

Conversational AI Unveiled:

A Comprehensive Guide to Unlocking the Power of Artificial Intelligence to Transform the Customer Experience »

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AI Could Not Write This!

The public introduction of ChatGPT in November 2022 irreversibly changed the course of IT and automation in support of business contact centers, customer experience, and employee productivity. For the first time, virtually anyone could interact with “artificial intelligence” (AI) resources through a conversational user interface. Instead of choosing from a short list of rigid commands, search terms, or SQL queries, this sort of Conversational AI, or AI that simulates human conversations, enabled users to key in or say exactly what they want using their own words.

In all cases, users today can review the system’s output and suggest changes, edits, or improvements as if they were carrying out a conversation. The quality of the output and the conversational nature of the user interface make the technology wildly popular. Adoption and use outpace TikTok, the iPhone, and the Internet itself. Yet the fundamental technologies that power and inform the services of OpenAI, Anthropic, Google, Microsoft, and a slew of soon-to-be household names trace their genesis to the mid-1900s. In other words, the technology is nothing new.

So what is it about Conversational AI, or what is it about today’s consumers, that has launched AI from “techy-only” conversation into everyday chitchat that is so commonplace it’s discussed at the sidelines of youth soccer games? At this point, even though the technology itself is “nothing new” there is something beyond the buzz. Today, the buzz-worthiness of Conversational AI is bringing to light even more use cases where data, AI, and technology are pushing the envelope for businesses, enabling them to think even bigger about how this technology enhances and improves customer and employee experiences while making operations more efficient.

Mastering the Terminology of Conversational AI

- Let’s start with the term “Artificial Intelligence” (AI) itself. It is a concept that dates back to 1956 and refers to the ability of a computer to learn and perform tasks in a human-like way. Over the years, AI has evolved alongside technology advancements enabling it to leverage new methods and systems that span deep learning, neural networks, machine learning, and natural language understanding. Each of these technologies deserves further evaluation, because understanding them will impact how you implement Conversational AI in your business.
- “Machine Learning” (ML) emerged in the 1990s to put an end to the perceived “AI winter” that resulted from a lack of adequate computing power and basic misunderstanding of human intelligence. ML refers to the ongoing and never-ending processes of ingesting new data and training a system to recognize patterns. It is foundational to applying natural language understanding, Conversational AI, and other capabilities that are important to improve customer experience (CX) and employee experience (EX), because they are the product of processes that must be constantly monitored and managed.

At this point it is important to distinguish between three categories of ML: supervised, unsupervised, and reinforcement learning. Categories of machine learning are distinguished by the differing amounts of human time and effort needed to refine the underlying algorithms and their outcomes. Supervised machine learning is the most labor intensive and remains the most common approach today, despite all the talk of automation and the power of AI to replace humans. However, machine learning is advancing rapidly on a case-by-case basis towards reinforcement learning, which allows AI to learn and adapt in more complex environments using feedback to update its strategy and make ongoing improvements.



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- The concept of “Neural Networks” dates to the 1940s, making it a predecessor to both AI and ML. Scientific papers described the idea of a neuron that could be used for computation and the notion that a collection of such neurons could strengthen “connections” when fired together. Various approaches to Neural Networking fell in and out of favor during the ensuing years. Some 70 years later, in 2010, “deep neural networks” became foundational to the era of “Deep Learning,” spawning investment in various types of neural networks, including convolutional neural networks (CNNs), recurrent neural networks (RNNs), long short-term memory networks (LSTMs), generative adversarial networks (GANs), and transformers, each designed to tackle specific kinds of problems and applications including autonomous vehicles, speech recognition systems, and recommendation engines.
- Finally, there is the concept of Large Language Models (LLMs): AI models that are trained on vast amounts of text data to understand and generate human-like text. They recognize patterns, semantics, and contextual relationships within language used in the data they ingest. They learn to predict the next word or sequence of words based on the patterns observed in their training data. This enables them to generate coherent and contextually relevant responses to queries, engage in conversation, provide information, and perform various language-related tasks. GPT is one of the most conspicuous—or notorious—these days. There are many examples, like BERT (from Google), LLaMA (from Meta), Ernie (from Baidu), and hundreds more.

Enterprise Applications Powered by Conversational Intelligence

As businesses plan their strategies for Conversational AI that employ LLMs, it is important to note the distinction between the “foundational” or “core” models that have been amassed by hyperscalers and the domain specific alternatives which, by definition, are trained on more relevant and more current data and information. LLMs have been trained on diverse sources of text data, including books, articles, websites, and other textual content. They can understand and generate text in multiple languages, and they have the ability to make generalizations based on the patterns they’ve learned so they can generate new text and respond to a wide range of prompts or questions.

Yet it is important to note that most enterprises, with the help of technology providers like NICE, have assembled their own LLMs by capturing the content of conversations between their customers and the agents with whom they interact. They are also able to augment these Domain Specific Language Models (DSLMS) with the metadata (call detail records, purchase history, CRM profiles) associated with them to create Conversational Intelligence that learns from conversations to predict the purpose of future interactions and propel them toward successful outcomes. It’s this intelligence, gained from the customer interactions, that differentiates AI to make it specific to CX use cases.

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How Intelligence Fits into Conversational AI Solutions

Conversational Intelligence, or intelligence gained from the analysis of speech and text transcripts from customer interactions, uniquely enables businesses to learn from the customer interactions and creates insights that drive business action. NICE's Enlighten AI uses machine learning on the industry's largest labeled dataset of customer interactions to drive business outcomes.

NICE infuses Conversational Intelligence across a full suite of solutions with Enlighten AI, purpose-built AI for CX, which now also include Conversational AI to simplify insights, outcomes, and actions for everyone from customers, to agents and supervisors, and up through CX leadership, for example:

- **Enlighten Copilot**—Centralized Conversational AI assistant that supports agents and supervisors by promoting smarter guided interactions, AI-driven personalized coaching, and task automation opportunities, which create better employee experiences across an organization
- **Enlighten Autopilot**—Customer-facing Conversational AI solution that supports customers with the best digital service using trusted company knowledge while aligning responses with business goals and creating fully personalized experiences
- **Enlighten Actions**—Conversational AI interface designed for CX leaders to accelerate their business by proactively uncovering areas for AI-driven optimization and carrying out complex automation

Harnessing AI and Conversational Intelligence to Meet Customer Experience Business Objectives

Successful deployments of Conversational AI are purpose-driven; they are closely aligned with a business's goals and support specific, measurable outcomes. To be successful, the top performing implementations of Conversational AI are informed by Conversational Intelligence, which is up-to-date and on topic for prospects, customers, contact center agents, and employees throughout the business.

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ENTERPRISES CAN EXPECT CUSTOMERS TO TREAT INTELLIGENT VIRTUAL ASSISTANTS AS ROBUST SELF-SERVICE OPTIONS THAT ARE AVAILABLE AROUND-THE-CLOCK AND CAPABLE OF PROVIDING A LEVEL OF PERSONALIZED SERVICE PREVIOUSLY UNAVAILABLE.



Successful implementations also take into consideration an array of applications and use cases, supporting the organization’s goals to leverage conversational data throughout their business. The top implementations may begin in a specific area, and they span a wide range of applications, including chatbots and voicebots, intelligent routing, and real-time agent assistance to support workforce management and quality management.

Here are a few examples of how organizations are integrating AI and Conversational Intelligence to improve customer satisfaction while managing their operating costs:

Chatbots and Voicebots

Thanks to Conversational AI, chatbots and voicebots are proving to be more valuable to both customers and brands. Historically, the sole purpose of self-service options was to deflect callers from interacting with “expensive” human agents, primarily by putting a conversational interface in front of a website’s FAQs. No intelligence, artificial or otherwise, was involved and customer expectation was correspondingly low.

Today’s AI “bots” are key points of positive customer service, far more than “call deflection” mechanisms. Businesses undergoing digital transformation now learn from their customer interactions and build self-service to support customers’ intents with workflows from their top performing agents. Conversational AI has made it possible—and the new expectation—that bots can understand questions in customers’ own words and then find the best answer or take the most appropriate action. With advanced analytics, businesses gain further insight into customer profiles and their histories, ascertaining and often anticipating each contact’s intent. In a growing number of cases, bots answer questions or help complete desired tasks by employing models that are initially trained on LLMs. Machine learning enables applications to learn over time, providing more accurate answers with shorter wait times, and it’s even more valuable when it can be applied so businesses can learn from every interaction

While customers have had very low expectations for chatbots and voicebots, their expectations are rapidly increasing, and businesses can differentiate by having digital customer service that’s above and beyond their competitors. The success of ChatGPT and other Conversational AI services can be expected to change their attitudes in short order. Enterprises can expect customers to treat intelligent virtual assistants as robust self-service options that are available around-the-clock and capable of providing a level of personalized service previously unavailable.

Intelligent Routing

Historically, call routing was limited to skills-based routing, where customers were sent to the first-available agent with the “skill” to answer their question. Conversational Intelligence, and the wealth of data from customer conversations, instead transforms call routing into a strategic part of customer experience and call center



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THINK OF CONVERSATIONAL AI AS A WAY TO INVEST IN AGENTS AND GRANT THEM SUPER-HUMAN CAPABILITIES.



operations. With purpose-built AI for customer experience, AI learns from all available data—and agent skill is just one piece of information. After all we've discussed so far, just one piece of data is not nearly enough to inform business decisions for CX.

Now, by leveraging Conversational Intelligence, call routing can match customers with the best available agent based on both customer and agent attributes, ranging from how agents performed with similar types of customers on similar types of calls, to a customer's past interactions, and language preferences for customers and agents that are likely to lead to the best connection. Call routing can be informed by what is known about the risks and opportunities associated with individual customers, as well as their past buying patterns and overall consumer trends—far more than a single data point of an agent's skill. Applying Conversational Intelligence to call routing elevates customer experience, reduces costs with shorter talk times, and decreases queue management time with AI-based intents for routing in place of manual guesswork.

Real-Time Agent Assistance and Coaching

Proven use cases for Conversational Intelligence and AI extend into agent performance for real-time feedback and coaching consistency—and it begins during customer conversations. Conversational Intelligence in the form of purpose-built AI can identify when an agent can close a sale, suggest an upgrade or other sales opportunity, and provide tips to the agent on how to improve the customer's experience during the interaction. For regulated industries, AI-informed resources can detect and attempt to remediate instances when an agent is not in compliance with company policy or industry strictures. Zooming out, an AI-informed resource can also detect and flag recurring complaints that indicate larger issues that supervisors, marketers, or product managers should address. Furthermore, it can support agents in building soft skills that matter most to customer experience, while supporting supervisors to deliver more consistent, objective feedback.

Think of Conversational AI as a way to invest in agents and grant them super-human capabilities. Deployments will prove their value when supervisors are looking for a single source of insight into agent performance at scale. Marketers, too, will find Conversational AI an important source of insights to improve customer loyalty and retention rates. Most importantly, agents will benefit from a conversational resource that provides a clear picture of each customer's intent and thoughts about specific products, services, and the overall brand.

One area to quickly support agents while meaningfully improving operational costs is by generating call summaries. These provide administrators and marketers with accurate accounts of the purpose of a call, detect and share any commitments that have been made, and update calendars to reflect follow-up activities.

Serving All Digital Channels

The consensus among IT analysts is that annual spending on digital transformation far exceeds \$1 trillion for corporations combined around the globe. Enterprise decision makers do not regard "Digital" as a single application. Instead, they've invested in a collection of applications that support the digital workflows of both customers and employees. In the CX realm, that means supporting conversations over time, through multiple

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channels, and with minimal or no agent intervention. Virtual assistants may be involved, but so is search, interactive voice response, outbound messaging, and attendant speech or text analytics.

With increasing demand for smart digital solutions, NICE Enlighten XO, purpose-built AI for self-service, drives intelligence from customer conversations into every aspect of a business's digital touch points. With Conversational Intelligence at the helm of digital interactions, Enlighten XO supports digital channels to:

- improve proactive experiences by learning intents and processes to pre-empt customers' needs before they contact a business
- guide customers through web and mobile experiences in real-time
- power IVAs with a no-code interface that automatically includes customer intents and agent workflows into bots
- streamline knowledge management to deliver much-needed answers to agents and customers
- provide insights and intelligence from live customer interactions to improve the complete digital customer journey

All digital channels are ripe for improvement through the judicious use of LLMs, ML, NLU, NLP and Conversational AI. NICE employs these technologies, taking them to the next level with purpose-built AI for CX, in a full suite of Enlighten solutions enabling Conversational Intelligence in chatbots, IVRs, proactive outreach, knowledge management, and more.

Knowledge Really Is Power

Customer expectations for AI-powered self-service and assisted service is already changing rapidly. Armed with an understanding of what Conversational AI is and what it can do for your customers and employees is an important first step toward successful, purpose-driven deployments. Today, the LLMs from deep-pocketed generalists are grabbing almost all the attention from sophisticated analysts and the public press. It is important for enterprise decision makers to recognize that the Conversational Intelligence that they have already amassed is a "large enough" language model of its own.

Models that are trained on interactions with customers, from both voice and text conversations, are the most relevant and up-to-date Domain Specific Language Models (DSLMS) available. So are the knowledge bases comprised of their product catalogues, user manuals, marketing materials, and management systems for inventory, flight status, property management, and the like. Growth in awareness and popularity of LLMs and Conversational AI around the world has readied the market for new self-service options. The pace of implementation must be tempered by concerns mounted by the legal department or government regulators. Working with solution providers that treat such concepts as Privacy, Security, and Compliance as more than "check-the-box" items is of vital importance.

Conversational AI can absolutely improve your CX and bottom line. By recognizing and understanding available AI options, and how they can be best deployed, you can determine the best solutions for your contact center.



About Opus Research

Opus Research is a diversified advisory and analysis firm providing critical insight on software and services that support digital transformation. Opus Research is focused on the merging of natural language understanding, machine learning, conversational AI, LLMs, conversational intelligence, intelligent authentication, and digital commerce.

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