

What is Conversational AI?

Conversational artificial intelligence (AI) is a technology that makes software capable of understanding and responding to voice-based or text-based human conversations. Traditionally, human chat with software has been limited to preprogrammed inputs where users enter or speak predetermined commands. Conversational AI goes much beyond that. It can recognize all types of speech and text input, mimic human interactions, and understand and respond to queries in various languages. Organizations use conversational AI for various customer support use cases, so the software responds to customer queries in a personalized manner.



Components of conversational AI

Conversational AI has principle components that allow it to process, understand and generate response in a natural way.

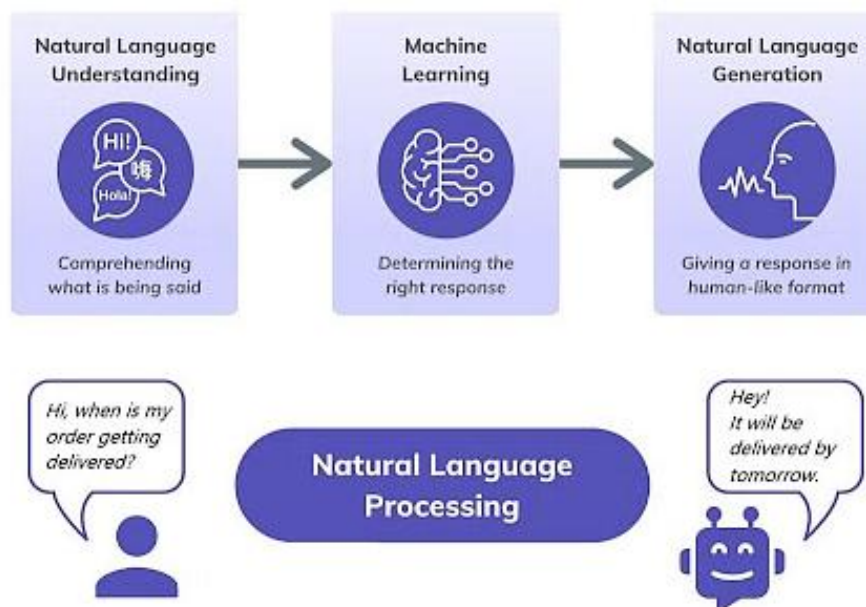
Machine Learning (ML) is a sub-field of [artificial intelligence](#), made up of a set of algorithms, features, and data sets that continuously improve themselves with experience. As the input grows, the AI platform machine gets better at recognizing patterns and uses it to make predictions.

Natural language processing is the current method of analyzing language with the help of machine learning used in conversational AI. Before machine learning, the evolution of language processing methodologies went from linguistics to computational linguistics to

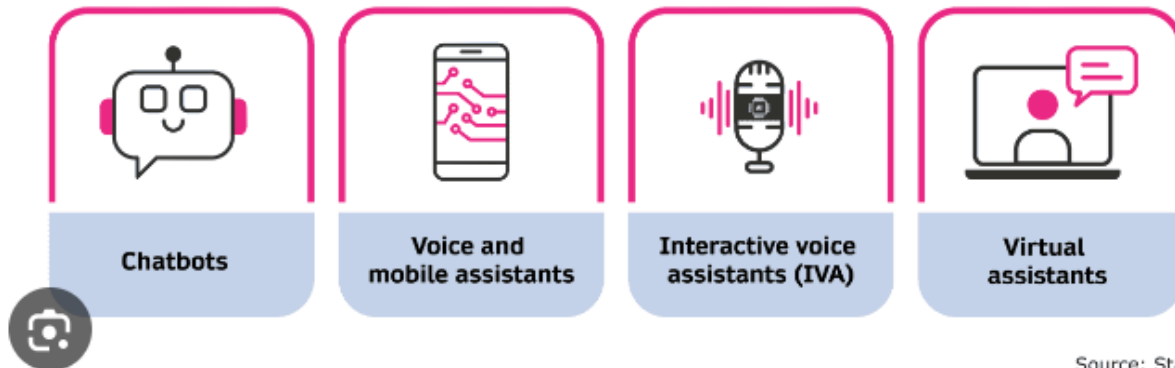
statistical natural language processing. In the future, deep learning will advance the natural language processing capabilities of conversational AI even further.

NLP consists of four steps: Input generation, input analysis, output generation, and reinforcement learning. Unstructured data transformed into a format that can be read by a computer, which is then analyzed to generate an appropriate response. Underlying ML algorithms improve response quality over time as it learns. These four NLP steps can be broken down further below:

- **Input generation:** Users provide input through a website or an app; the format of the input can either be voice or text.
- **Input analysis:** If the input is text-based, the conversational AI solution app will use natural language understanding (NLU) to decipher the meaning of the input and derive its intention. However, if the input is speech-based, it'll leverage a combination of automatic speech recognition (ASR) and NLU to analyze the data.
- **Dialogue management:** During this stage, Natural Language Generation (NLG), a component of NLP, formulates a response.
- **Reinforcement learning:** Finally, machine learning algorithms refine responses over time to ensure accuracy.



Types of conversational AI



What are the benefits of conversational AI?

Conversational AI technology brings several benefits to an organization's customer service teams.

Improved customer experience

Conversational AI chatbots can provide 24/7 support and immediate customer response—a service modern customers prefer and expect from all online systems. Instant response increases both customer satisfaction and the frequency of engagement with the brand.

Additionally, you can integrate past customer interaction data with conversational AI to create a personalized experience for your customers. For instance, it can make recommendations based on past customer purchases or search inputs.

Improved operational efficiency

You can use conversational AI solutions to streamline your customer service workflows. They can answer frequently asked questions or other repetitive input, freeing up your human workforce to focus on more complex tasks.

You can also gain cost benefits at scale. It can be costly to establish around-the-clock customer service teams in different time zones. It's much more efficient to use bots to provide continuous support to customers around the globe.

Wider accessibility

Conversational AI can be used to improve accessibility for customers with disabilities. It can also help customers with limited technical knowledge, different language backgrounds, or nontraditional use cases. For example, conversational AI technologies can lead users through website navigation or application usage. They can answer queries and help ensure people find what they're looking for without needing advanced technical knowledge.

What are some use cases of conversational AI?

Conversational AI has several use cases in business processes and customer interactions. We've grouped these use cases into four broad categories.

Informational

In an informational context, conversational AI primarily answers customer inquiries or offers guidance on specific topics. For instance, your users can ask customer service chatbots about the weather, product details, or step-by-step recipe instructions. Another example would be AI-driven virtual assistants, which answer user queries with real-time information ranging from world facts to news updates.

Data capture

You can use conversational AI tools to collect essential user details or feedback. For instance, you can create more humanlike interactions during an onboarding process. Another scenario would be post-purchase or post-service chats where conversational interfaces gather feedback about the customer journey—experiences, preferences, or areas of dissatisfaction.

Transactional

In transactional scenarios, conversational AI facilitates tasks that involve any transaction. For instance, customers can use AI chatbots to place orders on ecommerce platforms, book tickets, or make reservations. Some financial institutions employ AI-powered chatbots to allow users to check account balances, transfer money, or pay bills. These uses are convenient for your customers and improve their experiences.

Proactive

When you use conversational AI proactively, the system initiates conversations or actions based on specific triggers or predictive analytics. For example, conversational AI applications may send alerts to users about upcoming appointments, remind them about unfinished tasks, or suggest products based on browsing behavior. Conversational AI agents can proactively reach out to website visitors and offer assistance. Or they could provide your customers with updates about shipping or service disruptions, and the customer won't have to wait for a human agent.

Transfer \$100 to Mary

What are your symptoms?

When's my order arrive?

When would you like to book an appointment?

What's my balance?

Are you contacting about your flight to London?

How does conversational AI work?

Conversational AI works using three main technologies.

Natural language processing

Natural language processing (NLP) is a set of techniques and algorithms that allow machines to process, analyze, and understand human language. Human language has several features, like sarcasm, metaphors, sentence structure variations, and grammar and usage exceptions. Machine learning (ML) algorithms for NLP allow conversational AI models to continuously learn from vast textual data and recognize diverse linguistic patterns and nuances.

[Read about NLP »](#)

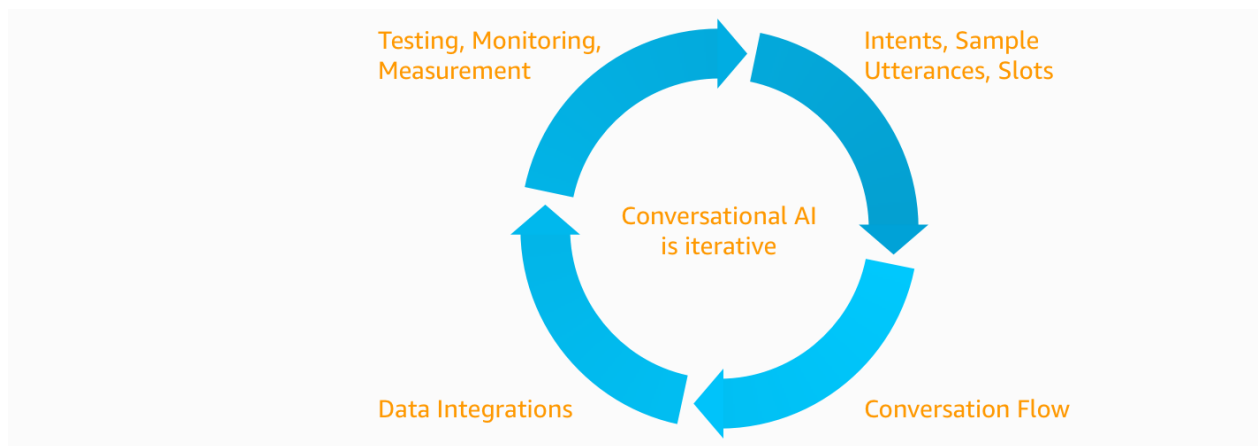
Natural language understanding

Natural language understanding (NLU) is concerned with the comprehension aspect of the system. It ensures that conversational AI models process the language and understand user intent and context. For instance, the same sentence might have different meanings based on the context in which it's used.

NLU uses machine learning to discern context, differentiate between meanings, and understand human conversation. This is especially crucial when virtual agents have to escalate complex queries to a human agent. NLU makes the transition smooth and based on a precise understanding of the user's need.

Natural language generation

After understanding the user's input, the system formulates a coherent and contextually appropriate response. Natural language generation (NLG) enables virtual agents to construct humanlike sentences in a clear, relevant, and linguistically natural manner. NLG uses powerful deep learning algorithms to formulate responses in context. Moreover, as AI chatbots interact more with users and human agents, their responses become refined and more flexible over time.



Conversational AI use cases

When people think of conversational artificial intelligence, online chatbots and [voice assistants](#) frequently come to mind for their customer support services and [omni-channel deployment](#). Most conversational AI apps have extensive analytics built into the backend program, helping ensure human-like conversational experiences.

Experts consider conversational AI's current applications weak AI, as they are focused on performing a very narrow field of tasks. [Strong AI](#), which is still a theoretical concept, focuses on a human-like consciousness that can solve various tasks and solve a broad range of problems.

Despite its narrow focus, conversation AI is an extremely lucrative technology for enterprises, helping businesses more profitable. While an AI chatbot is the most popular form of conversational AI, there are still many other use cases across the enterprise. Some examples include:

- **Online customer support:** Online chatbots are replacing human agents along the customer journey. They answer frequently asked questions (FAQs) around topics, like shipping, or provide personalized advice, cross-selling products or suggesting sizes for users, changing the way we think about customer engagement across websites and social media platforms. Examples include [messaging bots on e-commerce sites](#) with virtual agents, messaging apps, such as Slack and Facebook Messenger, and tasks usually done

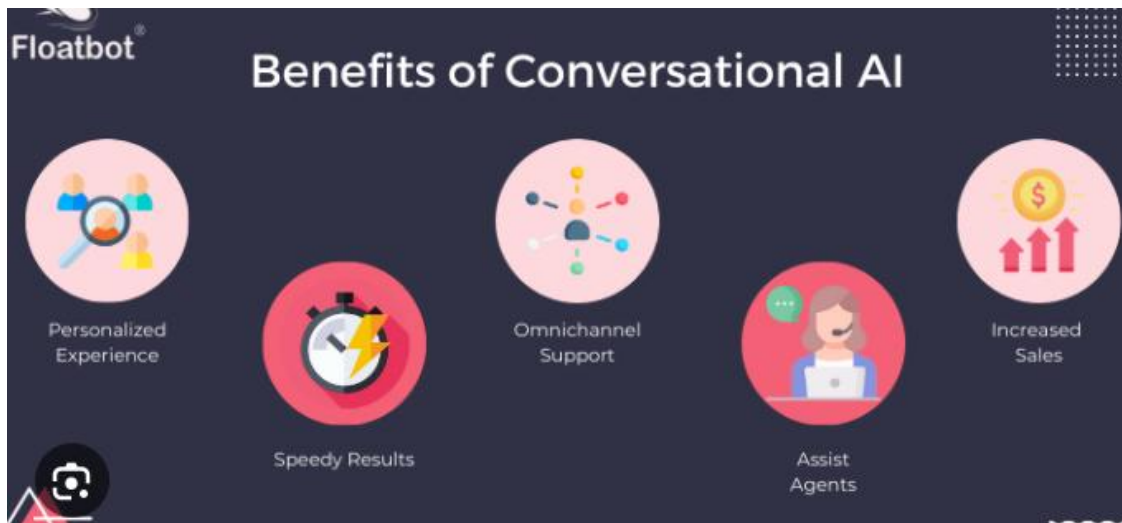
by virtual assistants and voice assistants.

- **Accessibility:** Companies can become more accessible by reducing entry barriers, particularly for users who use assistive technologies. Commonly used features of Conversation AI for these groups are text-to-speech dictation and language translation.
- **HR processes:** Many human resources processes can be optimized by using conversational AI, such as employee training, onboarding processes, and updating employee information.
- **Health care:** Conversational AI can make health care services more accessible and affordable for patients, while also improving operational efficiency and the administrative process, such as claim processing, more streamlined.
- **Internet of things (IoT) devices:** Most households now have at least IoT device, from Alexa speakers to smart watches to their cell phones. These devices use automated speech recognition to interact with end users. Popular applications include Amazon Alexa, Apple Siri and Google Home.
- **Computer software:** Many tasks in an office environment are simplified by conversational AI, such as search autocomplete when you search something on Google and spell check.

While most AI chatbots and apps currently have rudimentary problem-solving skills, they can reduce time and improve cost efficiency on repetitive customer support interactions, freeing up personnel resources to focus on more involved customer interactions. Overall, conversational AI apps have been able to replicate human conversational experiences well, leading to higher rates of customer satisfaction.

Benefits of conversational AI

Conversational AI is a cost-efficient solution for many business processes. The following are examples of the benefits of using conversational AI.



Cost efficiency

Staffing a [customer service](#) department can be quite costly, especially as you seek to answer questions outside regular office hours. Providing customer assistance via conversational interfaces can reduce business costs around salaries and training, especially for small- or medium-sized companies. Chatbots and virtual assistants can respond instantly, providing 24-hour availability to potential customers.

Human conversations can also result in inconsistent responses to potential customers. Since most interactions with support are information-seeking and repetitive, businesses can program conversational AI to handle various use cases, ensuring comprehensiveness and consistency. This creates continuity within the [customer experience](#), and it allows valuable human resources to be available for more complex queries.

Increased sales and customer engagement

With the adoption of mobile devices into consumers' daily lives, businesses need to be prepared to provide real-time information to their end users. Since conversational AI tools can be accessed more readily than human workforces, customers can engage more quickly and frequently with brands. This immediate support allows customers to avoid long call center wait times, leading to improvements in the overall customer experience. As customer satisfaction grows, companies will see its impact reflected in increased customer loyalty and additional revenue from referrals.

Personalization features within conversational AI also provide chatbots with the ability to provide recommendations to end users, allowing businesses to cross-sell products that customers may not have initially considered.

Scalability

Conversational AI is also very scalable as adding infrastructure to support conversational AI is cheaper and faster than the hiring and on-boarding process for new employees. This is especially helpful when products expand to new geographical markets or during unexpected short-term spikes in demand, such as during holiday seasons