

Conversational Commerce: A General Overview of the Next Era of Digital Transactions

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Abstract: Conversation commerce is a revolution in the digital economy that makes it possible for the consumers to interact and engage with businesses through natural language interfaces. The study adopts a broad, non-technical perspective and is mostly focused on interaction with customers and online transactions via conversational techniques, such as chatbots, messaging and voice tech. But conversational commerce platforms need critical technologies that enable customers to interact with them in an interactive and contextual manner, including Artificial Intelligence (AI), Natural Language Processing (NLP), and Data Analytics. The review paper also explores how businesses in different industries are implementing conversational commerce, and the potential benefits it can bring to the user experience and business processes. Finally, the paper identifies trends and patterns and explores the future of conversational commerce as an important part of the latest digital ecosystems.

Keywords: Conversational commerce, chatbots, artificial intelligence, digital transactions, customer experience

1. Introduction

Digital technology has revolutionized the way that businesses communicate with consumers. Conversational commerce is one of the biggest trends over the years, and it's the integration of communication and commerce through digital conversational interfaces. Conversational commerce is the idea of buying and selling goods and services through messaging, chatbots and voice assistants using a natural language conversation between business and customer.

It was coined in 2015 by Chris Messina, who defined it as the addition of a shopping experience to a messaging app [1]. However, since that time, the landscape of conversational commerce has changed dramatically with the development of artificial intelligence (AI), natural language processing (NLP) and machine learning. The technologies have led to systems becoming more adept at understanding, processing and reacting to human speech, thereby making it more user friendly and intuitive.

In today's digital world, communication needs to be quickly, individually and conveniently delivered. Conventional e-commerce systems are often limited by their manual navigation and search functions and are now complemented or even replaced by conversational interfaces [2]. Whether users are participating in a text-based chat or using voice commands, these interfaces enable them to interact with businesses in a more natural and human-like way. For instance, customers can ask if a product is in stock, and get a recommendation for them, place an order and even track their product delivery, etc., in very simple conversations.

Conversational commerce isn't just about retail. It's also about banking, healthcare, travel and customer service. In the banking sector, conversational agents can help users with account information requests and financial transactions, and in the healthcare sector, they can aid in scheduling appointments and provide simple information and advice about health services. With a growing number of adoptions, such systems are likely to grow more flexible and pervasive in industries.

In this paper, we analyze conversational commerce and discuss the concepts behind it, how technology plays a role in the conversation, its application, benefits, and obstacles. Its goal is to give a proper idea of the way conversational commerce works and how it is probable to grow in the future, specifically in terms of digital interactions and transactions.



2. Definition and Key Concepts of Conversational Commerce

Conversational commerce can be defined as the usage of digital conversational interfaces (chatbots, messaging apps and voice assistants) with consumers and commerce [2]. It is essentially the amalgamation of communication, customer service and e-commerce into one.

The use of natural language interaction, as one of the most noticeable features of conversational commerce, is a critical aspect of this paradigm [4]. Conversational systems differ from traditional graphical user interfaces by giving users the ability to interact with the system in a more natural manner, typically through text. Conversational systems make it easier to interact with the system, as opposed to having to move through menus and click on buttons. This renders them more user friendly and easy to use, especially for those who are not very technically literate.

Conversational commerce relies on a few basic elements:

Chatbots

Chatbots are computer programs that simulate human communication via speech or text. These are typically embedded into websites, mobile applications and messaging apps like WhatsApp and Facebook Messenger [5]. There are several different types of bots, including rule-based, scripted and AI-based, and more complex bots can interpret and respond to a user's input.

Voice Assistants

Voice assistants like Amazon Alexa, Google Assistant, and Apple Siri allow users to control systems using voice commands. These applications process the input provided by the user using speech recognition and natural language understanding, and return a relevant response. Voice commerce, a subset of conversational commerce, is growing at a fast pace, as the use of smart devices continues to rise [6].

Messaging Platforms

Messaging apps are at the heart of conversational commerce, being the main channel for communication. These platforms, such as WeChat, WhatsApp and Telegram have a global user base of billions and are excellent platforms to connect with your customers in real time [7].

Artificial Intelligence and Natural Language Processing

Conversational commerce platforms are based on two technologies, Natural Language Processing (NLP) and Artificial Intelligence (AI). NLP can be machine read, create human language using the inputs and the outputs as responses or suggestions. These are technologies that enable the conversations systems to continually improve over time from learning from the interactions and adapting to the users' behavior [8].

Integration with Backend Systems

Conversational commerce platforms are usually connected to the backend systems that serve as an inventory management system, payment gateway, and customer relationship management (CRM) system [9]. This integration allows seamless execution of various processes, including order placing, payment processing, and tracking deliveries.

3. Evolution of Conversational Commerce

This changeover towards conversational commerce started with the overall shift towards digital communication and ecommerce. It has been shaped by the advances in technology and shifting consumer expectations.

3.1 Early Chat Systems

The history of conversational systems goes back to the first use of the chat programs which used pattern-matching techniques to simulate human conversation in the 1960s, for example, ELIZA [10]. These systems were relatively weak in their ability to do what they were designed to do but they did create the groundwork for the next generation of human-computer interaction.

3.2 Rise of E-commerce

Consumers began to shop online in new ways with the introduction of e-commerce in the 1990s. However, these platforms were based on static interfaces, which means that customers had to perform manual search for products [11]. Unlike conversational systems they were not as interactive and personal, but still effective in their day and age.

3.3 Emergence of Messaging Apps

Over the past decade, conversational commerce has emerged as a key trend with the increasing popularity of smartphones and messaging platforms. Businesses started to find more direct and effective ways to communicate with their customers through platforms like WhatsApp and WeChat, which allowed them to communicate in real time.

3.4 AI-Powered Chatbots

Conversational commerce came to a turning point with the introduction of AI technologies in the mid-2010s. The use of AI-driven chatbots enabled them to grasp user intent, handle intricate queries, and make tailored suggestions [12]. This was beneficial for the quality of the interactions and possibilities for applications.

3.5 Voice and Multimodal Interfaces

With the rise of voice assistants and multimodal interfaces, conversational commerce has also been impacted recently. This has made communication more dynamic and interesting, allowing users to communicate through voice, text and even visual means [13].

As technology continues to adapt and evolve, the growth of conversational commerce signifies a new trend towards humanizing and improving user experience.

4. Core Technologies Enabling Conversational Commerce

Conversational commerce is an amalgamation of various technologies that all play a part in intelligent and seamless conversations. While these technologies may be complex in nature, their roles can be simplified.

4.1 Natural Language Processing (NLP)

NLP is one of the fields of AI that specializes in making computers able to understand and read human language. It can involve activities like language identification, sentiment analysis, and intent recognition. NLP can be used for conversational systems to understand the user's input and respond appropriately to it from the context [14].

4.2 Machine Learning

Conversational systems are trained using machine learning algorithms and their abilities are gradually enhanced. For chatbots, they can analyse the past interactions and give better responses and relevant suggestions [15].

4.3 Speech Recognition

Voice recognition technology is the technology that transforms speech to text to make it easy to communicate via voice. It is a crucial part of voice assistants and voice commerce apps.

4.4 Data Analytics

Data analysis is crucial in order to comprehend how customers behave and what they prefer. Browse customer and business interactions to see if there are patterns that can be used to develop effective strategies to reach a target audience [16]. This is an analysis that will serve as the basis for creating a meaningful and effective communication with customers.

4.5 Cloud Computing

Cloud-based systems can handle the large number of user interactions and provide real-time processing, data storage, and scalability, making them suitable for deploying conversational commerce platforms. These technologies are designed to work together in a way that can be scaled to meet the needs of the business and provide a personalized and efficient user interface, allowing users to easily and quickly access the information they need without hassle.

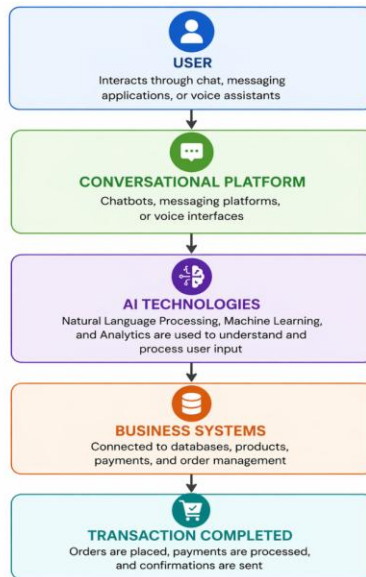


Figure 1: Basic structure of conversational commerce

This diagram illustrates how users interact with conversational platforms, which are supported by AI technologies and connected to business systems to complete transactions.

5. Applications of Conversational Commerce

Conversational commerce's versatility and effectiveness is clearly being seen across various industries.

5.1 Retail and E-commerce

Retailers leverage conversational commerce to assist customers in discovering the product that they wish to purchase, as well as appropriate suggestions. They leverage chatbots to help customers make purchases, respond to frequently asked questions, suggest personalized product choices based on their previous interactions, and anticipate future needs based on their previous actions [17].

5.2 Banking and Financial Services

Some banks use conversational agents to answer customer's questions, handle transactions, and provide financial advice. Such systems can provide them with the ability to handle common queries, resolve issues, and assist customers in making financial arrangements.

5.3 Customer Service

The advent of conversational systems has allowed industries to make their offerings more accessible to their customers and remove the need for human interaction in simple tasks. This has resulted in improved customer satisfaction and response times.

5.4 Healthcare

The healthcare industry has caught on to conversational commerce, recognizing its potential to significantly impact the way patients engage with services and navigate the healthcare experience. Users can schedule appointments, remind them to take their medicine, provide them with answers to frequently asked health-related questions, etc., with the help of virtual assistants and chatbots. The health care providers will, in turn have to cut costs on administration and increase access to health care. Triage support is one of the applications of conversational agents which guides users to appropriate care given after they report their symptoms [18]. Such systems should not be a substitute for medical services but can be used to complement a system to improve access and efficiency.

5.5 Travel and Hospitality

The travel industry is one area where many companies are using conversational commerce techniques to enhance their overall customer experience. Travel agencies, such as airlines, travel booking websites and others, are employing chatbots to help their customers book travel, make reservations, and provide them with real-time travel data. With chatbot interfaces, users can carry out complicated activities in an easy-to-use way. Accessible and easy to use these systems are, with the help of mobile applications or messaging systems.

5.6 Education and Other Sectors

Chatbots are highly used in the education industry, particularly in the USA, where they are applied in various aspects of conversational commerce. They can be used by students to easily determine the information of courses, enrollment requirements and academic support should they need it [19]. Moreover, other sectors like insurance and telecom, and the government are now adopting conversational technologies to enhance service and customer interaction.

Table 1: Main Applications of Conversational Commerce Across Industries

Industry	Example Use	Main Benefit
Retail and E-commerce	Product recommendations, order placement, delivery tracking	Faster purchasing and personalized shopping
Banking and Financial Services	Balance inquiries, money transfers, payment reminders	Convenience and improved customer support
Customer Service	Answering common questions, complaint handling, live support routing	Reduced response time and 24/7 service
Healthcare	Appointment booking, symptom guidance, medication reminders	Better patient access and administrative efficiency
Travel and Hospitality	Flight booking, hotel reservations, travel updates	Real-time assistance and smoother booking experience
Education	Admission inquiries, student support, course information	Improved access to information and faster responses

This table shows how conversational commerce is used in different sectors and highlights the main value it provides in each case.

6. Benefits of Conversational Commerce

Conversational commerce has a lot of advantages for businesses and consumers, and it's not surprising this channel is becoming popular.

6.1 Enhanced Customer Experience

Improved customer experience is a plus to business. Conversational interfaces like chatbots can provide instant responses and more personalized interactions, enhancing the overall customer experience and making it more humanized [20]. This also eliminates customer journey friction and just as a result, customer satisfaction.

6.2 Personalization

Ultimately, AI and data analytics can be used to customise conversational systems to each user's requirements. These systems are able to make very relevant recommendations and solutions, based on past behavior, preferences, and context, increasing user engagement and conversion rates.

6.3 24/7 Availability

24/7 customer service platforms are handled for better assistance. This way, customers are able to receive assistance and services anywhere and anytime.

6.4 Cost Efficiency

The possibilities of conversational commerce to reduce a company's operating costs are enormous. Organizations can adopt automated response tools, like chatbots and virtual assistants, to deal with repetitive tasks and communications with less human involvement [21]. Such automation can be beneficial for businesses in saving time and resources by eliminating the need for unnecessary tasks and streamlining the workflow.

6.5 Scalability

Many conversations with conversational systems can be processed side-by-side and in scale. This is especially significant when there is high usage, like during sales events or holiday season, when numerous customers are using the system simultaneously.

7. Challenges and Limitations of Conversational Commerce

While conversational commerce has a lot of potential, there are some challenges that need to be resolved for it to continue to grow and be effective. Limited understanding of complex queries,

7.1 Limited Understanding of Complex Queries

Modern conversational systems typically have very sophisticated AI capabilities, which can often fail to process vague or difficult questions. This can lead to a lot of confusion and frustration for the customer and can lead to incorrect and irrelevant responses from the bot.

7.2 Privacy and Security Concerns

Whether via phone or instant messaging, conversational commerce generates a tremendous amount of data in customer service that encompasses personal data, transactional data and much more. This data is very valuable but has serious security and privacy concerns. Hence, companies need to adopt strong data protection strategies and adhere to applicable regulations and legal frameworks to foster user trust.

7.3 Lack of Human Touch

Machine intelligence can simulate human conversations, but it is challenging to capture the subtleties of human emotions. This makes it possible for conversational systems to end up in a situation of limited emotional intelligence and socialization with users.

7.4 Integration Challenges

Potentially another hurdle could be integrating existing platforms and applications such as CRM, payment gateways and inventory management into conversational commerce solutions, which may be complex and resource intensive, particularly for smaller businesses with limited technical and financial resources.

7.5 Dependence on Technology

The two main enablers in recent years that are driving conversational commerce (CC) has been internet connection and cloud services.

8. Current Trends in Conversational Commerce

The conversational commerce market is continuously evolving due to the evolving expectations of customers and new technology.

8.1 Rise of Voice Commerce

Another facet of conversational commerce that is gradually becoming more popular is voice commerce, where more consumers rely on voice assistants to search for products, make transactions, and even control their daily lives. The convenience that voice commerce provides consumers is also making it more popular [8].

8.2 Integration with Social Media Platforms

Instagram, Facebook Messenger, and WhatsApp are all increasingly becoming a part of many businesses' approach to customer experience, working to enhance customer engagement and simplify transactions.

8.3 AI Advancements and Generative Models

The capability of having natural conversations and interacting with users in a more human-like way, via different interactions, has been greatly improved with the use of AI, particularly LLM. These new technologies have also given rise to more rapid and effective interactions, and better user experience in various digital platforms.

8.4 Increased Focus on Personalization

Personalised marketing is one of the most significant marketing trends today and companies are putting significant resources into technology to provide a highly tailored experience for the customer – such as artificial intelligence (AI) and advanced analytics. By this, businesses can provide personalised recommendations of products, create targeted promotions and create personalised communication strategies.

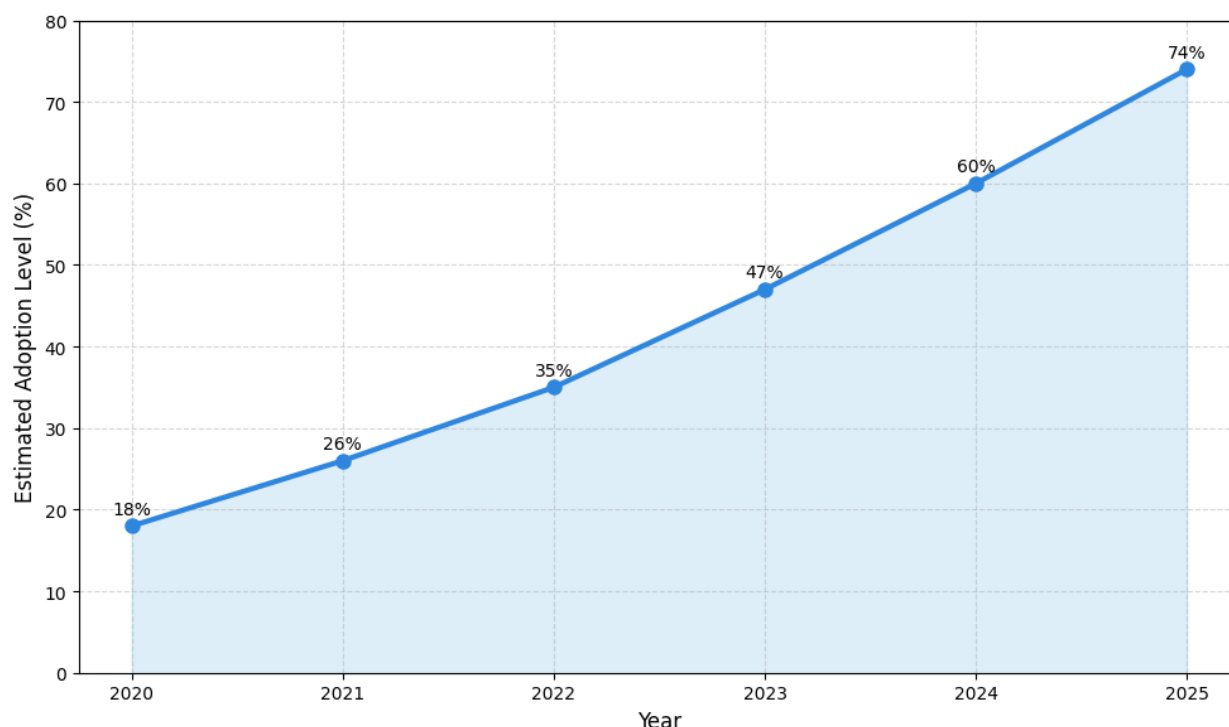


Figure 2: Illustrative growth in conversational commerce adoption, 2020–2025

The upward trajectory of conversational commerce adoption is illustrated in the graph, with businesses becoming more engaged with customers by incorporating chatbots, messaging apps and voice assistants.

9. Future Outlook of Conversational Commerce

With the continued evolution of technology and its improvement, the future of conversational commerce holds a lot of exciting opportunities. Conversational systems are increasingly becoming sophisticated and efficient, with the use of artificial intelligence (AI) and natural language processing (NLP) playing a significant part in this growth.

There is also great potential for conversational commerce to be used in conjunction with other emerging technologies. Now picture being able to layer up information and interactivity to a shopping experience with augmented reality (AR) or virtual reality (VR) and also be able to interact with an AI assistant – all without ever leaving the comfort of your own home.

With the increasing importance of conversational commerce, ethical use of AI and responsible data practices will be a priority. Transparency, fairness and accountability in design and implementation of such systems is a cause of concern.

Besides, the use of smartphones will expand the geographical scope of conversational commerce platforms globally. The digital economy is anticipated to be substantially affected by this growth.

10. Conclusion

The landscape of digital communication is changing as a result of conversational commerce, with the ability to generate revenue thanks to the introduction of natural language user interfaces. This paper gives a thorough conceptual overview on the subject, contains definitions, the development of major concepts, the main technological elements, applications of the technology for both businesses and individuals and future trends.

This research not only concerns a technology trend, but also a new paradigm in the relationship between Business and Customer which will be revealed.

While businesses can consider various factors when developing strategies for conversational commerce, some are crucial. Security, data privacy and the current limitations of technology are some of the issues that need to be dealt with.

In conclusion, conversational commerce is a game-changer in the digital world, offering new opportunities for businesses and consumers in a digitally-connected world.

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