

Foundations of AI for CX cheat sheet

One area that benefits from artificial intelligence (AI) technology and has been using AI for quite some time is customer experience (CX).

Offering superior CX is a key method that companies use to distinguish themselves. When implemented correctly, AI offers this labor-intensive discipline significant advantages, from functional improvements to time and cost savings.

But to evaluate the potential uses of AI, whether as part of a CX offering or for other business purposes, your organization needs to understand the foundations of AI and CX and where they converge.

The AI Timeline

The CX Timeline

1950

Alan Turing publishes "Computing Machinery and Intelligence," which introduces the Turing Test as a measure of machine intelligence.

1966

The development of ELIZA, the world's first chatbot, by Joseph Weizenbaum, one of the earliest examples of a natural language processing program.

1980s

Expert Systems Boom: The 1980s saw a surge in AI research, particularly in developing expert systems—programs designed to mimic the decision-making ability of a human expert.

1956

Dartmouth Conference: Considered the birth of AI, this conference brought together key figures in the field and coined the term "artificial intelligence."

1973

The Lighthill Report: This influential report by James Lighthill in the UK criticized the progress in AI research, causing a decrease in funding known as the "AI Winter."

1997

IBM's Deep Blue defeats Garry Kasparov, the reigning world chess champion, marking a significant achievement in machine learning and computing power.

2011

IBM Watson wins "Jeopardy!": Demonstrating natural language processing and machine learning capabilities, Watson defeats top human contestants on the quiz show "Jeopardy!"

2018

OpenAI's GPT (Generative Pre-trained Transformer) series begins with GPT-1, demonstrating significant advancements in natural language processing and AI text generation.

2014

DeepMind's AlphaGo defeats Lee Sedol, a world champion Go player, showcasing the potential of deep learning and reinforcement learning in complex games.

2020s

Regulation: Ongoing discussions, debates, and efforts surrounding the ethical implications of AI, leading to increased focus on regulation, fairness, accountability, and transparency in AI systems.

1950

1960

During this time, common customer experience practices included mailing feedback postcards, calling customers at dinnertime or providing a 1-800 number, and, if you were lucky, having a face-to-face conversation.

1970

1980

1990

2000

Late 1990s
Emergence of E-commerce: The rise of online retailing marks a significant shift in how customers interact with businesses, initiating the digital transformation of customer experiences.

2010

2007
Launch of the iPhone: Apple's iPhone revolutionizes the mobile industry, leading to the widespread adoption of smartphones, and changing how customers engage with brands through mobile apps and responsive websites.

2014

The "Customer Experience Economy": Companies across industries prioritize customer experience as a key differentiator, focusing on delivering seamless and personalized experiences to retain and attract customers.

2016

Growth of Personalization and Data Analytics: Companies heavily invest in data analytics to understand customer behavior, enabling personalized marketing campaigns and tailored experiences.

2020

2020
COVID-19 Pandemic Accelerates Digital Transformation: The pandemic amplifies the shift towards digital experiences as businesses rapidly adapt to remote operations, emphasizing the importance of digital CX.

Early 2000s

Introduction of Customer Relationship Management (CRM) systems: CRM software has become mainstream, enabling companies to manage and analyze customer data for improved interactions and personalized experiences.

2010

Rise of Social Media Customer Service: Brands increasingly use social media platforms like Twitter and Facebook as channels for customer support, allowing direct interaction with customers in real time.

2015

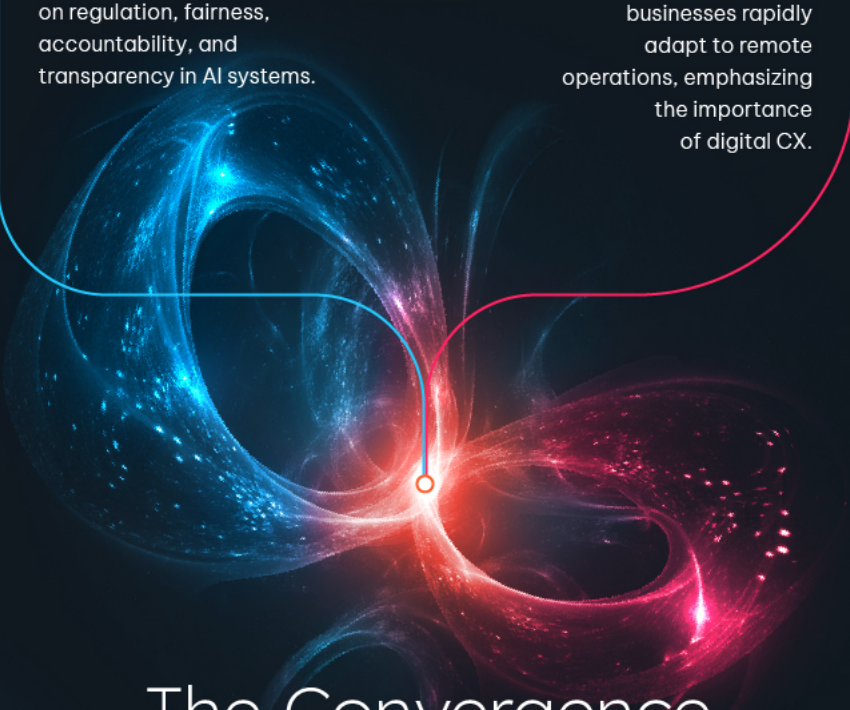
Introduction of Chatbots and AI in CX: AI-powered chatbots and virtual assistants have started being implemented by businesses to provide instant support and enhance customer service interactions.

2019

Expansion of Omnichannel Experiences: Brands strive to provide consistent experiences across various channels, integrating online and offline touchpoints for a seamless customer journey.

2022

Increased Emphasis on Ethical AI and Privacy: Growing concerns about data privacy and ethics in AI-driven customer experiences lead to regulations and heightened awareness about responsible AI deployment.



The Convergence

Now

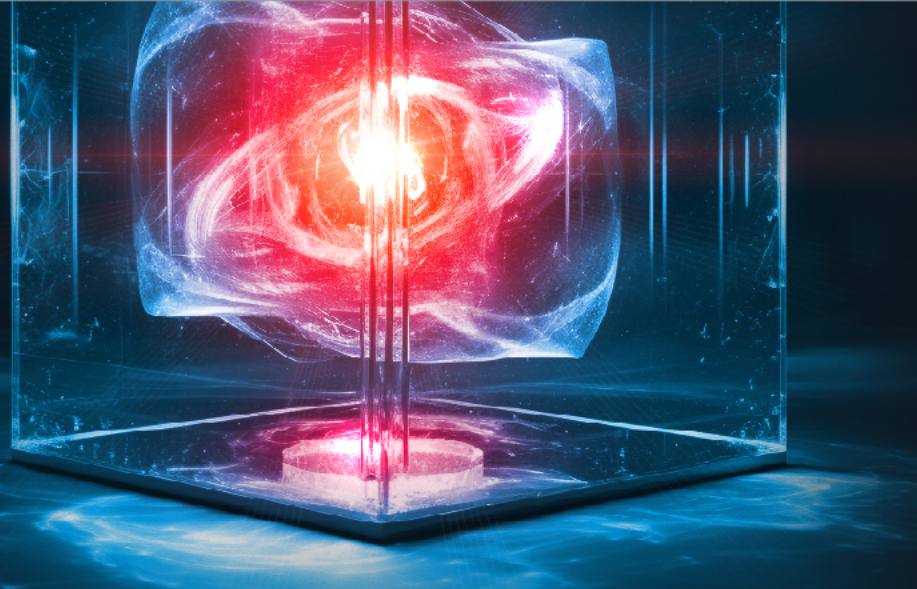
Enlighten: The Trusted AI for Business: Enlighten AI, from NICE, leverages the power and capacity of generative AI and ML, coupled with the world's most extensive data set and security guardrails, to produce truly remarkable customer experiences.

The convergence of AI and CX has the potential to revolutionize the way businesses interact with their customers. By leveraging the power of AI, companies can offer personalized experiences, improve customer service, and streamline operations. However, to fully realize the

benefits of AI, organizations must understand the foundations of both AI and CX and where they intersect. As the timelines show, both AI and CX have come a long way, and with the continued growth of technology, we can expect even more exciting developments in the future.

Read our eBook AI for CX For Dummies to understand the complete picture of AI!

[Download](#)



Things to remember

AI Fundamentals

Neural Networks

A mathematical system used to discover patterns in data resembling the human brain's functionality. It consists of interconnected nodes that learn from examples with varying degrees of influence on assumptions.

Deep Learning

An algorithm employing a neural network with at least three layers, distinguishing it from shallow networks with one or two layers.

Large Language Models (LLM)

AI algorithms that learn from extensive datasets, often gathered from the internet and other sources. Parameters and tokens within LLMs contribute to their understanding and processing capabilities.

Parameters/Weights

Numerical values that define the strength of connections between neurons in a neural network's layers.

Tokens

Define the structure and behavior of LLMs, contributing to parameter training and contextual understanding.

Emergent Behavior

Unplanned abilities arising from trained LLMs, which can yield unexpected insights or issues, including untruths or emotionally charged language.

AI in Customer Experience (CX)

AI-powered CX

Using AI technologies to personalize customer interactions, automate tasks, and enhance overall customer experience.

Customer Experience Optimization (CXO)

Leveraging AI to analyze customer data and feedback, identifying areas for improvement in the customer journey.

Conversational AI

Development of AI systems engaging in natural customer dialogue via chatbots, virtual assistants, or other conversational interfaces.

Personalized Recommendations

Utilizing AI algorithms to suggest products, services, or content based on individual customer preferences and behaviors.

Predictive Customer Service

Proactively addressing customer issues by leveraging AI-powered analytics and predictive modeling.

AI-powered CX Technologies

Chatbots & Virtual Assistants

AI-driven chat interfaces offering customer support and handling of basic tasks.

Voice-based Interfaces

Utilizing AI for natural language interaction in customer service and other voice-driven applications.

Sentiment Analysis

Analyzing customer feedback to gauge sentiment and identify areas of satisfaction or dissatisfaction.

Next-best-action (NBA) Prediction

Predicting the most effective actions during the customer journey for optimal engagement and conversion.

Customer Segmentation

Grouping customers based on shared characteristics and behaviors to personalize communication and offers.

Data and Analytics in AI-powered CX

Customer Data Platform (CDP)

Unified platforms collecting and managing customer data for AI-driven analysis and personalization.

Machine Learning for CX

Application of machine learning algorithms to predict customer behavior and preferences using data.

Customer Journey Mapping

Visualizing and analyzing customer journeys across touchpoints to identify improvement opportunities.

AI-driven Reporting & Insights

Using AI to derive real-time insights from customer data, informing decision-making and CX strategies.

Personalization Engine

AI systems tailoring content, offers, and experiences based on individual customer preferences and context.

Ethical Considerations in AI-powered CX

Bias and Fairness

Ensuring AI models used in CX are unbiased and do not discriminate against specific customer groups.

Data Privacy and Security

Safeguarding customer data and ensuring transparency in its usage by AI systems.

Transparency and Explainability

Making AI-driven decisions in CX understandable and interpretable to customers.

Human-Centered AI

Balancing the benefits of AI in CX with the need for human interaction and oversight.

Job Displacement and Automation

Considering the potential impacts of AI automation on customer service jobs and implementing retraining programs.