

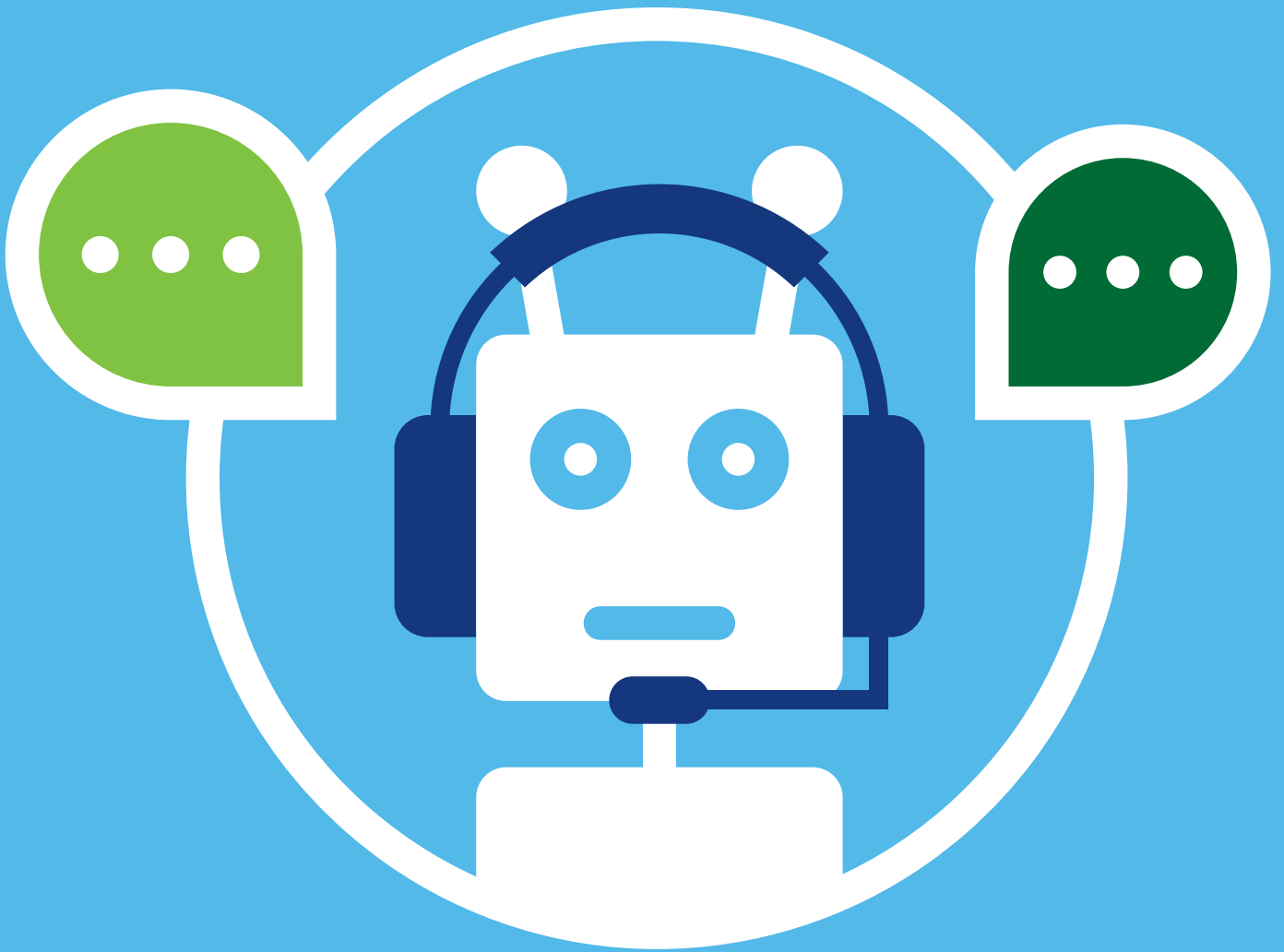


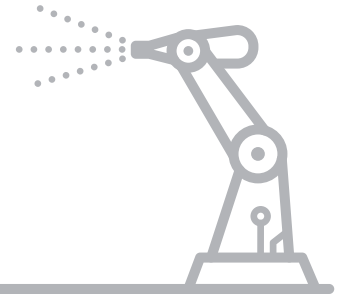
Conversational Chatbots – Let's chat

June 2017

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Introduction

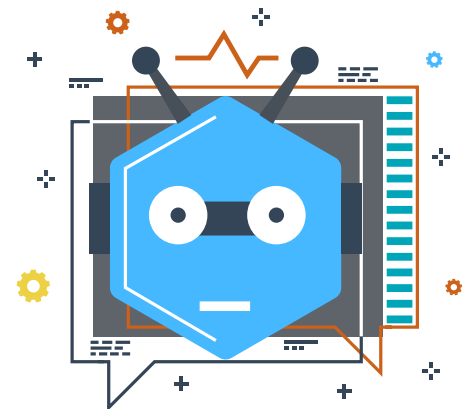
Chatbots are computer programs that maintain a conversation with a user in natural language, understand the user's intent and send responses based on the organization's business rules and data. These chatbots use Artificial Intelligence to process language, enabling them to understand human speech. They can decipher verbal or written questions and provide responses with appropriate information or direction. Many customers first experienced chatbots through dialogue boxes on company websites. Chatbots also interact verbally with consumers, such as Siri on the Apple iPhone or Amazon's Alexa Voice Service. Chatbots are now increasingly being used by businesses to augment their customer service.

Building blocks of chatbots:

The chatbot consists of these key components:

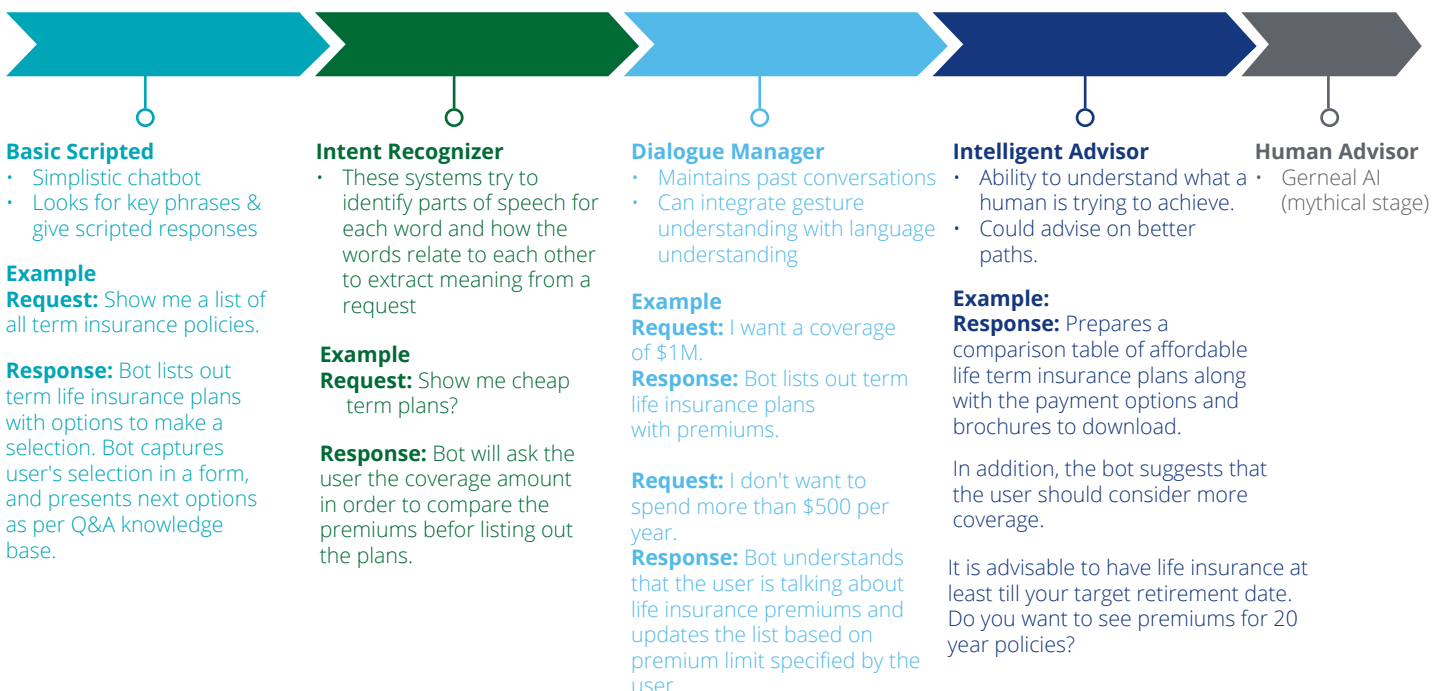
- A front-end interface, which connects to a variety of channels, such as websites, email, SMS, or messaging applications such as Facebook Messenger or Slack, through which users interact with the chatbot.
- Understanding intent is responsible for recognizing the user's intent. This element uses natural language processing and machine learning to parse user messages, collect relevant parameters from words and sentences, and map those to actions to take.
- Another component manages the dialogue by maintaining a representation of the conversational logic and keeping track of context.

Chatbots can be considered as an enhanced channel of customer interaction which would move from **Interactive Voice response to Intelligent Assistant Response.**



So let's take a look at the evolution of chatbots

Evolution of a chatbot

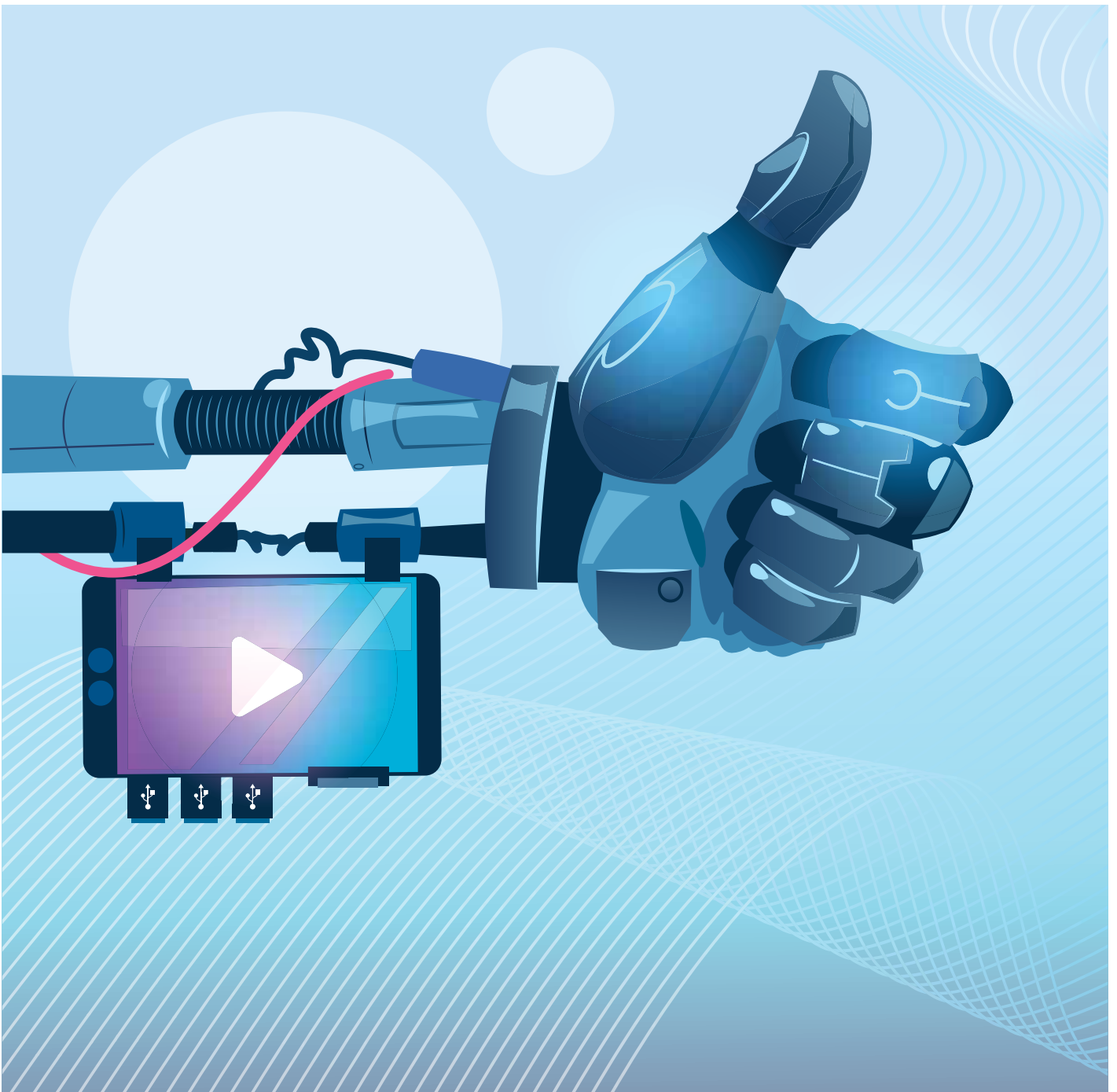


There are two kinds of chatbots in the market today: Scripted bots and Artificial Intelligence (AI) bots.

Scripted bot is like a rule-based guided conversation and performs like a decision tree where each action by the user prompts the bot to take action or respond. For example, Sephora (a popular makeup retailer in the U.S.) has a bot on Kik. The

bot engages users with questions about makeup preferences and serves up content and offers relevant to their responses. While it may not sound like a sophisticated process – the more the consumer engages with the bot over time, the smarter the bot (and the brand) becomes about consumer preferences and is able to serve personalized content and offers.

AI bots are built on Machine Learning (ML) and Natural Language Processing (NLP) capabilities. They are based on the human capability of learning and absorbing information owing to which they are more efficient and can process much faster than humans and may come up with more subtle results.¹



Do Chatbots have inherent advantages over humans

Chatbots help enterprises in various ways as mentioned below:

1. Chatbots have a number of potential benefits over traditional GUIs. First, they can simplify applications for users. For example, rather than navigating through an interface or website to find information, users can just say or type what they want. Users can also compress multistep tasks into a single command, such as, "Get my list of open opportunities this quarter, and send it to Janet."

2. Second, the conversational UIs that chatbots offer may require little to no training, given that they understand and can interpret natural language and translate it into actions.
3. Third, users can leverage chatbots to operate several business applications at once. For example, users can invoke multiple chatbot actions in conversation with team members at the same time.

Combined, those benefits allow for non-expert users to interact with many complex

applications in an intuitive fashion in a single interface. This gives rise to powerful automation opportunities, where chatbots trigger actions and orchestrate processes across a range of applications through the course of dialogue in natural language. The business impacts can include reducing costs by increasing self-service, improving end-user experience and satisfaction, delivering relevant information faster, and increasing compliance with internal procedures.ⁱⁱ





Few considerations which enterprises may look at before evaluating chatbots

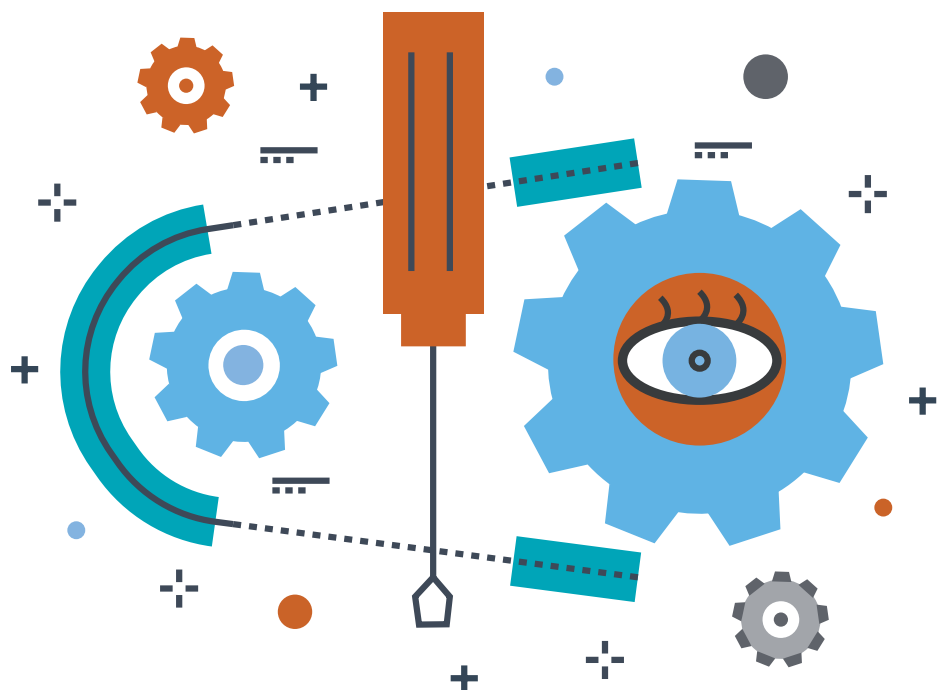
As the adoption of voice and messaging technologies continue to grow in the enterprise, so does the potential for chatbot solutions. However, in order to be adopted in the enterprise, chatbot platforms will need to provide capabilities in areas such as integration, security management, or monitoring, which are essential elements of enterprise solutions.

- **Whether the identified business process can do away with human interaction?** - It is important to understand that although AI and NLP based chatbots are getting intelligent, there is still scope for improvement. E.g. Chatbots when initially configured have a limited dictionary based on the training examples provided. As the bot is used more and more it encounters different live business situations which may be different from the training examples, the bot learns and improves its accuracy.
- **Integration with enterprise systems / CRM tools** - Can the chatbot tool integrate with existing enterprise systems? To streamline operations, enterprise chatbot platforms should provide a simple way for chatbot developers to integrate with existing business systems and translate the data into voice or simple text interfaces.
- **Governance or monitoring systems** - An enterprise-ready chatbot platform should include monitoring capabilities to track the different command and responses of its users and consumer applications.
- **Security** - To effectively leverage enterprise data sources, chatbot

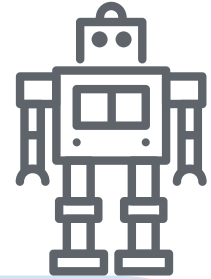
platforms should provide security capabilities such as encryption, data privacy, and access control policies.

- **Virtual Personality** - Although customers often realize they are talking to a machine when using a chatbot, many people are more comfortable with a virtual human experience such as an avatar. Customers appreciate expressions of empathy and patience. You can program your chatbot with personality that reflects your company's brand, style and values.

- **Handover to Human** - Customers often become frustrated when they can't access a human for customer service. To address this, maybe enterprises can add a button in the chatbot text window that a customer can click on, or provide a direct phone line, to enable them to chat with a human customer service representative at any time.



Identifying chatbot use cases



The key factors to assess suitability of using conversational UI are:

Repetitive procedures - Professionals frequently and repeatedly perform a task or exchange the same information

Requires human interaction - Current processes require engaging expensive resources whose time could be spent on higher value activities

Onerous current processes- It is time-consuming, difficult, or confusing to navigate current processes

Easy to consume and control via conversation- Workflow tasks or information exchanges are suited to the back and forth nature of natural conversation

The key factors to assess viability of using conversational UI are:

Complexity of Rules / Standardization- Business rules are well-defined and processes are standardized

Data Availability - Transcripts of human dialogue are available for pattern recognition or a database of common questions and their answers is available

Technology Compatibility- ease of integration with company systems or databases via existing APIs

Firm Readiness- meeting requirements of security, accuracy, ease of use, price, scalability, etc.

Why are chatbots steadily gaining attention?

Advancements in technologies and computing power have enabled chatbots to gain traction from major technology giants as early adopters. With advances in Natural Language Processing and Artificial Intelligence, machine learning algorithms can now understand queries just like the humans. More importantly the code learns from every interaction and grows its skills to handle further conversations.

Let's look at an example of how Human Resource function can benefit from AI chatbots. Human Resource companies informally refer to Chatbots as a friend who helps you with tasks such as booking a flight ticket, reminding you to punch in for your attendance, sending a note to your newly joined team member or even training you for the next job interview. Some chatbots can help with employee performance reviews and engagement while another can simplify the recruitment process through Artificial Intelligence.ⁱⁱⁱ

Most Chatbots use Machine Learning to learn from the initial interactions with the employees. The first time that a chatbot encounters a question which it cannot answer, it is programmed to pass the same to the next level which is a human interface. This response is recorded by the bot for future reference.

As shown in the evolution chatbots have existed since 1960's without going mainstream. Few recent global trends have made 2016 the year chatbots started

gaining attention. Some of these trends were:

- **Mobile messenger domination -** Mobile messengers such as Facebook Messenger, WhatsApp, WeChat and other have become the preferred means of communication on mobile devices. Chatting has emerged as the communication medium of choice for today's smartphone carrying generation.
- **App fatigue -** App fatigue refers to consumers who are tired of installing, updating and learning how to use mobile (iOS and Android) apps, and to businesses that are tired of spending heavily on mobile app development, maintenance and marketing only to find out that very few people actually use them.
- **Push by global technology majors like Facebook and Microsoft -** Microsoft announced its Bot Framework and Facebook announced their support



for bots in the Facebook Messenger.

- Chatbots integrated into messengers are carrying targeted customer communication in the form of text messages. Popular messaging platforms are coming up with APIs which allow chatbot development and integration within their messenger apps possible.

In Conversation With...

Companies like Yes Bank, InMobi, BankBazaar are experimenting with HR chatbots in its nascent stages

These bots allow companies to automate basic HR procedures like collating data on employees

By 2020, estimates say 30 million Indians will be using chatbots for their HR functions

A chatbot is a computer programme which conducts a conversation via auditory or textual methods

Enterprises are finding multiple areas to deploy chatbots

Chatbots are increasingly being implemented in two domains: business-to-business and internal. The bot phenomenon will cause broad disruption in many areas of the economy. For example, banking bots will enable consumers to check balance, transfer money, pay bills and more. Broking bots will enable consumers to find investment options, make investments and track balances. E-commerce bots will get customers the best deals and offers. News bots will deliver personalized news information while gaming bots will entertain. Restaurant bots will enable you to order, pay and eat without waiting in line. Customer support bots will provide instant responses dramatically increasing customer satisfaction. Enterprise bots will enable employees to check leave balance, file expenses, check inventory balance and approve transactions.

Global organizations are taking bots developed by them to the next level. A user in the US can simply ask Alexa to order an Uber, and she will request a ride right to your door. This bot developed by Amazon is a personal assistant that listens to you through a number of physical devices that use her (Alexa) as their brain. This was made possible as a result of integrating Uber API with the bot.

If hailing a taxi has become easier, ordering your favourite pizza is just a conversation away. Pizza delivery service, Domino's, has launched a new artificially intelligent chatbot, called Dom on Facebook Messenger, for ordering pizza using text or a picture.

In the Indian context, companies across sectors have started exploring the "chatbot" wave. Among the early adopters of bots are travel, e-commerce, and banking companies. A large number of customers daily use these platforms. In banking, Kotak Mahindra, Axis Bank, UBS are known to be testing chatbots. ICICI recently announced the use of software robotics.^{iv}

HDFC Bank has tied up with Niki.ai, the artificial intelligence firm, to bring in 'conversational banking' - Chatbots that facilitate commerce and banking transactions without getting out of the chat window. The chatbot is presently available on Facebook messenger where it can be used for e-commerce transactions like booking a cab, ordering food or paying bill.^v

AXIS bank tied up with Active Intelligence Pte or Active.ai, a Singapore-based fintech platform, to launch intelligent bots which will enable customers to chat through its mobile banking app and messaging platforms.

Yes Bank has partnered with Gupshup, a leading bot platform, to launch 'YES mPower' - a banking chat bot for its loan products. Currently active on Facebook Messenger, YES mPOWER helps customers get information about Loan Products offered by YES BANK and instantly gives a loan eligibility, enabling customers to get the information they need quickly and easily.^{vi}

Oyo Rooms, a company founded in 2013 and operates a network of 6,500 hotels and 70,000 rooms in over 200 Indian cities, is

leveraging a bot built by an Indian AI start-up, Niki.ai to for searching and booking hotels seamlessly through a chat enabled interface.^{vii}

HDFC Life partnered with Haptik to launch India's first life insurance chatbot that acts as a financial advisor helping customers to choose suitable insurance plan for their future needs. Chatbot conducts a 60 second quiz and computes the insurance quotient to suggest the suitable insurance plan ranging from health to tax planning and retirement. With the help of cognitive technologies HDFC Life is engaging the new age customers.^{viii}

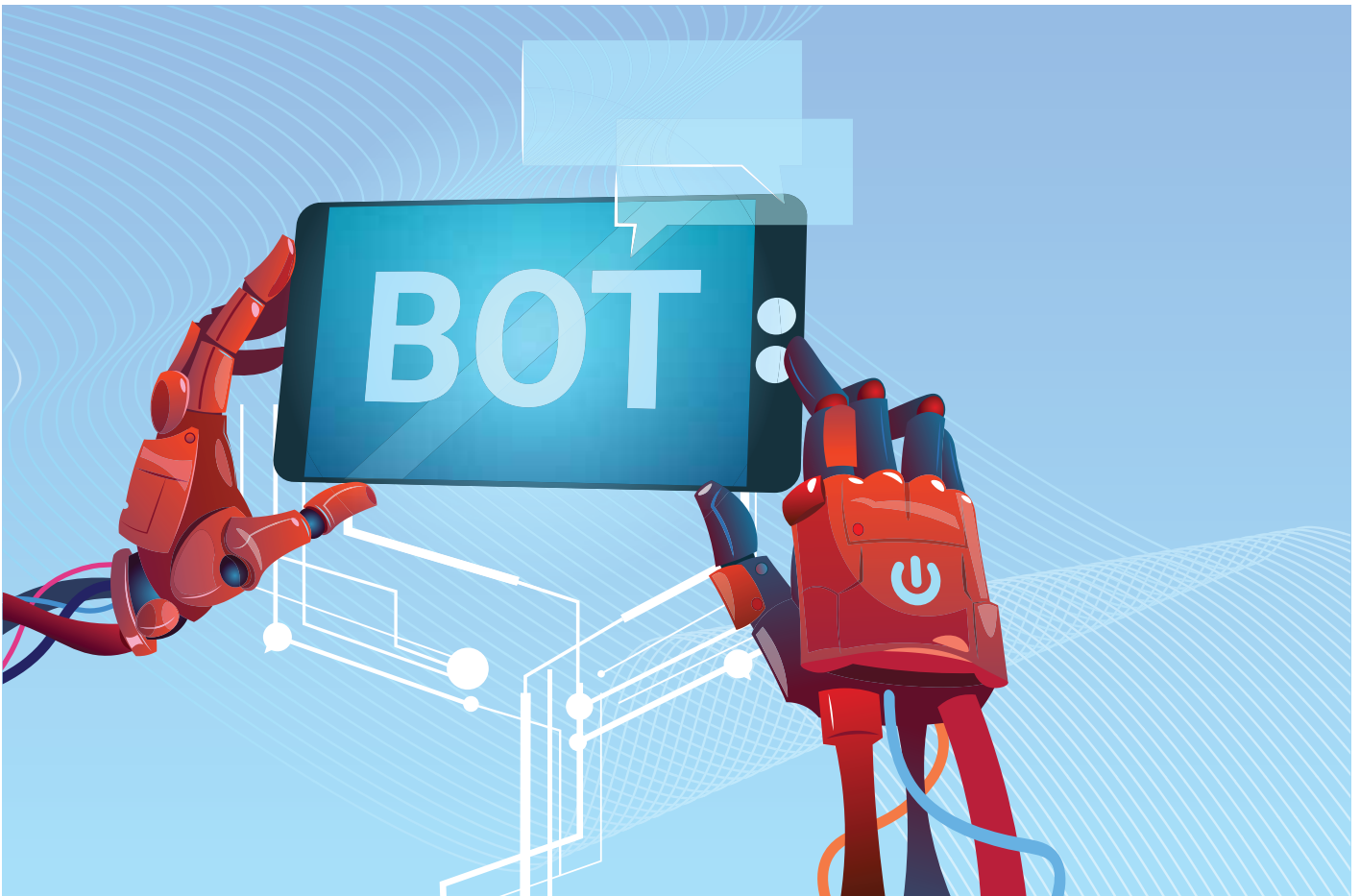
The above examples is not an exhaustive list, there are many enterprises across sectors who have started exploring the "chatter bots".

One challenge of using chatbots in the Indian ecosystem is presence of multilingual dialects and chatbots in the market are at the most bilingual which limits the effective communication with diverse customers making the chatbots not so user friendly.



Chatbots may not be the only definitive answer for improving customer service, but they can go far to improve the responsiveness and efficiency of a company's customer service function.

Chat bots may disrupt the way we interact within our organization's (employees), and with our customers / suppliers. Now is the time to start to harness this technology – **so let's chat!**



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