ARTIFICIAL
SOLUTIONS

Chatbots:
The Definitive Guide (2020)

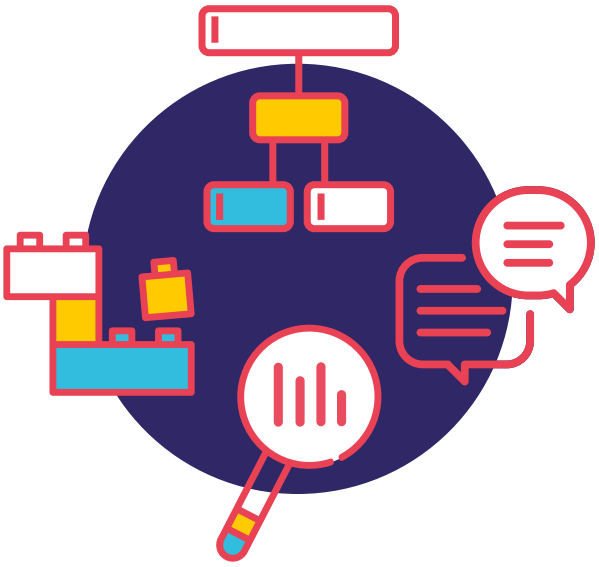
This is the ultimate guide to Chatbots in 2020.

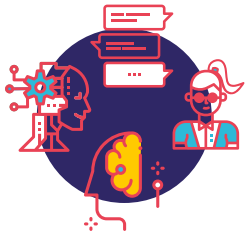
In this in-depth guide you'll learn:

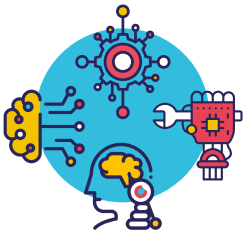
- What chatbots are & how they work
- The must have chatbot features
- The value of chatbots for business
- And lots more

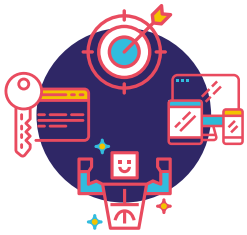
So, if you want to become a chatbot pro, this guide is for you.

Let's get started.





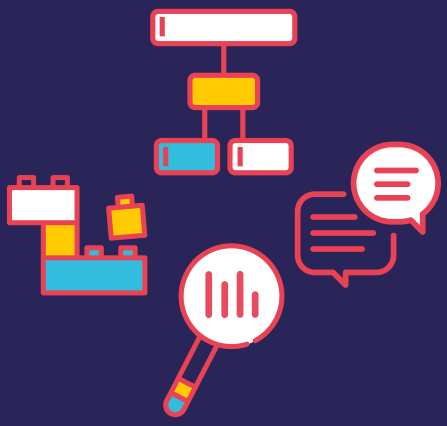




Chapter 1: Chatbot Fundamentals

In this chapter we'll cover chatbot fundamentals, including what a chatbot is, how it works and why it's important.

So, if you're just getting started with chatbots, or want to strengthen your knowledge, this chapter is for you.



What is a Chatbot?

A chatbot is a computer program that allows humans to interact with technology using a variety of input methods such as voice, text, gesture and touch, 24/7 365.

For several years chatbots were typically used in customer service environments but are now being used in a variety of other roles within enterprises to improve customer experience and business efficiencies.

Known by a variety of different names such as a conversational AI bot, AI assistant, intelligent virtual assistant, virtual customer assistant, digital assistant, conversational agent, virtual agent, conversational interface and more, chatbots are growing in popularity.

But just as chatbots have a variety of different names, they also have varying degrees of intelligence.

A basic chatbot might be little more than a front-end solution for answering standard FAQs.

Chatbots built using some of the bot frameworks currently available may offer slightly more advanced features like slot filling or other simple transactional capability, such as taking pizza orders.

But, it's only advanced conversational AI chatbots that have the intelligence and capability to deliver the sophisticated chatbot experience most enterprises are looking to deploy.
For the purpose of this guide, all types of automated conversational interfaces are referred to as chatbots.

Why are Chatbots so Popular?

Smartphones, wearables and the Internet of things (IoT) have changed the technology landscape in recent years. As digital artefacts got smaller, the computing power inside has become greater.

But mobile apps and data-heavy activities don't go hand in hand. Wading through complicated menus isn't the fast and seamless user experience businesses need to deliver today.

In addition, consumers are no longer content to be restricted by the communication methods chosen by an organization. They want to interface with technology across a wide number of channels.

Chatbots offer a way to solve these issues by allowing customers to simply ask for whatever they need, across multiple channels, wherever they are, night or day.

How do Chatbots Work?

On a simple level, a human interacts with a chatbot. If voice is used, the chatbot first turns the voice data input into text (using Automatic Speech Recognition (ASR) technology). Text only chatbots such as text-based messaging services skip this step.

The chatbot then analyses the text input, considers the best response and delivers that back to the user. The chatbot's reply output may be delivered in any number of ways such as written text, voice via Text to Speech (TTS) tools, or perhaps by completing a task.

It's worth noting that, understanding humans isn't easy for a machine. The subtle and nuanced way humans communicate is a very complex task to recreate artificially, which is why chatbots use several natural language principles:

Natural Language Processing (NLP)

Natural Language Processing is used to split the user input into sentences and words. It also standardizes the text through a series of techniques, for example, converting it all to lowercase or correcting spelling mistakes before determining if the word is an adjective or verb – it's at this stage where other factors such as sentiment are also considered.

Natural Language Understanding (NLU)

Natural Language Understanding helps the chatbot understand what the user said using both general and domain specific language objects such as lexicons, synonyms and themes. These are then used in conjunction with algorithms or rules to construct dialogue flows that tell the chatbot how to respond.

Natural Language Generation (NLG)

Delivering a meaningful, personalized experience beyond pre-scripted responses requires natural language generation. This enables the chatbot to interrogate data repositories, including integrated back-end systems and third-party databases, and to use that information in creating a response.

Conversational AI technology takes NLP and NLU to the next level. It allows enterprises to create advanced dialogue systems that utilize memory, personal preferences and contextual understanding to deliver a realistic and engaging natural language interface.

History of Chatbots: How Chatbot have Evolved

Chatbots can trace their history back decades, but it wasn't until internet usage became more mainstream that the chatbots as we recognize them today, started to be used to support customer service functions.

Here's a breakdown of some of the more prominent moments defined in chatbot history:

Turing Test, 1950

The Turing Test asks the question of whether machines can think, and was asked in 1950 by Alan Turing in his 1950 landmark paper, "Computing Machinery and Intelligence". In the paper, Turing proposed a test where an interrogator had to determine which player was a human and which a machine through a series of written questions.

Despite criticisms and flaws, the test is still performed regularly today.

ELIZA, 1966

In 1964, MIT computer scientist Joseph Weizenbaum started development on ELIZA, what would turn out to be the first machine capable of speech using natural language processing.

Symbolically named after Eliza Doolittle in George Bernard Shaw's Pygmalion, ELIZA was able to fool many people into believing they were talking to a human simply by substituting their own words into scripts and feeding them back to users to maintain the conversation.

PARRY, 1972

By the early 1970s, psychiatrist Kenneth Colby had taken the principles behind ELIZA a step further. With the introduction of PARRY, Colby adopted more of a conversational chatbot strategy than ELIZA using a model of someone with paranoid schizophrenia to help increase believability in the responses. In 1973 a conversation was set up between ELIZA and Parry.

Racter, 1984

RACTER, the "artificially insane" raconteur, was written by William Chamberlain and Thomas Etter. It was reportedly said that the book 'The Policeman's Beard' was written by the Chatbot Racter. However, Racter was never released publicly.

Jabberwacky, 1988

Jabberwacky is a chatterbot created by British programmer Rollo Carpenter. It was one of the earliest attempts at creating AI through human interaction. The chatbot was designed to "simulate natural human chat in an interesting, entertaining and humorous manner".

Loebner Prize, 1990

The Loebner Prize was launched in 1990 by Hugh Loebner. It takes the format of a standard Turing Test with judges awarding the most human-like computer program.

Dr. Sbaitso, 1991

Dr. Sbaitso was a computerized psychologist chatbot with a digital voice designed to speak to you. It was an artificial intelligence speech synthesis development, created by Creative Labs meant to show off the sound card's then-impressive range of digitized voices.

ALICE, 1995

A.L.I.C.E. (Artificial Linguistic Internet Computer Entity) also referred to as Alicebot, or simply Alice, is a natural language processing chatterbot first developed in 1995, who has won the Loebner three times. Alice was inspired by the ELIZA program.

Elbot, 2000

Elbot is the cheeky chatbot who uses sarcasm and wit, along with a healthy dose of irony and his own artificial intelligence to entertain humans. Elbot was created by Fred Roberts and Artificial Solutions. In 2008 Elbot was close to achieving the 30% traditionally required to consider that a program has passed the Turing Test.

Smarterchild, 2001

The Smarterchild chatbot was developed by ActiveBuddy Inc. by Robert Hoffer, Timothy Kay and Peter Levitan. It was available on AOL Instant Messenger MSN Messaging networks. The chatbot offered fun personalized conversation and was considered a precursor to Apple's Siri and Samsung's S Voice.

Mitsuku, 2005

Mitsuku is a chatbot created from AIML technology by Steve Worswick. It's a five-time Loebner Prize winner (in 2013, 2016, 2017, 2018, 2019). Mitsuku claims to be a teenage female chatbot from Leeds, England. Her intelligence includes the ability to reason with specific objects, she can play games and do magic.

IBM Watson, 2006

Named after IBM's first CEO, Thomas, J. Watson, Watson was originally developed to compete on the American TV program, 'Jeopardy!', where it defeated two of the former champions in 2011.

Watson has since transitioned to using natural language processing and machine learning to reveal insights from large amounts of data.

Siri, 2010

Siri first came to the public's attention in February 2010 when it was launched as a new iPhone app. Apple subsequently bought the company and integrated the voice assistant into the iPhone 4S at its release in October 2011, bringing voice applications into the mainstream consumer market for good.

Google Now, 2012

Google Now was developed by Google, created specifically for the Google Search Mobile App. It uses a natural language user interface to answer questions, make recommendations, and perform actions by passing on requests to a set of web services.

Alexa, 2015

Siri remained perhaps the most famous of mobile voice assistants until Amazon launched Alexa. Already familiar with giving commands to their phone, Alexa caught consumers imagination and launched the now-immense market for smart home speakers.

Cortana, 2015

Cortana is an intelligent personal assistant that was developed by Microsoft. Cortana recognizes natural voice commands, can set reminders and answer questions using the Bing search engine.

Bots for Messenger: Facebook Chatbots, 2016

With Facebook's launch of their messaging platform, they became the leading program for chatbots. In 2018 there were more than 300,000 active chatbots on Facebook's Messenger platform.

Tay, 2016

Tay was a chatbot created by Microsoft to mimic the speech and habits of a teenage American girl. The chatbot caused controversy and was shut down only 16 hours after launch, when it began to post offensive tweets and became increasingly paranoid.

Woebot, 2017

Woebot developed by Woebot Labs is an AI-enabled therapy chatbot designed to help users learn about their emotions with "intelligent mood tracking."

2020 and Beyond

Expect to see enterprises planning for an intranet of conversational AI applications that can work together seamlessly, sharing information.

Chapter 2:
Types of Chatbots

In this chapter we'll cover the different types of chatbot technology.

We'll talk about linguistics, machine learning and a hybrid model approach.

We'll also look at chatbot development and integrations.

Types of Chatbot Technology

The majority of chatbot development tools today are based on two main types of chatbots, either linguistic (rule-based chatbots) or machine learning (AI chatbot) models.

Linguistic Based (Rule-Based Chatbots)

Linguistic based – sometimes referred to as 'rules-based', delivers the fine-tuned control and flexibility that is missing in machine learning chatbots. It's possible to work out in advance what the correct answer to a question is, and design automated tests to check the quality and consistency of the system.

Rule-based chatbots use if/then logic to create conversational flows.

Language conditions can be created to look at the words, their order, synonyms, common ways to phrase a question and more, to ensure that questions with the same meaning receive the same answer. If something is not right in the understanding it's possible for a human to fine-tune the conditions.

However, chatbots based on a purely linguistic model can be rigid and slow to develop, due to this highly labor-intensive approach.

Though these types of bots use Natural Language Processing, interactions with them are quite specific and structured. These type of chatbots tend to resemble interactive FAQs, and their capabilities are basic.

These are the most common type of bots, of which many of us have likely interacted with – either on a live chat, through an e-commerce website, or on Facebook messenger.

Machine learning (AI Chatbots)

Chatbots powered by AI Software are more complex than rule-based chatbots and tend to be more conversational, data-driven and predictive.

These types of chatbots are generally more sophisticated, interactive and personalized than task-oriented chatbots. Over time with data they are more contextually aware and leverage natural language understanding and apply predictive intelligence to personalize a user's experience.

Conversational systems based on machine learning can be impressive if the problem at hand is well-matched to their capabilities. By its nature, it learns from patterns and previous experiences.

But, to perform even at the most rudimentary level, such systems often require staggering amounts of training data and highly trained skilled human specialists. In addition, a machine learning chatbot functions as a black box. If something goes wrong with the model it can be hard to intervene, let alone to optimize and improve.

The resources required, combined with the very narrow range of scenarios in which statistical algorithms are truly excellent, makes purely machine learning-based chatbots an impractical choice for many enterprises.

Hybrid Model – The Ultimate Chatbot Experience

While linguistic and machine learning models have a place in developing some types of conversational systems, taking a hybrid approach offers the best of both worlds, and offers the ability to deliver more complex conversational AI chatbot solutions.

A hybrid approach has several key advantages over both the alternatives. When considered against machine learning methods, it allows for conversational systems to be built even without data, provides transparency in how the system operates, enables business users to understand the application, and ensures that a consistent personality is maintained and that its behavior is in alignment with business expectations.

At the same time, it allows for machine learning integrations to go beyond the realm of linguistic rules, to make smart and complex inferences in areas where a linguistic only approach is difficult, or even impossible to create. When a hybrid approach is delivered at a native level this allows for statistical algorithms to be embedded alongside the linguistic conditioning, maintaining them in the same visual interface.

Building conversational applications using only linguistic or machine learning methods is hard, resource intensive and frequently prohibitively expensive. By taking a hybrid approach, enterprises have the muscle, flexibility and speed required to develop business-relevant AI applications that can make a difference to the customer experience and the bottom line.

Chatbot Development

There are no hard and fast rules but here are some top tips to developing chatbots to ensure success.

Define Goals

It's essential to define business value and goals at the beginning of a project. By knowing the features needed to achieve the desired result it's possible to shape the implementation, bearing in mind any business restrictions such as time or budget.

Whether it's a proof of concept, pilot or full production project it's important to stay true to these goals before moving on to other phases within the project. Otherwise it's tempting to be distracted by cool features that aren't necessary to achieve the end goal.

Think Big, Start Small

Enterprises are moving beyond short-term chatbot strategies that solve specific pain points, to using conversational interfaces as an enabler to achieve goals at a strategic level within the organization.

Consider the wider strategy but start with a smaller project in order to see the results and measure the success before deciding on the next phase. Ensure the technology used for chatbot development can scale to meet future needs.

Take Control of the Chatbot Landscape

In large enterprises it's not uncommon for several proof of concept (PoCs) and pilot chatbot projects to be currently underway, unseen and often un-coordinated by the CIO. For businesses this poses two main concerns — a duplication of resources and potential security risks.

In recognition of the need to bring together teams tasked with delivering the innovative solutions that will drive the business forward globally, enterprises are forming Centers of Excellence.

Skillsets are no longer spread across the organization but focused on collaborating and developing chatbot solutions to solve problems, improve productivity and make the business stronger.

Collaborate With All Stakeholders

The combination of CIOs taking control of the chatbot landscape, the continued business-driven initiatives from departments looking to build their own applications, and the push from developers to build conversational systems at a 'skunk work' level is creating an interesting and dynamic set of stakeholders.

Choose a development technology that is advanced enough for developers to rapidly build a complex proof of concept that can still be easily understood by business users, even from day one.

Going Live Isn't the End

Launching a chatbot is only the beginning. It can always do better and increase customer satisfaction even further.

Make provisions to provide continual and continuous improvement to the system. It doesn't have to be time intensive, much of the process can be automated. At the same time, it's also essential to have KPI reporting in place and to use the traditional measuring methods already used by the organization, such as first call resolutions rates.

By enabling the chatbot to continue to learn and improve, the value of overall solution will increase.

Chatbot Connectors

Chatbot connectors are pre-built libraries of intelligent connectors that span a range of business and AI assets including RPA (robotic process automation) and CPaaS (Communications Platform as a Service).

Connectors harness the power of back-office technology to deliver even greater intelligence and capabilities by integrating a chatbot into business systems, communication platforms and more. Reach users on any channel, deliver more personalized answers based on behind the scenes processes, and execute tasks on customers' behalf.

People use a variety of channels and devices in communicating with others. Not only is it important for organizations to be available on all channels relevant to its audience, but the experience needs to be seamless across those channels too.

Ease of deployment onto a variety of channels should be a key consideration when planning a chatbot, alongside the ability for persistent chat.

For example, a person might use a Facebook Messenger chatbot on their smartphone to start a conversation on the commute home and want to continue it later that evening using a smart home hub, before moving to their smart speaker or watch to conclude it.

Channels often deployed for chatbot use include: Amazon Alexa, Android chat, Cortana, Discord, Facebook Messenger, Google Assistant, iOS Chat, IVR by Twilio, IVR by Nexmo, IVR by Cisco, LINE, Microsoft Teams, MS Bot Framework, Skype, Slack, SMS by Nexmo, Telegram, Twitter, Wechat, WhatsApp, or a custom app for mobile, in car or home.

Connectors can also include enterprise backend software, Live Chat, ASR/TTS and Knowledgebase such as: Blue Prism, UiPath, Salesforce.com, SAP, Amadeus, Bold360, Cention, Live Chat Inc., LivePerson, Google ASR, Amazon, Apple, Microsoft, Nuance, and RightNow.

Chapter 3:
Why Chatbots Fail: Limitations of Chatbots

In this chapter we'll cover the reasons chatbots fail and what to avoid when building your conversational AI chatbot strategy.

Chatbots Failing to Deliver

It's claimed that chatbots increase customer engagement, improve the brand experience and deliver actionable insight to the business. So why are so many chatbots failing to deliver on their potential?

The answer lies in the restrictive nature of most chatbot technology. Few chatbots offer the rich, humanlike conversation needed to engage users, nor can they guide off-topic users back to the subject at hand. They can't ask qualifying questions if clarification is required. And, they are not able to deliver over the different channels and languages by which customers want to communicate.

Add in a lack of intelligent interaction by the chatbot and confusion over data ownership and it's no wonder Gartner expects that 40% of first-generation chatbot/virtual assistant applications launched in 2018 will have been abandoned by 2020.

The main issues can be categorized into four main areas:

A Lack of Training Data

It's a common misconception that machine learning systems somehow work completely on their own, without any human supervision. This is not true.

Just as a linguistic based conversational system requires humans to laboriously craft each rule and response, a machine learning system requires humans to collect, select, and clean every single piece of training data, because using machine learning to understand humans takes a staggering amount of information.

What comes naturally to us as humans – the relationships between words, phrases, sentences, synonyms, lexical entities, concepts etc. – must all be 'learned' by a machine.

In a recent survey 81% of respondents said that the process of training AI with data was more difficult than they expected.

For enterprises that don't have a significant amount of relevant and categorized data readily available, this can be a prohibitively costly and time-consuming part of building conversational AI chatbot applications.

Poor Conversational Understanding

An even greater problem is the risk that the machine learning systems do not understand the customer's questions or behavior.

In a linguistic based conversational system, humans can ensure that questions with the same meaning receive the same answer. A machine learning system might well fail to correctly recognize similar questions phrased in different ways, even within the same conversation.

There's also the issue that pure machine learning systems have no consistent personality, because the dialogue answers are all amalgamated text fragments from different sources. From a business point of view, this misses the opportunity to position the company and its values through a consistent brand personality.

Ease of Creating Global Appeal

Organizations need to support their customers in different languages – a problem that will only increase over time. Hence, chatbots need to be fluent in many languages, with the ability to learn more when needed. But this is only part of the problem, because they frequently need to support a variety of platforms, devices or services too.

Most chatbot development technology requires a great deal of effort and often complete rebuilds for each new language and channel that needs to be supported, leading to multiple disparate, solutions all clumsily co-existing.

These solutions cannot reuse assets from the original build, nor can they surface the same solution through multiple devices and services.

Regulations Protecting Data

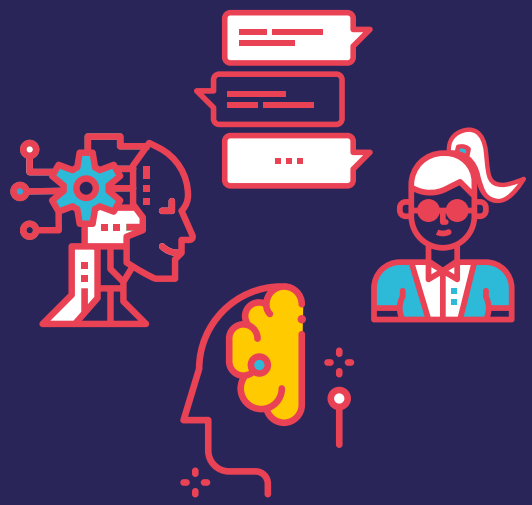
Data is at the heart of conversational AI, and is used to personalize the conversation, improve the system and deliver actionable insight to the business, so it's essential that enterprises can reap the benefits while complying with regulation and legislation.

While GDPR is an EU regulation, the ramifications impact enterprises around the globe. It's likely that regulation will increase throughout many countries in the future. For organizations, the challenge is not just in storing the data, but also in retrieving the information for export or deleting in a secure and auditable way.

Furthermore, many chatbot technologies restrict access to the conversational data generated, meaning businesses lose one of the key benefits to implementing a chatbot. Without this data, businesses are effectively blind to their customers.

Chapter 4:
Chatbots vs. Live Chat

In this chapter we'll discuss how chatbots stack up against live chat, and why chatbots are the future of delivering an enhanced experience through customer support.



Chatbots are the Future of Customer Support

Chatbots offer several advantages over live chat or contact center agents. Although reduced costs are clearly a key incentive, it shouldn't be the only consideration. There are several other advantages in offering your customers an intelligent automated self-service option.

Always On

While there will always be customers that prefer to speak to a live agent, what happens when it's out of hours; or at peak times when your phone lines are jammed? A chatbot is available at your customers' convenience over any number of different channels, not just your staffed hours and channels.

Fast

Chatbots are built to recognize, understand and respond to specific queries and problems in seconds. They can even offer up 'best match' queries mid-interaction, saving even more time for the customer. By contrast most agents typically must refer to standardized macros for common queries – all taking extra time.

Gartner highlights this with a report of a chatbot able to answer within 5 seconds of customer contact, while the average advisor took 51 seconds.

Accurate

Accuracy is key to reduce first time call resolution rates and to ensure customers return to the chatbot the next time they have a query.

Most advanced conversational systems can solve 80% of queries automatically because of their high level of understanding, often achieving 98% accuracy.

Compliant

Chatbots ensure that legal notices are never forgotten or that industry regulation isn't accidentally breached. In addition, customers and companies alike can track conversations to ensure transparency and accountability. Furthermore, important updates and changes can be centrally rolled-out and a proper audit trail maintained for compliance proposes where needed.

Scalable

There are only so many queries a live agent can handle at once. Live chat allows agents to help more than one customer at a time, but call center agents must finish one call, before starting another. A chatbot can handle millions of conversations simultaneously, all to the same high standard.

But there is still a need for the human touch...

Sometimes there is no substitute for the empathy live agents can deliver or the kind of intelligence that needs creativity or judgement to resolve a query. In these situations, it's often the human ability to draw parallels with similar experiences that allows for problems in complex or unusual circumstances to be resolved.

Therefore, it's essential for a chatbot to be able to seamlessly handover to a live agent when the need arises. Ensuring that all the information already gleaned during the conversation is transferred too, so the customer doesn't have to start from the beginning again.

Chapter 5:
What is a Chatbot Platform?

In this chapter we'll talk about what a chatbot platform is and why it's important to have an end-to-end solution when building chatbots for the enterprise.

Build, Deploy & Analyze With a Chatbot Platform

A chatbot platform allows enterprises to rapidly scope, build, deploy and maintain conversational systems by making the development process more efficient and unified.

Building engaging conversational AI chatbot solutions can be complex. Toolkits – often referred to as platforms – help to simplify the development of AI chatbot systems.

Platforms should contain everything a developer needs to build a conversational system, from data mining tools through scoping out the initial build to the analytics that are needed to maintain the system and deliver actionable insight back to the business.

They allow enterprises to build advanced conversational applications using either linguistic or machine learning, or (ideally) a hybrid combination of both. Some can integrate into back end systems and third-party data sources to deliver answers that might need more than one information source to truly personalize the response.

A graphical user interface (GUI) is essential to enable both developers and business users to have visibility into the system. A visual, drag-and-drop style user environment also makes it easier for business users and subject matter experts to correct a dialogue flow or update an answer.

Data analytics from chatbot applications need to feed back into the system in real-time to increase personalization within a conversation and to automatically deliver suggestions for system improvements. While the GUI provides business critical data about customers preferences and delivers an accurate picture of the "voice of the customer".

A conversational AI chatbot application shouldn't just be something that is built and then forgotten – a tick in the box next to the word chatbot. To optimize RoI, capitalize on emerging channels or expand into new geographies, conversational AI applications need to be adaptable to tomorrow's needs.

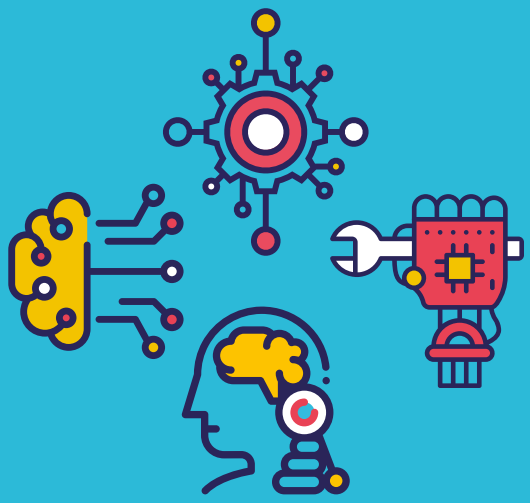
It's essential that a platform has flexible connectors, SDKs and APIs to allow enterprises to seamlessly scale their application according to their needs.

The best chatbot platforms make it possible to create an application once and deploy it in multiple languages and, across multiple devices and channels, using most of the original build. It also enables for AI assets to be shared between applications, allowing for even faster creation and greater RoI.

While there are many different chatbot platforms available in the market, they are not all built equally. Enterprises would be advised to list the criteria and functionality they need from their chatbot applications before deciding on which technology to use.

Chapter 6:
What is an AI Chatbot?

In this chapter we'll cover several capabilities an AI chatbot needs in order to distinguish itself from a basic chatbot. These capabilities are the keys to successful engagements that deliver true understanding to customers requests that deliver personalized responses.



AI Chatbots – the Key to Successful Engagements

AI Chatbots deliver the intelligent, humanlike experience most people expect when they hear the words AI.

The majority of chatbots available today are not AI based. They may use algorithms to determine the meaning of a question and the likelihood of the correct answer, but if you go off the chatbot script then they are left floundering.

AI Chatbots or conversational AI systems by comparison are not only capable of understanding a customer's intent, no matter how the question is phrased, but are far more capable too. They can for example fill out forms, make recommendations, upsell, book appointments, even integrate with third party or backend software like Robotic Process Automation (RPA), Enterprise Resource Planning (ERP) or Customer Relationship Management (CRM) systems to carry out further tasks.

Interestingly, despite wanting a humanlike interaction most people are quite content knowing they are speaking to a machine. For some it means they can go over a technical problem again and again without feeling foolish. For others a machine offers a faster, more efficient experience.

The key to successful engagement is understanding the customer's request and delivering a response that's personalized and relevant to the individual.

In order to do that an AI Chatbot needs several capabilities:

Intelligent Understanding is more than just correctly interpreting the user's request.

It's about being able to instantly amalgamate other pieces of information such as geolocation or previous preferences into the conversation to deliver a more complete answer.

Memory allows a chatbot to remember pertinent details to reuse during a conversation or implicitly learn about a person to be reused later. For example, a mobile assistant might learn through previous requests and responses that the user clearly prefers Italian cuisine and so will use this information when asked for restaurant recommendations in future.

Sentiment analysis enables a chatbot to understand the mood of the customer and the strength of that feeling. This is particularly important in customer service type applications where it can be linked to complaint escalation flows, but also can be used in other more trivial ways such as choosing which songs to play upon request.

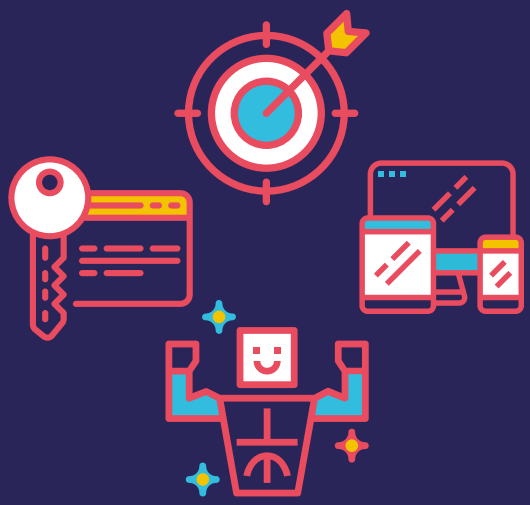
Personality can make a huge difference to engagement and the trust users place in the chatbot. While some companies chose to reinforce it using avatars, personality can easily be conveyed in the conversation alone. Want to meet a sarcastic chatbot? Try talking to Elbot.

Persistence allows people to pick up a conversation where they last left off, even if they switch devices, making for a more natural and seamless user experience.

Topic switching enables the user to veer off onto another subject, such as asking about payment methods while enquiring if a product is in stock. The chatbot should also then be capable of bringing the user back on track if the primary intent is not reached.

Chapter 7:
What Makes the Best AI Chatbot? Must-Have Chatbot Features and Benefits

In this chapter we'll cover what to look for when building the ultimate conversational AI chatbot platform strategy – including the must-have features.



The Top 10 AI Chatbot Must-Have Features

Truly Conversational

It may seem obvious but there's a world of difference between a chatbot answering a question and holding an intelligent conversation. An engaging exchange will not only improve the customer experience but will deliver the data to help you increase your bottom line. To achieve this, the user interface needs to be as humanlike and conversational as possible.

A conversational chatbot must understand the user's intent, no matter how complex the sentence; and be able to ask questions in return to remove ambiguity or simply to discover more about the user. It needs a memory in order to reuse key pieces of information throughout the conversation for context or personalization purposes and be able to bring the conversation back on track, when the user asks off topic questions.

If you're a multi-national company, you'll need the chatbot development platform you choose to do all this, and in your customer's native language too.

Developmental Control

It's very difficult to anticipate how people might use, or abuse, an AI application.
Certainly, Microsoft didn't envisage that "helpful" members of the public would teach Tay to start Tweeting inappropriate messages. Tay was designed as a showcase of machine learning, but unfortunately very neatly illustrated the problem with some conversational AI development tools they lack the control required to supervise the behavior.

By ensuring a level of control within the application, enterprises can not only avoid awkward mistakes, but provide a 'safety net' for managing unexpected exceptions during a conversation, always ensuring a smooth customer experience.

Enterprise-Grade Solution

Few chatbot development platforms were built with the enterprise in mind. Consequently, features you might expect as standard such as version control, roll back capabilities or user roles to manage collaboration over disparate teams are missing.

In addition, look for features that will aid speed of development including automated coding, web-hooks to allow flexible integration with external systems, and ease of portability to new services, devices and languages.

Hybrid Model

Most chatbot platform development tools today are either purely linguistic or machine learning models. Both have their drawbacks. Machine learning systems function, as far as the developer is concerned, as a black-box that cannot work without massive amounts of perfectly curated training data; something few enterprises have.

While linguistic-based conversational systems, which require humans to craft the rules and responses, cannot respond to what it doesn't know, using statistical data in the same way as a machine learning system can.

A hybrid approach that combines linguistic and machine learning models is best, and allows enterprises to quickly build AI applications whatever their starting point – with or without data – and then use real-life inputs to optimize the application from day one. In addition, it ensures that the system maintains a consistent and correct personality and behavior aligned with business aims.

Unique Personalization

Personalizing an automated conversation, whether it's simply accessing account information to answer a billing query or taking into consideration that customer's love of Italian food when recommending a restaurant, not only delivers a more accurate response, it increases engagement too.

While some information can be learned 'explicitly' (such as the customer choosing a preference from a list of features), it's the automated learning through 'implicit' methods (like information gleaned from, previous interactions) that really harnesses the power of conversational AI. This can then be combined with other information and data sources such as geo-location, purchase history, even time of day, to personalize the conversation even further.

Data Ownership and Analytics

One of the key considerations in choosing a chatbot platform is data. People reveal vast amounts of information in everyday conversations. Their individual preferences, views, opinions, feelings, inclinations and more are all part of the conversation.

This information can then be used to feed- back into the conversation to increase engagement, train and maintain your conversational AI chatbot interface; and analyzed to deliver actionable business data.

That's why it's so important that enterprises maintain ownership of their data. It's surprising how many development tools allow businesses to create chatbots, but don't actually provide any of the details of the conversation, just the outcome, such as that final pizza delivery order.

Alongside data ownership, carefully consider the data analytics package provided as part of the platform, including the flexibility in drilling down through the information and understanding the context of conversations, as well as the level of detail provided.

Cross Platform

Conversational applications are gradually infiltrating all aspects of everyday life, so it makes sense to ensure that conversational applications can be easily ported to existing and future devices. While it's easy to state that applications can be built to run on a variety of platforms or services, all too frequently each one requires a completely new build. Investigating how much of the original build can be reused at the start, may save significant resources in the long term.

It's also worth looking at how the application will support your users as they swap from device to device during the day. Seamless persistence of conversations increases engagement and customer satisfaction.

Data Security

Data security is a key consideration for any enterprise, particularly when dealing with regulatory frameworks and customers' personal information. Flexibility is essential in an AI chatbot platform to meet today's exacting security conditions, across multiple geographies and legal requirements.

While most enterprises have no issue with a standard cloud deployment, when complying with industry regulations, or ensuring security policies are met that the cloud isn't always an option. Where this applies, ensure that an on-premises option is available.

Brand Differentiation

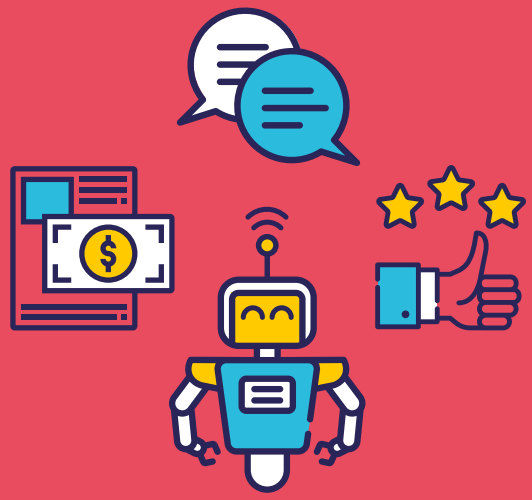
By adding an intelligent conversational UI into mobile apps, smartwatches, speakers and more, organizations can truly differentiate themselves from their competitors while increasing efficiency. Customization offers a way to extend a brand identity and personality from the purely visual into real actions.

Proven Technology

And finally, before any final decision is taken, ensure you look beyond the marketing blurb. Check out real-life applications and talk to existing customers. Find out from them how easy it was to develop and build solutions; have they tried porting to new languages or services; how did they expand into new channels or devices; what benefits they've seen; and how they believe their Conversational AI chatbot platform will enable their digital strategy in the future.

Chapter 8: The Value of AI Chatbots for Business

In this chapter we'll talk about how AI chatbots transform business by reducing costs, increasing revenue and enhancing the customer experience.



The Best AI Chatbot for the Enterprise

Users value chatbots because they are fast, intuitive and convenient. For enterprises, AI chatbots offer a way to build a more personalized and engaging customer experience, which in return delivers a wealth of customer information that is highly valuable in better understanding their customers and growing their business.

Here are the 10 key areas where businesses can derive value from chatbots:

Immediate Response

Speed and convenience win over customers today, far more than the price. 75% of customers expect "now" service within five minutes of making contact online. Enterprise chatbots allow businesses to meet this demand by giving an immediate response to queries or issues.

Drive More Revenue

Intelligent chatbots guide customers on a buying journey, driving sales conversion and revenue. Advanced chatbots can remember customer preferences and provide advice, tips and help, while gently upselling.

Reduce Costs

Chatbots help to reduce costs by enabling enterprises to service more customers without increasing their overheads. Virtual customer assistants can help curtail inbound queries by anything up to 40%, and often deliver first call resolution (FCR) rates far in excess of live agents.

Maximize Staff Skills

By automating a proportion of the calls, emails, SMS and social media messages and live chat sessions that would have otherwise required direct human involvement, conversational AI chatbots free up time to allow existing employees to focus on higher-value customer engagements.

Reach New Channels

Chatbots offer new channels for automated sales conversations to engage customers and provide personalized advice and support, without the overhead of having to deploy new back office teams to build and then run each new channel or network.

Increase Loyalty

Deliver the fast and frictionless experience your customers demand, and they will repay you with loyalty. A 2% increase in customer retention has the same effect on bottom line as decreasing costs by 10%.

Available 24/7

Customers want service now, 24/7, 365. They want to message you a question while waiting in line for coffee or use voice to make an online purchase while driving to work – and they want to do so using all of the devices and services they already use every day.

Increase Engagement

Engaged customers purchase 90% more frequently than average customers and spend 60% more per purchase.

As customers start to favor online methods of communication, chatbots provide an opportunity to reignite the customer experience with increased engagement, personalized customer service and improved customer satisfaction.

Understand the Customer Better

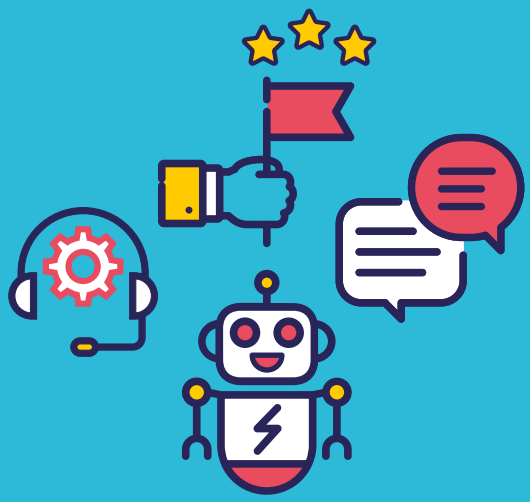
First-person, conversational data can be used to understand trends and better interpret customer sentiment, providing invaluable insight that informs product and service development. This data can be accessed at granular levels for individualization marketing purposes; right up to macro level to identify overarching trends.

Build Differentiation

Chatbots help deliver a frictionless user experience that drives product differentiation through innovation, new levels of customer engagement, and an intuitive and fast interaction. By 2020 customer experience will overtake price and product as a key differentiator.

Chapter 9: Artificial Intelligent Chatbots for Customer Experience

In this chapter we'll cover how intelligent chatbots transform customer experience by delivering a more personalized service, and how a deeper understanding of your customer can increase customer engagement.



Greater Understanding of Your Customer with an AI Chatbot

One of the key drivers for using chatbots is to improve the customer experience through increased engagement and a more personalized service.

Customers want an experience that is fast and convenient. Chatbots remove the need to dig down through endless menu systems. Customers can simply ask for what they want, just as if they were talking to a live assistant—and get the right response, every time.

Chatbots are perfect for resolving customer service issues, troubleshooting common problems, helping with account administration and providing general advice. And with over 40% of inbound queries typically deflected to automated channels, there are significant cost savings too.

Chatbots Need to be Smart

But to substantially improve the customer experience, chatbots need intelligence.

While customers are used to the experience that Siri or Alexa gives them, it's widely known that there is no personalization or intelligent understanding about their demands.

An independent survey found that over 70% of people wished their voice assistant understood the context of their conversation better, with 40% abandoning the application when it didn't.

To achieve an intelligent and engaging experience, enterprises need a conversational AI chatbot platform that can deliver humanlike conversations over any channel, in any language. One that enables a chatbot capable of following the user as they switch devices and services during the day. While delivering a personalized response by remembering pertinent facts, user preferences and using back-office databases or third-party information to provide a comprehensive response.

Beyond Customer Service

Chatbots shouldn't be thought of in isolation as, a point solution to solve a single problem. They need to be incorporated in the overall corporate strategy. For example, a customer service chatbot typically knows about an enterprise's products and has already been integrated into a back-end CRM system.

Why not expand their knowledge and allow them to sell more too?

Stock availability, the day's special offers, recommendations for complementary products, a chatbot can easily have this knowledge at their fingertips. Using CRM information and other data such as past purchases, web navigation pattern and real-time analysis of the customer conversation, a chatbot can maximize the potential of every sales transaction.

Data Ownership is Essential

One of the key benefits of enterprise-focused AI chatbot platforms is that the business owns the data the system generates. This can provide vital information – for example, exactly what stage of the purchase process and why someone didn't complete – helping lower customer abandonment rates.

Conversational data also enables businesses to develop a greater understanding of what customers are looking for, how to improve information provided and deliver other business insights such as product purchasing trends. Even when the data has been anonymized or aggregated because of data privacy regulation, a wealth of valuable information can still be generated.

Increased Engagement Drives Revenue

Chatbots are transforming customer engagement by bringing together a variety of automated touchpoints to create a closer, more personalized conversation that has customers returning again and again. Increased engagement means more actionable data to personalize the experience even further, while delivering that enriched information back to the business.

For enterprises looking for innovative, cost effective ways to build a closer relationship with their customers, intelligent chatbots are now a critical component of a digital strategy.

Chapter 10: Chatbot Examples & Use Cases

In this chapter we'll cover the primary ways chatbots are used, as well as look at some chatbot use case examples covering some of the most important industries.

If you're interested to know how chatbots are transforming business across industries, this chapter is for you.

Primary Chatbot Use Cases

Chatbots can be broadly categorized by their use cases: customer facing, employee facing and on-board devices. It's possible there's some overlap such as a customer service app that's used by both customers and call center staff in resolving queries.

Chatbots are primarily used in three ways:

Between Enterprises and Customers:

Highly conversational chatbot apps allow enterprises to create frictionless journeys for their customers as they interact over a wide variety of digital channels and devices. Some development platforms enable enterprises to capture and analyze entire conversations to understand the voice of the customer.

Between Enterprises and Employees:

AI chatbot systems enable enterprises to streamline business process and increase productivity allowing organizations to do more without increasing headcount. For example, robotic process automation (RPA) and other AI assets are increasingly integrated into chatbots to deliver "zero intervention" solutions for high-volume processes.

Between Users and Devices:

Conversational AI is gaining strong traction in the home automation and automotive markets where reliance on clunky menu systems to operate various devices are a barrier to engagement. Conversational AI, with its ability to understand complex sentences, flexible integration capabilities and an agnostic architecture is ideally suited to these markets.

Industry Specific Chatbot Use Cases:

Banking, Financial Services & Insurance Chatbot Use Cases

Simplify Operations
Guide customers into performing a variety of financial operations in a conversational way and with complete safety. From checking an account, reporting lost cards or making payments, to renewing a policy or managing a refund, the customer can manage simple tasks autonomously.

Guaranteed Customer Support
Provide immediate support to existing customers and prospects through a chatbot capable of addressing all queries in real time. With each conversation the chatbot learns more about customers, delivering a proactive and personalized service.

Internal Training and Support
Help provide adequate support to employees by facilitating the most complex and time-consuming back-office operations, such as managing internal documentation or reviewing agreements, as well as providing the necessary training to new staff members.

Automotive Chatbot Use Cases

Increase Customer Engagement
Engage prospects with fast, humanlike interactions to significantly increase conversion rates and provide a solid pipeline of highly qualified leads to dealerships.

Car Discovery
Guide customers into choosing the vehicle that best fits both needs and budget, in a conversational style. Using the information gleaned from talking to the customer, the chatbot can help configure a car, and even schedule a test drive at the nearest dealer.

Connected Vehicles
Create a conversation that goes beyond the boundaries of the vehicle to interact with other services, such as charging stations or road-side assisting. Customers can talk to their in-car systems over any channel available.

Retail & Ecommerce Chatbot Use Cases

Improve Customer Experience
Address all clients' queries and requests, whether it's pre-purchase information or updates on shipping, over any channel they choose, in a conversational and humanlike way.

Enhance Shopping Journey
Boost conversion and revenue by assisting the customers' journey in an online store by offering personalized shopping advice. For example, a chatbot can help navigate through different categories, find specific products, make suggestions about the right size and even place the order.

Personalize Marketing Communication
Collect and analyze information generated by the conversations the chatbot has every day to better understand the customers' needs and preferences. This conversational data can be used to anticipate users' behavior and place customized offers or marketing messages at the right time.

Telecom Chatbot Use Cases

Resolve Technical Issues
For customers searching through self-help FAQs and knowledge forums to find an answer to a question, the frustration is palpable. With a conversational chatbot, customers can resolve technical issues, find out the latest upgrade deal and even change their address at a simple request.

Increase Sales and Acquisition
Use a chatbot to boost cross-selling among existing customers, offering personalized plans and services based on purchase history or user profile. At the same time, chatbots can assist potential customers in choosing the right product for their needs.

Improve Workforce Productivity
Allow employees to focus on more complex tasks while a chatbot handles repetitive or time-consuming activities, like retrieving information about plans and additional services available to come up with the best fit for an interested user.

Energy & Utilities Chatbot Use Cases

Streamline Customer Support

Give customers the effortless experience they want by removing the frustration caused by call center queues, endless online menus or outdated FAQs. A chatbot can fill out forms, deliver technical advice, process billing queries, and even recommend better tariffs.

Customer Retention

Ensure customer retention and strengthen relationships by offering proactive information about users plans, usage or habits, and include suggestions on how to save on consumption.

Manage Field Operations

Manage appointments between customers and technical staff in order to simplify field operations and optimize installation and maintenance processes.

Media & Entertainment Chatbot Use Cases

Transform the Gaming Experience

Combine a conversational chatbot with other forms of AR or VR technology to offer an immersive experience that will transform any gaming experience, whether it's an online gambling site that delivers the whole casino experience, or a role-playing game that allows the player to converse with non-playing characters in a totally natural way.

Unique Targeted Content

By analyzing a user's past behavior, chatbots can learn about preferences and suggest new and targeted pieces of content users would love to consume – and in a conversational way, taking the entertainment experience to a new level.

Boost Conversion

Increase the amount of monetization opportunities, like subscriptions, plan upgrades and other content promotions, with the support of an intelligent chatbot that can handle the whole sales process, from discovery to final purchase.

Smart Homes & IOT Chatbot Use Cases

Connected Home Experience

Enable customers to interact and control any smart-home connected device and appliance (like thermostats, switches or smart fridges), using the power of everyday speech and language.

Interact with Smart Vehicles

Improve the driving experience, from the moment a customer accesses the vehicle until he reaches the final destination. From unlocking the car, setting the desired temperature, to planning routes that avoid busy roads and ensuring the safety of the drivers and passengers alike.

Travel & Hospitality Chatbot Use Cases

Make Recommendations

By asking simple questions, the chatbot can figure out what the user is looking for and make recommendations based on preferences, like budget restrictions and destination types. The chatbot can also include suggestions on other related services, like car rentals or travel insurance.

Enhance Loyalty

Take advantage of the customer data gathered during endless interactions to deliver personalized offers, upgrades or add-on extras, that will help increase engagement and drive brand loyalty.

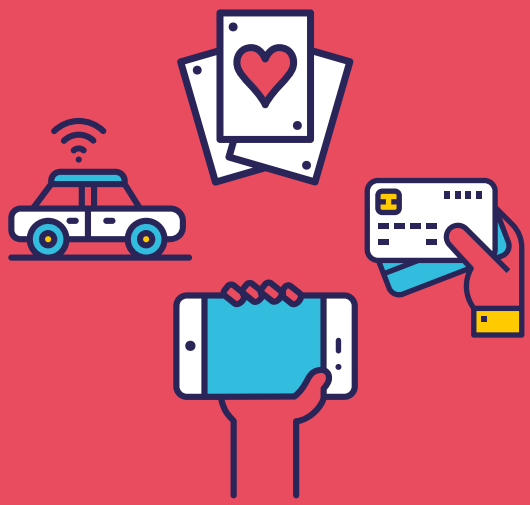
Provide Customer Care

Provide immediate support to customers during crucial situations, for example if they need to re-book a missed flight or change a hotel reservation, wherever they are and on whatever device or service they choose to communicate on.

Chapter 11:
Chatbot Case Studies

In this chapter we'll cover chatbot case studies over a range of industries spanning from banking through to media & entertainment.

If you're interested in learning how companies have leveraged the power of chatbots to transform their industry, this chapter is for you.



Chatbots for Banking: Widiba

Widiba takes intelligent chatbots to a new dimension with its virtual reality banking app which has customers giving the company a 4.8/5 on its "happiness index".

For Italian bank, Widiba, the desire to interact with its customers started long before its launch when it garnered ideas and suggestions from over 150,000 users to help create the products and services it offers. Widiba uses Teneo to deliver the founding values of its customer service: listening, understanding, care and high-quality customer service.

Using its extensive experience of the banking industry, Artificial Solutions built Widdy, a conversational digital employee capable of sophisticated understanding of complex issues who not only helps customers, but is able to continually learn from these interactions.

Read the banking chatbot case study here

Chatbots for Automotive: Škoda

Laura allows Škoda to deliver a superior customer service experience that is already having a significant impact on enhancing the customer journey and improving website conversion rates.

Founded in 1895, Skoda is one of the world's oldest car manufacturers. A wholly owned subsidiary of Volkswagen Group, Skoda delivered more than 1 million vehicles to customers worldwide during 2017.

Recognizing that the customer experience needed a different approach, Skoda embarked on a program to change how it interacted with customers online.

Developed in just a few months using Teneo, Laura is transforming the Skoda online experience. Customers can chat with Laura to discuss their needs, such as what they will be using the car for or what their budget is. Laura takes all the information the customer provides and recommends the most appropriate car from Skoda's eight models. She can even include a comparison based on personal preferences.

Read the automotive chatbot case study here

Chatbots for Retail & Ecommerce: Shiseido

Shiseido, one of the world's largest cosmetic companies reached an influential teen audience by providing make-up and advice and tips with a unique and engaging chatbot.

Founded in 1872, Shiseido is the fifth largest cosmetics company in the world and operates in 120 countries and regions. Despite being steeped in history, innovation has always been at the heart of the business and Shiseido is using Teneo to develop a closer relationship with its younger customer base.

Available on both iOS and Android, Beau-co (beautiful girl), enables Shiseido to be a reliable source of beauty information for Japanese teenage girls.

With Teneo's highly-evolved, natural language capabilities, customers can converse with Beau-co about all manner of beauty related topics such as how to apply eye make-up, as well as specific Shiseido products.

Read the retail & ecommerce chatbot case study here

Chatbots for Telecom: Vodafone

Julia's ability to answer queries fast means her Net Promoter Score is frequently higher than that of the call center agents.

Vodafone is one of the world's largest telecommunications companies and provides a range of services including voice, messaging, data and fixed communications. Using Teneo, it has developed a variety of applications to deliver an enhanced online self-service experience to its customers driving customer engagement.

Equipped with the intelligence to learn, reason and understand, and then apply this knowledge to real customer interactions, Julia not only assists customers with a range of tasks from technical support to invoicing queries, but provides vital, insightful data back to Vodafone.

Read the telecom chatbot case study here

Chatbots for Energy & Utilities: Shell

Shell achieved a 40% reduction in call volume to live agents by answering 97% of questions correctly and resolving 74% of digital conversations with its Teneo based intelligent virtual assistants – Emma and Ethan.

Shell is a household name in energy and petrochemicals, employing over 93,000 people. It's the global market leader in branded lubricants, which are marketed in approximately 100 countries.

Shell's requirements included the capability for Emma and Ethan to provide answers and information on over 3,000 Shell products using information based on 100,000 information data sheets, 1,000 different pack options and 1,100 different physical characteristics.

They would also need to recognize and be able to recommend current alternatives on 2,000 obsolete Shell products and over 31,000 competitive products.

The data required to deliver the correct answer to each possible question was spread out over a variety of different sources including an external vehicle database with over a million different vehicle and engine combinations – it was therefore essential that Emma and Ethan were capable of pulling all the relevant information together and delivering the answer in multiple languages to support Shell's global business.

Read the energy & utilities chatbot case study here

Chatbots for Media & Entertainment: Kindred

94% of respondents to Kindred's survey rated its conversational AI betting solution as 'innovative' – the key brand measure for the project.

Kindred (and its online betting brand Unibet) is one of Europe's largest and fastest growing online gaming operators, with over 13 million customers globally. Known as an innovator in the sector, Kindred is using Teneo to differentiate itself by speech enabling the betting process, making it faster and easier to place a bet.

Kindred's customers can now place a bet by saying something as simple as "Put a tenner on a 3-0 City win". The app intelligently interprets the user's meaning and places the bet, asking the customer for clarification if required.

By enabling the customer to interact naturally, the app removes some of the hurdles of traditional web and app interfaces, so giving the customer the best possible experience. Conversational AI is particularly useful when coupled with Kindred's live streaming portfolio (Kindred streams over 30,000 major events per year), meaning bets can be placed without having to exit the stream and risk missing that crucial goal or point. This further enhances the user experience allowing sports fans to effortlessly watch and live bet.

Read the media & entertainment chatbot case study here

Chapter 12:
Chatbot Statistics

In this chapter we'll cover the most relevant chatbot statistics about the chatbot market, usage, engagement and business value, as well as some forecasts and predictions for the future.

If you're looking for the ultimate guide for chatbot statistics in 2020 this chapter is for you.

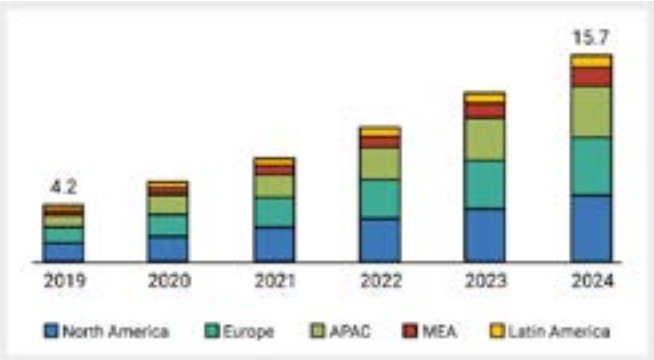
Conversational AI Market

According to a new update to the International Data Corporation (IDC) Worldwide Semiannual Cognitive Artificial Intelligence Systems Spending Guide, spending on cognitive and AI systems will reach $77.6 billion in 2022, more than three times the $24.0 billion forecast for 2018. The compound annual growth rate (CAGR) for the 2017-2022 forecast period will be 37.3%.

Software will be both the largest and fastest growing technology category throughout the forecast, representing around 40% of all cognitive/AI spending with a five-year CAGR of 43.1%. Two areas of focus for these investments are conversational AI applications (e.g., personal assistants and chatbots) and deep learning and machine learning applications (employed in a wide range of use cases).

North America is expected to hold the largest market size in the global conversational AI software market, while Asia Pacific (APAC) is expected to grow at the highest CAGR during the forecast period. North America is expected to be the leading region in terms of adopting and developing conversational AI. Growing investments in AI and ML technologies, presence of maximum number of conversational AI vendors, and increasing government spending on AI-based technologies are expected to contribute to the market growth during the forecast period. (Markets and Markets)

Conversational AI Market, By Region (USD Billion)



Source: MarketsandMarkets Analysis

According to Markets and Markets, the global conversational AI market size is expected to grow from USD 4.2 billion in 2019 to USD 15.7 billion by 2024, at a Compound Annual Growth Rate (CAGR) of 30.2%.

Intelligent Virtual Assistants (IVA) and chatbots are the 2 segment types in the conversational AI market report.

Chatbot Market Segment

The Chatbots segment will hold a larger market size during the forecast period. Research and Markets states that the Chatbots Market was worth USD 1.2 billion in 2018 and is projected to reach USD 7.5 billion by 2024 registering a CAGR of 34.75% over the period.

The chatbots segment is estimated to hold a larger market size, owing to the increasing demand for AI-powered chatbots to analyze customer insights in real time. The AI-based chatbots can be used by the enterprises to understand user behavior, purchasing habits, and preference over time and accordingly can answer queries.

The major factors fueling the market growth include the increasing demand for AI powered customer support services and omni-channel deployment, and reduced chatbot development costs.

Chatbot Adoption Growth Expected Across All Industries

A new study from Juniper Research has found that the operational cost savings from using chatbots in banking will reach $7.3 billion globally by 2023, up from an estimated $209 million in 2019.

The insurance sector will also benefit from AI including chatbots with cost savings of almost $1.3 billion by 2023, across motor, life, property and health insurance, up from $300 million in 2019.

PSFK says that 74% of consumers prefer chatbots when they're looking for instant answers. With companies that use chatbots in retail seen as efficient (47%), innovative (40%) and helpful (36%).

But it's not just customer facing chatbots enterprises need to consider.

By 2022, 70% of white-collar workers will interact with conversational platforms daily. Gartner says that IT leaders need to create a conversational platform strategy that ensures an effective solution for employees, key partners and customers.

However, choosing the right development platform to create a chatbot is key.

According to an April 2019 survey from Forrester Consulting, 89 percent of customer service decision makers in North America believe chatbots and virtual agents are useful technologies for personalizing customer interactions. But problems arise when the capabilities that chatbot vendors promise to deliver just aren't there or require too much involvement from internal IT teams.

Ian Jacobs of Forrester says that one of the things he learnt while researching 14 vendors is that a typical request for proposal (RFP) doesn't work for conversational AI. In his opinion, it's almost impossible to differentiate between the products on paper. Ian recommends carrying out proof of concepts to evaluate conversational AI chatbot development tools.

Data shows that chatbot usage and engagement is on the rise.

Chatbot Usage and Engagement Market Statistics

2018

- ✓ A Statista study demonstrates that over 64% of business respondents believe that chatbots allow them to provide a more personalized service experience for customers (Statista).
- ✓ When it comes to chatbots, 60% of millennials have used them, 70% of those report positive experiences, and of the millennials who have not used them, more than half say they are interested in using them (Forbes).
- ✓ 56% of businesses claim chatbots are driving disruption in their industry and 43% report their competitors are already implementing the technology (Accenture Digital).
- ✓ 57% of businesses agree chatbots deliver large ROI with minimal effort (Accenture Digital).
- ✓ 90% of businesses report faster complaint resolution with chatbots (MIT Technology Review).
- ✓ Within 18 months, 53% of service organizations expect to use AI chatbots – a 136% growth rate that foreshadows a big role for the technology in the near future (Salesforce).

2019

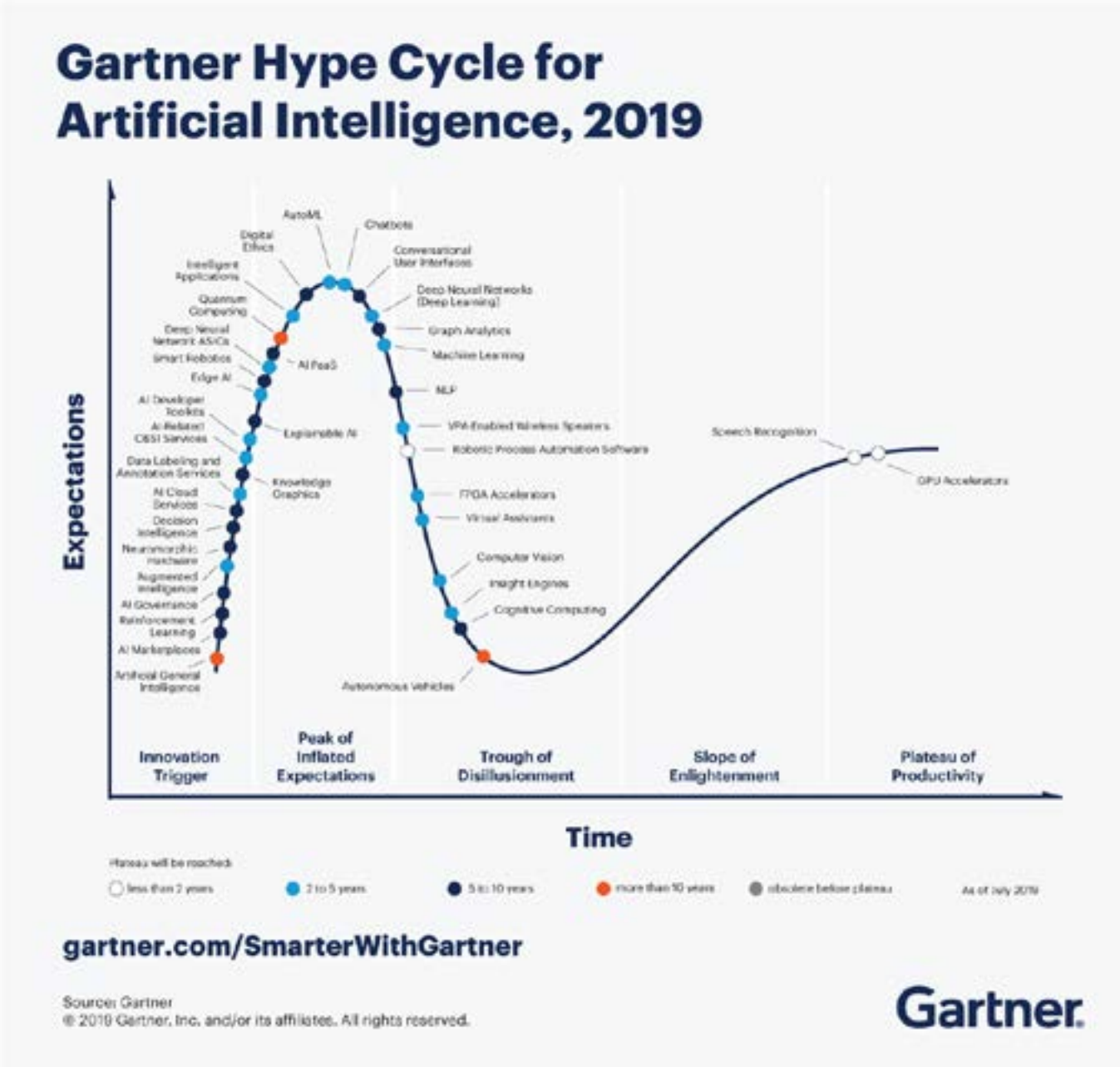
- ✓ In the 2019 Gartner CIO Survey, CIOs identified chatbots as the main AI-based application used in their enterprises (Gartner).
- ✓ Twice as many consumers surveyed in 2019 would knowingly engage with chatbots because they are "very helpful," compared to 2018 respondents; 83% of consumers said they'd make messaging their primary means of contacting customer support if they could be guaranteed an immediate response (Helpshift).
- ✓ 77% of customers say chatbots will transform their expectations of companies in the next five years. Given the choice between filling out a website form or getting answers from a chatbot, only 14% of customers would choose the form, according to this survey (Salesforce).

Gartner Hype Cycle for Artificial Intelligence, 2019

The Gartner Hype Cycle places chatbots on the peak of inflated expectations. This is where early publicity produces several success stories — often accompanied by scores of failures. Some companies act, however, many do not.

As time goes on, many chatbot providers will leave the market, and projects will be abandoned. Gartner predicts that 40% of chatbot/virtual assistant applications launched in 2018 will have been abandoned by 2020.

With Facebook's launch of their messaging platform, they became the leading platform for chatbots. In 2018 there were more than 300,000 active chatbots on Facebook's Messenger platform, however, many of these solutions were nothing more than glorified FAQ solutions.



Source: Top Trends on the Gartner Hype Cycle for Artificial Intelligence, 2019

Market Guide for Conversational Platforms

In the report Gartner notes that "Chatbots and virtual assistants have reached peak interest in the enterprise as the most common uses for AI. But to improve customer experience and reduce costs, application leaders need to choose the right conversational platform as the enabling technology for developing chatbots and VAs."

Discussing the market Gartner notes, "Chatbots and virtual assistants are, respectively, at the peak or just post-peak on the "Hype Cycle for Artificial Intelligence, 2019," having gathered tremendous interest from Gartner clients over the last couple of years. According to Gartner's 2019 CIO Agenda, 31% of enterprise CIOs have already deployed conversational platforms (see "The 2019 CIO Agenda: Securing a New Foundation for Digital Business"). This represents a 48% year-over-year growth in interest and points to conversational platforms taking center stage in enterprises' adoption of AI."

The Gartner report recognizes 16 Representative Vendors including:

- ✓ Avaamo
- ✓ Amazon Web Services
- ✓ Artificial Solutions
- ✓ Eudata
- ✓ Google
- ✓ IBM
- ✓ IPsoft
- ✓ kore.ai
- ✓ Microsoft
- ✓ onereach.ai
- ✓ Openstream
- ✓ Oracle
- ✓ Rasa
- ✓ Rulai
- ✓ SmartBotHub
- ✓ SoundHound

The larger market for conversational platforms, chatbots and VA offerings may include as many as 1,000 to 1,500 vendors worldwide. This Market Guide contains vendors that:

- ✓ Offer an extensible platform for a variety of use cases.
- ✓ Have above-average capabilities.
- ✓ Have received client interest via Gartner either through mentions or inquiry.
- ✓ Show differentiating functionality that is defining for a trend in the market.

Chatbot Forecasts & Predictions

Here are some future forecasts and projections for the chatbot market:

2020

- ✓ By 2020, the average person will have more conversations with bots than with their spouse (Gartner).
- ✓ 40% of chatbot/virtual assistant applications launched in 2018 will have been abandoned by 2020 (Gartner).
- ✓ By 2020, 80% of businesses plan to utilize chatbots (Oracle).
- ✓ Twenty-five percent of customer service and support operations will integrate virtual customer assistant (VCA) or chatbot technology across engagement channels by 2020 (Gartner).

2021

- ✓ By 2021, more than 50% of enterprises will spend more per annum on bots and chatbot creation than traditional mobile app development (Gartner).
- ✓ By 2021, nearly one in six customer service interactions globally will be handled by AI (Gartner).
- ✓ According to Opus Research, chatbots will see an estimated investment of $4.5 billion by the year 2021 (Opus Research).

2022

- ✓ By 2022, 70% of white-collar workers will interact with conversational platforms daily (Gartner).
- ✓ $3.9 trillion projected AI-derived business value growth by 2022 (Gartner).
- ✓ $8 billion projected business cost savings from chatbots by 2022 (Juniper Research).
- ✓ 75% to 90% projected percentage of queries to be handled by bots by 2022 (CNBC).
- ✓ $0.70 projected chatbot cost savings per customer interaction (CNBC).
- ✓ According to Lauren Foye, by 2022, banks can automate up to 90% of their customer interaction using chatbots (Juniper Research).

2023

- ✓ 5 billion hours projected time savings for businesses and consumers from chatbots by 2023 (Juniper Research).
- ✓ $112 billion projected value of chatbot eCommerce transactions by 2023 (Juniper Research).
- ✓ The Chatbots Market was worth USD 946.55 million in 2017 and is projected to reach USD 5,638.64 million by 2023 registering a CAGR of 34.64% over the period 2018-2023 (Business Wire). [Source: Research and Markets]
- ✓ The global Chatbots market is valued at 840 million USD in 2017 and is expected to reach 5310 million USD by the end of 2023, growing at a CAGR of 36.1% between 2017 and 2023 (Reuters). [Source: Orbis Research]
- ✓ The operational cost savings from using chatbots in banking will reach $7.3 billion globally by 2023, up from an estimated $209 million in 2019 (Juniper Research).
- ✓ AI, including chatbots, will have a highly disruptive impact on insurance claims management, leading to cost savings of almost $1.3 billion by 2023, across motor, life, property and health insurance, up from $300 million in 2019 (Juniper Research).

2024

- ✓ According to Markets and Markets, the global conversational AI market size is expected to grow from USD 4.2 billion in 2019 to USD 15.7 billion by 2024, at a Compound Annual Growth Rate (CAGR) of 30.2% is forecast during the same during the forecast period (Markets and Markets).
- ✓ The Chatbots Market was worth USD 1274.428 million in 2018 and is projected to reach USD 7591.82 million by 2024 registering a CAGR of 34.75% over the period (2019 – 2024) (Research And Markets). [Source: Research and Markets]
- ✓ By 2024, AI will become the new user interface by redefining user experiences where over 50% of user touches will be augmented by computer vision, speech, natural language and AR/VR (IDC).

2025

- ✓ Annual global AI software revenue is forecast to grow from $9.5 billion in 2018 to $118.6 billion by 2025 (Tractica).
- ✓ By 2025, customer service organizations that embed AI in their multichannel customer engagement platform will elevate operational efficiency by 25% (Gartner).

2026

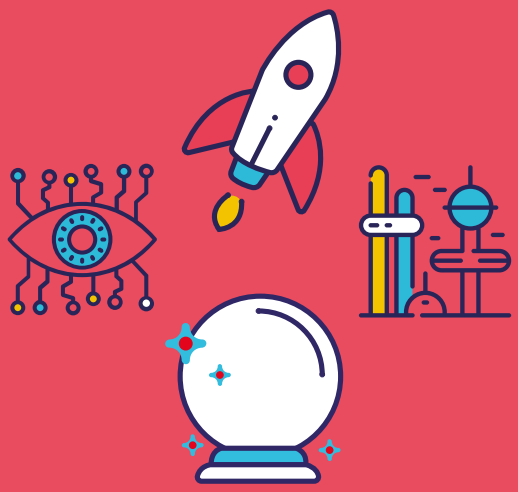
- ✓ According to the current analysis of Reports and Data, the global Chatbot market was valued at USD 1.17 Billion in 2018 and is expected to reach USD 10.08 Billion by year 2026, at a CAGR of 30.9% (Globe News Wire). [Source: Reports and Data]

It's clear that chatbots are here to stay. As the market matures, only the intelligent and capable conversational AI chatbot platforms will remain. In the next chapter we'll look at the future of the chatbot market more closely.

Bonus Chapter:
The Future of Chatbots

In this chapter we'll cover the future of chatbots, market maturity and the future of customer experience through digital transformation.

If you're interested in the future of chatbots, this chapter is for you.



Maturing Chatbot Market

The chatbot market is rapidly maturing. It's frequently no longer a series of individual projects, haphazardly put together, but a measured and controlled strategic approach that enable scalability across languages, channels and the enterprise itself.

In the coming years, it's expected that customers will manage the majority of their relationship with an enterprise without interacting with a human and that millions of consumers will use voice-enabled conversational AI to purchase on digital commerce platforms.

While many enterprises are starting to widen the scope of their conversational AI strategy with chatbot applications, most of these bots are siloed and unable to share information.

In the coming months expect to see enterprises planning for an intranet of conversational AI applications that can work together seamlessly, sharing information. Intelligent routing will allow for the handover process between apps to occur in several different ways including the ability for a master application or super-bot to deliver it themselves and the ability to prioritize the order in which knowledge resources are delivered.

Digital business has moved from an experiment to mainstream.

Digital initiatives topped the list of priorities for CIOs in 2019, with 33% of businesses now in the scaling or refining stages of digital maturity — up from 17% in 2018.

As businesses look to scale, they focus on three areas to support customer engagement:

- ✓ Volume: ability to handle demand volatility and peak demand cost-effectively
- ✓ Scope: ability to reliably support a wide range of products and services
- ✓ Agility: ability to quickly respond to changes across channels when consumer tastes change

As enterprises continue to digitally mature, the conversational AI landscape continues to mature as well. In this video, we take a look at 5 major trends that are currently being seen in the market.

Enhanced Chatbot Customer Experience

Chatbots have yet to reach their full potential, and will ultimately lead to higher customer engagement levels, where the importance in how businesses and consumers interact online becomes more important.

As chatbots develop and become more sophisticated, they will not only generate significant value in both consumer and enterprise settings but will help to transform various aspects of communication.

Future chatbots will become better equipped to handle proactive engagements, where they're able to predict an incident and report a ticket – therefore resolving future issues before they arise, both reducing costs and optimizing support channels. They will be able to not only respond to answer your questions, but will be able to talk, think and develop emotional relationships with customers.

Chatbot NLP and ML will Become More Powerful

Chatbots will be able to understand and answer a higher average percentage of questions without human intervention, both more precisely and at speed, leading to higher average Happiness Index and Net Promoter Scores.

As the market matures, 40% of chatbot/virtual assistant applications launched in 2018 will have been abandoned by 2020. The platforms that remain will gain momentum and further develop second generation use cases, which will bring further awareness to the advanced ability some companies provide.

Providers will gravitate towards niche markets that provide the greatest cost savings, having the ability to more rapidly provide working solutions with pre-built industry knowledge packages, reducing time of deployment and enhancing personalization.

Chatbots will continue to be enhanced through machine learning data, where every industry will become more efficient in the collaboration between its chatbots and human employees.

A true conversational experience happens when a chatbot listens to inputs from a customer and understands them. Chatbots will become more intelligent and goal-oriented, where they will be able to learn about customers in real time as they communicate, which will provide a competitive advantage in delivering enhanced experiences.

The developments in natural language processing and machine learning will supply chatbots with sophisticated algorithms that will enable them to provide customers with more unique and personalized experiences, creating more authentic relationships with a given target audience.

Digital Transformation

Digital transformation refers to the process of integrating technology into business processes thereby changing customer experiences by providing more value and changing how companies operate – it's the recreation of business in the digital age.

Digital transformation has been a topic of discussion for years for many enterprises, however 2020 is a crucial time for leaders to plan for and implement digital transformation strategies company-wide.

As AI technologies continue to grow in strength, so too does the attention that surrounds it. Today many companies are experimenting with AI and early results are promising.

According to Deloitte's 2018 State of AI in the Enterprise survey, 82% of early adopters report a positive return on AI investments.

In 2020, AI will continue to be the most popular trend in delivering personalized experiences in real-time. Building AI at scale that can handle personalized experiences is one of the top priorities for companies across the world.

In order to keep up in a technologically evolving environment, businesses must adapt.

Now it's Your Turn

Start Your Free 90-Day Trial of Teneo Today to Build Your Own Conversational AI Chatbots

Sign up to get a 90-day free trial of Teneo containing all the tools needed to build, deploy and analyze advanced conversational AI chatbot solutions.

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View Trailer

ABOUT ARTIFICIAL SOLUTIONS

Artificial Solutions® is the leading specialist in enterprise-strength Conversational AI, a form of Artificial Intelligence that allows people to communicate with applications, websites and devices in everyday, humanlike natural language via voice, text, touch or gesture input.

Designed for the global enterprise, the company's advanced conversational AI platform, Teneo®, allows business users and developers to collaborate on creating sophisticated, highly intelligent applications that run across 35 languages, multiple platforms and channels in record time. The ability to analyze and make use of the enormous quantities of conversational data is fully integrated within Teneo, delivering unprecedented levels of insight that reveal what customers are truly thinking.

Artificial Solutions' conversational AI technology makes it easy to implement a wide range of natural language applications such as virtual assistants, chatbots, speech-based conversational UIs for smart devices and more. It is already used daily by millions of people across hundreds of private and public sector deployments worldwide

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