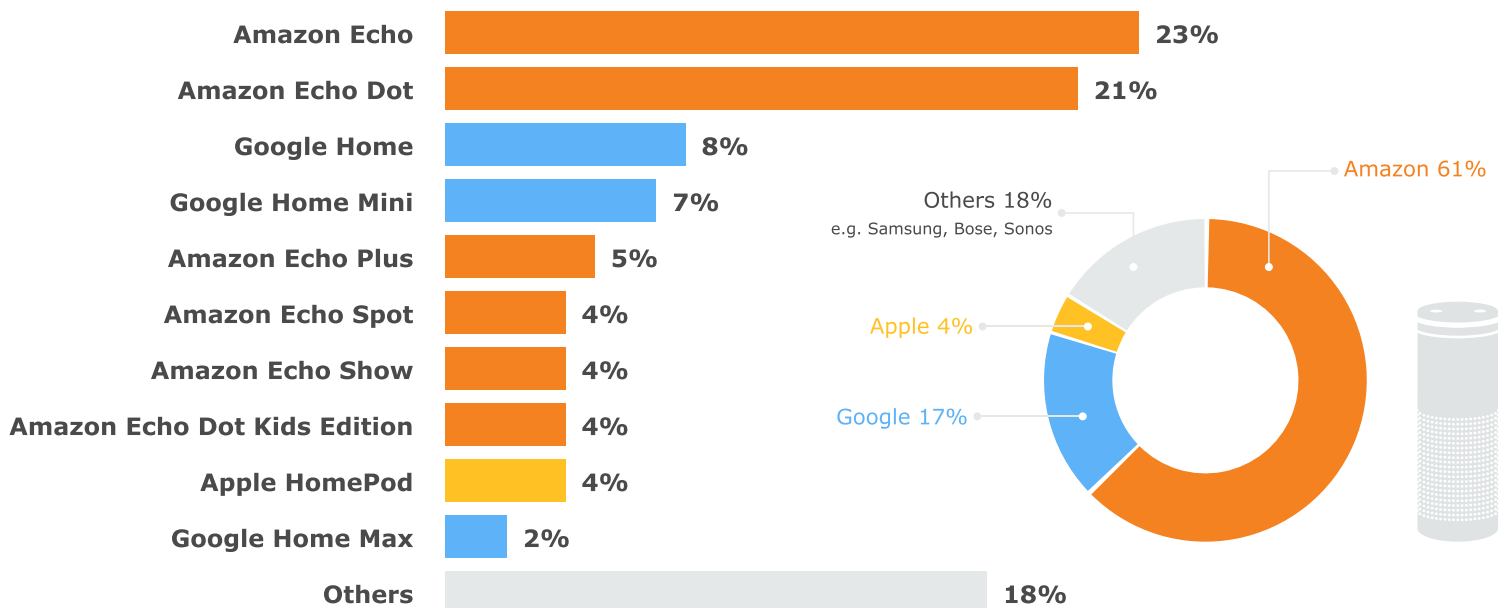
Voice Assistants

If you are going to use a voice interface, you can select a pre-built voice assistant or a smart speaker platform. Again, it is important to choose a platform that your customers are familiar with.

While the industry leader of smart speakers is Amazon, smart speakers use the same platform as smartphones. So, even though Apple's HomePod only had a 4% market share, its compatible device (iPhone) has a 45.2% share of the US smartphone market.

AMAZON'S ALEXA RULES AMERICAN SMART HOMES

Most popular smart speakers in the United States in Q3 2018 (share of active devices)*



* based on a survey of 1,011 users of smart speakers in the U.S. conducted in July/August 2018

Source: Strategy Analytics

Why We Recommend Predesigned Packages

When you use packages that are predesigned to address certain requests (FAQs, dialog forms, etc.), chatbots can process standard queries automatically and abnormal questions on a case-by-case basis. With such packages, chatbots can:

- Process information procedures
- Route customers to customer service representatives if necessary
- Handle standard customer interactions



It's important to note that AI chatbots are not yet able to handle every task on their own; they are used to supplement a customer service team rather than replace it. Furthermore, because basic chatbots don't have deep-learning capabilities, it is necessary for content managers and dialog experts to work on improving chatbots manually.

Main Applications and Impact Delivered

As mentioned above, the most common use case of conversational AI is voice assistants and online chatbots, with a focus on omnichannel deployment and effective customer support delivery. Most conversational AI applications can deliver human-like conversations and collect extensive analytics for improvement purposes.

However, this application can be considered as “weak AI,” as these assistants and bots are focused on a narrow range of tasks. Strong AI, conversely, focuses on solving broad problems with a human-like consciousness.

Despite the narrow focus of conversational AI, it is a lucrative boon for enterprises, bringing in more profits and delivering highly effective customer support. Yes, the most common use case might be an AI chatbot, but there are plenty of other enterprise use cases, including:

- 1. Accessibility:** Organizations can use AI to reduce entry barriers for users who need assistive technologies. Language translation and text-to-speech dictation are commonly used features within this category.
- 2. HR:** Onboarding, employee training, and maintenance of employee information can all be optimized by conversational AI. Leave requests, performance reviews, and compliance tasks can also be automated.
- 3. Health Care:** Conversational AI can improve the administrative, operational efficiency of claims processing, appointment booking, and patient information retrieval. Furthermore, patients can use conversational AI to check symptoms and get key information on their prescription drugs.
- 4. Internet of Things Devices:** Most households have 1 or more IoT devices, including smartphones, smart TVs, virtual home assistants, and more. These devices can use speech recognition in interactions with users and fulfill tasks – they can even go further and integrate with features of the house, like controlling the lights or adjusting the thermostat.

Business Solutions and Use Cases

Use Case: Virtual Website Assistant

One of Intetics' clients, a mid-sized service provider, requested the design and development of a virtual website assistant with AI capabilities. The client recognized that the integration of this intelligent element on their website would set them apart from competitors.

First, the development team collaborated with the client's PR and marketing teams; they collaborated to set up these focal areas, among others:

Design

- Create a dialog window that fits the site's style without obstructing content
- Design and animate a "character"
- Engage with linguists to develop a professional, unique, and friendly conversation style

Content

Customize what data can be presented to customers through the virtual assistant

Dialog Settings

- Collect industry-specific jargon to create natural-sounding dialog
- Make dialog highly adjustable, and train the Client's team on how to customize it
- Include pre-built NLP to make basic dialogs
- Augment it with RASA to generate extended answers
- Include analytics for further improvements



This use case was highly successful; the virtual assistant didn't just provide site users with effective support; it was also an incredibly effective marketing tool that increased session times. With the virtual website assistant, lead engagement rose by 35%. What's more, the sales team gained an additional source of information about leads before the initial contact.

Use Case: Healthcare

Many people do not like to visit doctors or are even afraid of them. But they also need a doctor's opinion about diseases and health problems, as well as their respective treatments.

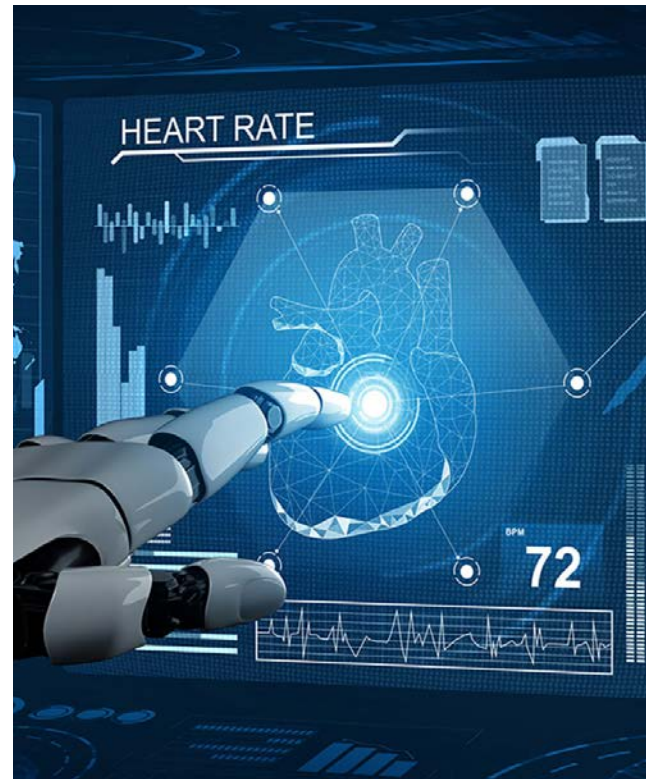
Of course, people can find out information via the Internet, but it's better to use a competent Virtual Assistant. Could you even imagine how easy it would be to get reliable health advice with this technology? With a Virtual Assistant, people will be able to live a healthier lifestyle and improve their overall well-being.

Design

- At first, the user must sign in and input their age, weight, and gender
- Then, the user must select the category for which they want to consult and/or get advice. For instance: a healthy diet, problems with sleep, or headaches
- Then, the assistant can give some pieces of advice and recommend a doctor to contact

Content

- A system that will be able to keep people healthy and even prevent serious troubles and diseases
- Users can ask any question of interest and get an answer from a professional point of view



Benefits

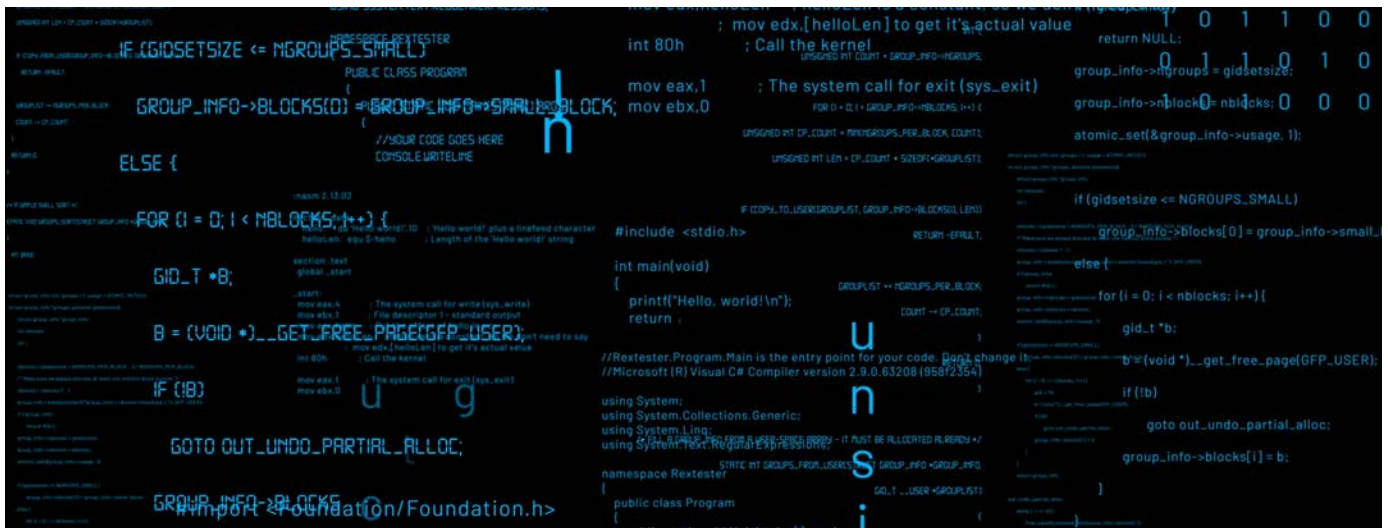
- ★ Professional opinion at any time
- ★ A way to constantly maintain your health
- ★ Early identification of problems

Conclusion

As a result, we created an Assistant that encourages people to devote more time to taking care of themselves and their health. Also, the assistant is able to instill good habits, for example: drink enough water, do not forget about physical activity, eat right, undergo a regular medical examination, and consult with doctors if necessary.

Use Case: Computer Software

A Virtual Assistant can be used to simplify the work of a software developer. For instance: with the assistant, the developer will be able to make a decision about the type of application as well as decide on the programming language and project concept. Also, the assistant will answer any common questions that might appear.



Design

- To begin with, the developer must understand their type of project: will it be a site or application? If it's an application, then is it for a desktop or portable device? With this information, the assistant can deliver tailored recommendations
- Also, the user has to detect what language and core features will be used for the project

Content

- A system that will help the developer create the project that best meets the client's expectations
- The user will be able to consult with the assistant and ask any questions

Benefits

- ★ Permanent consultancy about the project
- ★ A source of information that helps in creating projects

Conclusion

In conclusion, we have an assistant to help with the creation of a project, which can continuously guide the user and lead to a well-informed decision.

Use Case: Internet of Things Devices

Nowadays, we can't do without such devices as smartwatches, smart scales, smartphones, etc. It's a part of our reality; these items are essential to our routine, work, study, and relaxation. IoT devices bring us so many benefits and make our lives easier.

The most trivial example is when your smartphone or the smartwatch on your wrist reminds you of something. For instance, it might inform you that you've received a message or that it's time for you to move.

A virtual assistant is another example of an IoT-enabled gadget that's a part of our daily lives.



Design

- The virtual assistant can make communication with your gadgets easier. For instance, you can set reminders, find information on the internet, and more
- Also, it helps you live according to your personal schedule, as you can plan your life via gadgets

Content

- The assistant makes your communication with devices easier and more comfortable – and, by extension, it adds efficiency and value to your lifestyle

Benefits

- ★ Constant help in following your personal schedule, as well as planning, improving, and expanding the functions of routine devices

Conclusion

As a result, we can get the maximum use out of our gadgets; we can also expand and improve these functions.

Online Customer Support

Online customer support is a crucial part of our communication with online services and apps. We may have lots of questions, but many companies don't have customer service representatives that are available around the clock. In such cases, a virtual customer support assistant is highly useful.



Design

- You may ask any questions you want. Perhaps you don't understand some functions or features of the service or app. The virtual assistant can help you find a solution.
- The assistant will help you and explain everything in the most understandable and accessible way

Content

- A virtual assistant that offers continuous help with the usage of internet services and apps

Benefits

- ★ Around-the-clock help, thus improving customer loyalty and reducing staffing expenses

Conclusion

In conclusion, we've got an assistant that simplifies issues and helps the user quickly understand and deal with the features of various programs and services.

Standards in Use

For society to fully embrace conversational bots, they must be designed in a way that fosters trust – and this set of guidelines from Microsoft outlines best practices for Conversational AI design.

- **Before beginning the bot’s design phase, determine whether it will support consequential use cases;** i.e., does the bot provide access to education, employment, healthcare, financing, or another service that has a significant impact on the user. If so, determine if the bot’s intended purpose can work without oversight from the operator or whether it inherently needs human judgment.
- **Develop metrics for the assessment of user satisfaction.** Collect feedback on the user’s sense of comfort and well-being during the bot interaction, as well as whether they feel that the bot has accomplished its intended purpose.
- **Be transparent about your usage of a bot.** Bots are more likely to be trusted when their intentions and limitations are made clear. Set reasonable expectations, and perhaps a link for users who want to “learn more” about the bot’s purpose, operation, and potential errors.
- **Ensure a seamless transition from bot to human-based interactions.** If interactions may need human judgment, provide a clear way for the user to get access to a human moderator.
- **Guide against misuse.** When appropriate, provide notice to the user about code of conduct breaches - for instance, if they write threats, bullying content, or hate speech. For further prevention of misuse, deploy a 2-way filtering mechanism with a customizable tolerance threshold, so your bot can detect and respond appropriately to offensive user input.
- **Ensure the reliability of your bot.** This can be done by building traceability capabilities in your bot, providing a feedback mechanism, and, in sensitive use-cases, consult with experts in the industry.
- **Respect user privacy.** Inform users upfront about how data is collected and used; provide easy access to your company’s privacy statement and service agreement. Collect only the essential personal data, store it for no longer than necessary, and limit access to it.

- **Make it accessible.** Consider how your bot complies with international web accessibility standards like [WCAG.2.0.AA](#). Have people with disabilities test out your bot, and make sure your bot is designed for compatibility with the full range of human abilities.

Industry Associations, Magazines, Social Media Groups

The Chatbot

[The Chatbot.](#) This online magazine provides thoughtful, comprehensive, and entertaining content about AI and NLP technologies. Verticals include HR, IT, Healthcare, Education, Gaming, eCommerce, Customer Service, and more.

D!igitalist

[Digitalist Magazine.](#) This web magazine offers a robust Machine Learning/AI section, but it also covers topics like Blockchain, IoT, and the Digital Economy.

MARTECHSERIES

[MarTechSeries.](#) Stay updated with the latest marketing news - including interviews, expert insight, and whitepapers related to conversational AI and other marketing applications.

SAP

[SAP Community.](#) Learn about how to build chatbots through tutorials suitable for beginners, intermediate, and advanced users. There are also community blog posts, webinars, and "coffee corner" discussions.

TOPBOTS

[TOPBOTS.](#) Offers educational resources on AI and machine learning; they have a Facebook group, a Twitter page, a weekly newsletter, and plenty of published research on their website.

Top Contributors to the Conversational Platforms Market

Gartner Peer Insights has compiled a list of the top Conversational Platforms – these platforms can be used to build chatbots, virtual assistants, and conversational user interfaces. Such conversational solutions can be integrated into social media, messaging platforms, web chats, and SMS. They have strong NLP engines, supporting text and voice input modalities, and the capability for dialogue management, training data maintenance, and multiple chatbot orchestration.

Some of the top contributors to the Conversational Platforms Market are:



Amazon AWS

Its Conversational AI platform, [Accenture](#), offers a suite of assets for organizations to manage the end-to-end lifecycle of their conversational AI solution. AWS/Accenture's solutions reduce wait times, ease call volume surges, and use machine learning to facilitate continuous improvement.



Google

Its comprehensive platform, [Dialogflow](#), supports voicebots and chatbots. Currently, over 1.5 million developers build conversational AI chatbots with Dialogflow. With this solution, virtual agents offer supplemental questions for multi-turn conversations. And with the prebuilt agents and visual builder, the development stage can take just a few hours.



IBM

IBM's [Cognitive Care](#) solutions use AI technology, intelligent automation, and real-time data to help companies create smarter omnichannel experiences. In IBM's highlighted use cases, Bradesco experienced a 95% accuracy rate with their AI assistant's responses to customer queries. And, with Generali, in the first year of their AP chatbot's deployment, they saved \$1 million. CaixaBank managed to condense 60+ service phone numbers to just one number with their streamlined omnichannel AI support.

Available Certifications for Practitioners



[Rulai Institute](#)



Rulai offers free, comprehensive AI courses that come with 1-on-1 guidance and hands-on practice.

Options:

- » Conversational AI Designer Certification Course (40 hours of instruction)
- » Conversational AI Developer Certification Course (30 hours of instruction)

[Microsoft AI School](#)



If you are interested in bite-sized learning sessions that can be completed in about 30 minutes, Microsoft AI School has plenty of free topics.

Options:

- » Create Bots With Azure Bot Service
- » Create Interactive Conversational Bots for Microsoft Teams
- » Building Bots With REST

Healthcheck for Your Business

Conversational AI is not the perfect solution for every company – so before you begin development, we recommend working through a “healthcheck” to ensure that it is, indeed, the right choice for you. A few considerations include:



Does such a solution make sense with your current web presence?

In order to harness the full potential of conversational AI, you need to have a website or mobile app with many users and lots of functionality; the latter is especially important, as users need to have something to ask about. If your company focuses more on the physical storefront and doesn't have a large web presence, adding conversational AI isn't going to suddenly draw in site visitors. Instead, think about whether you should invest more into the development and promotion of your website.



Are there enough tasks that can be fulfilled without human interaction?

One main goal of conversational AI is to automate some tasks so that humans have more time – yet, if your chatbot calls a human operator to supplement almost every conversation, it is likely not worth the investment.



Is your digital ecosystem large enough?

Conversational AI brings more value if it's integrated in an omnichannel environment, such as a website, mobile application, social network profile, and even a phone line in combination. If you're only going to use it in one place, the investment might never pay off.



Will a quicker response time make a difference?

Chatbots are always available to give prompt answers to specific questions, collect basic customer info, and pre-qualify leads. If your customers typically have time-sensitive yet simple queries, a chatbot as the first contact could be an ideal solution.

Resources and Readings to Dive Deeper Into Conversational AI Technology

If you would like to gain a deeper understanding of conversational AI technology and its applications, these resources provide a wealth of information.

- [Council Chatbots ROI Analysis and Market Summary](#)

A summary of key findings related to U.K. council chatbots, including Planning, Waste and Recycling, Revenues and Benefits, and Highways,

- [Designing Bots: Creating Conversational Experiences](#)

Provides practical bot-building design patterns and real-world examples. Learn the steps for building Slack and Facebook Messenger bots.

- [Chatbots: The Definitive Guide](#)

A free, 14 chapter guide on chatbots, including an ebook download. Get an overview of limitations, benefits, case studies, statistics, chatbots during COVID-19, and the future of conversational AI.



Statistics on Conversational AI

1. Consumers listed these main advantages of chatbots:

- 24/7 service (64%)
- Immediate answers (55%)
- Answers to basic questions (55%)

(Drift, 2018)

2. 52% of consumers find that voice assistants are more practical than using an app or a website.

(Conversational Commerce by Capgemini Report – 2018)

3. Companies that use conversational AI have experienced increased customer satisfaction.

(LivePerson, 2019)

4. The departments that will benefit the most from conversational AI are:

- Customer Service
- Sales/Marketing
- Order Processing

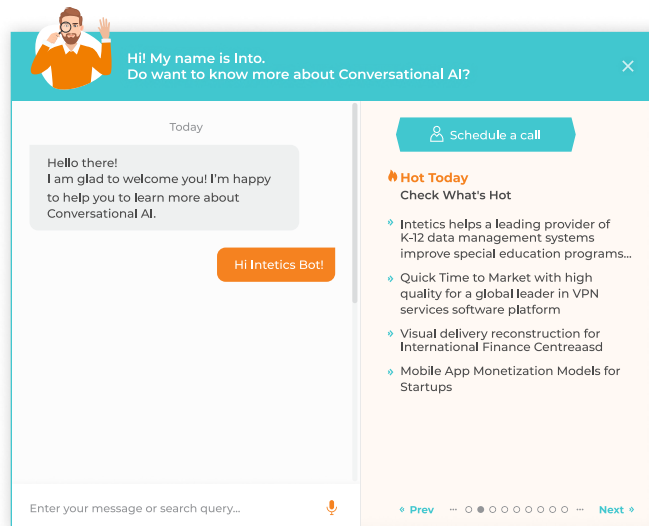
(Mindbrowser, 2017)

Summary and Conclusions

It's clear that chatbots and virtual assistants have become prevalent over the last few years. These intelligent systems are more capable than ever due to their deep learning algorithms. With how quickly technology is evolving, such applications of conversational AI will improve steadily, and the market will keep soaring.

Consumers are now familiar – and even comfortable – with conversational AI interactions. As AI assistants become the new norm, consumers are developing clear expectations of what issues bots should address and at what point issues should be routed to living staff. When conversational AI is used appropriately and meets these expectations, there is tremendous potential to improve the customer experience.

Organizations that don't take a customer-centric approach when deploying conversational AI are missing out on the chance to develop deep, valuable relationships with consumers. In order for an organization to successfully harness the power of AI, it must understand the current climate towards virtual assistants and, accordingly, deliver a balance of human/bot assistance.





INTETICS MEANS YOUR SUCCESS

Toll Free: +1 (877) SOFTDEV

US: +1 (239) 217-4907

DE: +49 (211) 3878-9350

UK: +44 (20) 3514-1416

Email: intetics@intetics

www.intetics.com

