

# The Revolution of Intelligent Conversation: AI-Powered Customer Service in Chinese E-Commerce and the Discovery Path

Junli Zhang

Department of E-commerce, Shenzhen Campus, Jinan University, China

Corresponding Author: Junli Zhang

**ABSTRACT:** Customer service is an essential component of modern business operations and serves as a conduit for communication between e-commerce businesses and their clientele. Artificial intelligence (AI) customer service in China's e-commerce industry has ignited a revolution in intelligent discourse in the current era of AI technology growth. Artificial Intelligence-powered customer support, which mimics human communication to offer clients individualized, effective, and real-time assistance, has emerged as a significant development in the e-commerce space. This paper begins with the history of development and current state of AI customer service in China. Next, it applies the case study method to examine the benefits that AI customer service for e-commerce has to offer. Finally, it summarizes the drawbacks of current AI customer service and the difficulties in resolving them by comparing AI and artificial customer service. Finally, based on the aforementioned conclusion, it presents the prospects for AI customer service in the e-commerce industry going forward.

**KEYWORDS:** E-commerce; Artificial Intelligence; AI Customer Service; Human-Computer Interaction

Date of Submission: 08-07-2024

Date of acceptance: 23-07-2024

## I. INTRODUCTION

### 1.1. The Growth of AI Customer Service and E-commerce

The swift advancement of Internet technology has led to the significant inclusion of Chinese e-commerce in contemporary commercial operations. The role that customer service plays as a conduit for information between businesses and consumers has grown in significance during this process. Simultaneously, the development of artificial intelligence technology has sparked the revolution of intelligent conversation in addition to positive advances in many other disciplines[1]-[3]. AI customer service has become a big highlight in the e-commerce industry by mimicking human communication and offering consumers real-time, quick, tailored assistance.

### 1.2. Significance of AI-enabled E-commerce Customer Service

The emergence of AI customer service not only lowers operational costs for businesses and increases customer service efficiency, but it also significantly improves the customer experience. AI customer service may increase customer happiness and confidence by being available around-the-clock, promptly attending to client needs, and successfully resolving customer issues. Additionally, through data analysis, AI customer service can give businesses insights into consumer behavior that they can use to optimize their goods and services and implement precision marketing.

## II. OVERVIEW OF AI CUSTOMER SERVICE DEVELOPMENT

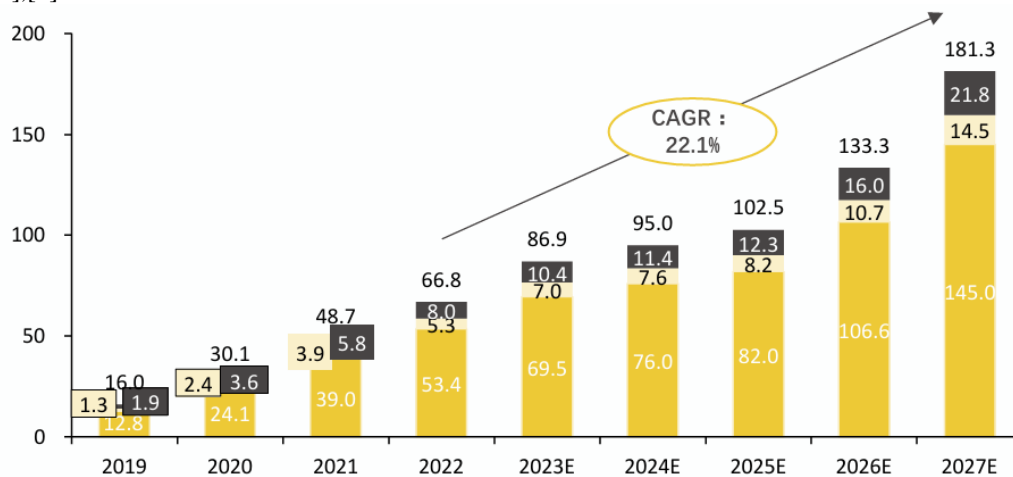
### 2.1. Evolution of E-commerce Customer Service

Customer service of e-commerce has undergone a complex development process, spanning from the era of communication technology to the Internet to the era of intelligent AI that is highlighted today. First of all, despite advancements in communication technology, most people still primarily rely on antiquated means of communication like the phone and email. This results in a high volume of manual customer inquiries and complaints, low efficiency, and challenges in meeting the increasing demand for users. Online customer care

systems, like chat tools and well-designed online customer service platforms, were first introduced by e-commerce customer service during the Internet era. Customers can now give more easy contact information with these additional service options. Ultimately, we are living in a time of artificial intelligence, voice recognition, intelligent customer care robots, and other technologies that can automatically manage a sizable volume of client requests, significantly enhancing both the user experience and the effectiveness of customer service.

**2.2. AI Customer Service Application Status**

So how does AI now improve e-commerce customer service in China? There is a broad and profound trend in the way AI customer service is now being applied. Communicating services, rapid cabs, e-commerce after-sales, and other industries have made extensive use of AI customer service. One such application is the AI Core System, an artificial intelligence big data platform that Guangdong Yuntong independently researched and created. Overall, AI customer service has spread to numerous industry chains and now holds a sizeable share of the Chinese market. China's intelligent customer service market is predicted to expand to 13.33 billion and 18.13 billion yuan in 2026 and 2027, respectively, from its startling 6.68 billion yuan in 2022, according to the China Intelligent Customer Service Market Report 2023 (see Fig.1). Natural language processing, voice recognition, and other technologies that can respond to some predefined high-frequency questions instead of using humans allow AI customer service to increase service efficiency overall. But there are advantages and disadvantages to every currency. AI customer service still has issues with incorrect understanding, misinterpretation of queries, and other issues in some scenarios. These issues have a significant impact on the user experience. Overall, AI customer service still requires constant optimization to raise the quality of the user experience and raise the service's effectiveness. China has also produced some research on AI customer service[4],[5].



**Fig.1. Share Statistics and Forecasts in Chinese Intelligent Customer Service Market**

**III. PURPOSE, METHODOLOGY AND STRUCTURE OF THE PAPER**

This paper examines the intelligent conversation revolution in detail and talks about the present trend of AI customer care applications in Chinese e-commerce sector. We have outlined the major benefits of AI customer service in the e-commerce industry through research and analysis, as well as outlining its present drawbacks and difficulties. In order to support the ongoing innovation of the e-commerce sector and enhance the customer experience, this paper seeks to give e-commerce enterprises a resource for understanding the current state and future development trend of AI customer service. It also offers some insights on how to investigate the deeper path of e-commerce AI customer service.

For methodology, this work employs a case study and comparative research technique from the dissertation, which is grounded in theoretical understandings of user operations and customer service in e-commerce.

In order to examine the benefits and associated positive effects of AI-enabled customer care in e-commerce, the article begins with a few more well-known and successful Chinese e-commerce AI customer service scenarios. The next step summarizes some of the present limitations of AI customer service in practical application as well as the impending problems by comparing the AI application in e-commerce with manual customer service based on multiple dimensions or indicators. In the end, the future course of e-commerce AI customer service exploration or improvement is elaborated based on the thorough study presented above.

#### IV. CASE STUDY: SPECIFIC APPLICATIONS OF AI CUSTOMER SERVICE

##### 4.1. Huawei AI Cloud Customer Service: CEC

Improved AI cloud customer support the goal of CEC at Huawei Cloud is to offer a wide range of industries comprehensive, intelligent cloud contact center services. It combines cutting-edge visual ringing and menu features, VoLTE audio and video technology, and natural language processing technologies. In order to offer a wide range of service options, it also makes use of open features like one-touch dual-calling, voice notifications, and secondary customization of call centers, in addition to AI bots that handle telemarketing outbound calls, multi-round conversations, and intelligent voice navigation. These services guarantee that customers have a consistent, reliable, and excellent experience across all channels. They are based on Huawei's thirty years of extensive ICT accumulation, together with cutting edge AI technology and intelligent IVR systems. In the e-commerce sector, CEC offers reasonably priced customer support and assists businesses in identifying the most effective routes for acquiring new customers. Stable and superior line connections are also provided to guarantee service dependability. In addition, it boasts a comprehensive knowledge base and a productive Q&A system that can promptly respond to user inquiries and offer semantic understanding and speech recognition in response to queries. Overall, comprehensive e-commerce customer service through several channels is highlighted in CEC's case.

##### 4.2. Jing Xiaozhi: AI Customer Service for the JD Platform

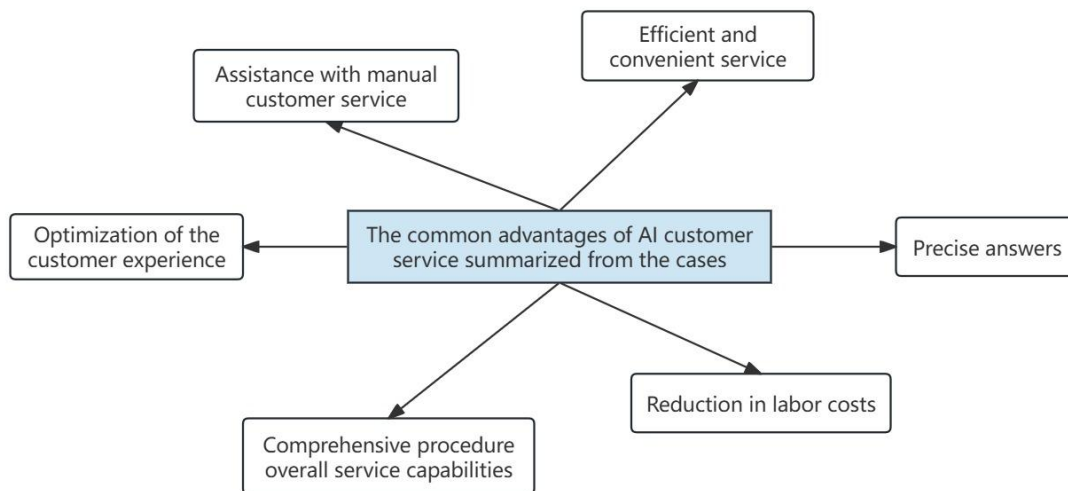
Advanced natural language processing (NLP) technology is used by JD's AI customer service, Jing Xiaozhi, to comprehend and manage user inquiries and order concerns. This allows for 24/7 self-help, significantly increasing customer satisfaction and processing efficiency. Intelligent order promotion, intelligent recommendation, related order status response, intelligent size assistance, intelligent diagnosis and analysis, and intelligent counsel are its six main features. By combining product comparison, multi-round dialogue, and anthropomorphic recommendation as a whole, this function can achieve "accurate user stratification, high purchase intention, user precision marketing," as demonstrated by the "intelligent shopping guide" example. This can result in up to 36% of customer retention and a 15% increase in consultants' turnover rate. Additionally, by boosting the order fulfillment rate by 15%, Jing XiaoZhi can help consumers even more with the order fulfillment process. Jing Xiaozhi may also support manual customer service for consulting services, etc., which significantly raises customer service efficiency and boosts user stickiness while also increasing the user experience. "Precision" and "efficiency" are the AI customer service based on artificial customer service of the two main upgrades, as can be observed from the Xiaozhi instance.

##### 4.3. Lenovo AI Customer Service Robot: "Zhu Xiaoka"

Lenovo, one of the three market leaders in notebook sales, has a sort of AI customer support robot available to assist small businesses. It can comprehend the user's inquiry deeply, responds with accuracy, and possesses exceptional natural language processing skills. It can easily handle tasks like timetable management, technological troubleshooting, and daily knowledge consultation. It is also noteworthy that it facilitates voice and text input in many languages, such as English and Chinese, accurately capturing the "human-computer interaction" aspects of AI customer care in the e-commerce industry. Zhu Xiaoka can also design an exclusive "scene assistant," offer assistance in modifying the prompt project through the interface, direct the model in accordance with real-world requirements to intelligently modify the reply's content in e-commerce practices, and support small businesses in better comprehending and responding to user inquiries.

##### 4.4. Case Synthesis Commonality Analysis

The advantages of AI customer services in the e-commerce industry can be summed up by examining the similarities between the aforementioned cases: efficient and convenient service, precise answers, reduction in labor costs, assistance with manual customer service, optimization of the customer experience, and comprehensive procedure overall service capabilities (refer to Fig. 2).



**Fig.2. Common advantages of AI customer service**

**Efficient and convenient service:** Because these AI customer care robots can essentially provide online assistance around-the-clock, they can handle client concerns faster by removing the need for human participation. Jing Xiaozhi, for instance, may generate content in sales scenarios at the minute level automatically, significantly increasing response accuracy and efficiency.

**Precise answers:** These AI customer support representatives can comprehend client inquiries more clearly and give precise responses thanks to machine learning algorithms and natural language processing technologies. When a user is comparing products, they can increase the correctness of the answer by automatically decomposing the Q&A and providing supporting text, graphics, and other formats.

**Reduction in labor costs:** AI customer service robots have the potential to significantly reduce the amount of traditional manual customer service worker input, saving labor costs for the business. This is critical to the e-commerce industry because platforms typically handle a high volume of client questions and post-purchase issues.

**Assistance with manual customer service:** In order to increase customer care efficiency, these AI services may also support human customer service tasks. For instance, they can screen efficient customers quickly, offer intelligent guidance and auto-reply, and perform other tasks.

**Optimization of the customer experience:** Customers' buying experiences can be improved by AI customer service by offering tailored recommendations and services. In certain cases, AI customer support can carry out automatic product recommendations, providing justifications and enhancing user happiness.

**Comprehensive procedure overall service capabilities:** The AI customer care representatives in the aforementioned situations are all equipped to handle every aspect of the e-commerce retail process, from customer acquisition to customer reach to digital customer service transformation, and as a result, they can offer businesses comprehensive support.

## V. COMPARATIVE ANALYSIS

### 5.1. Core Elements of Customer Service

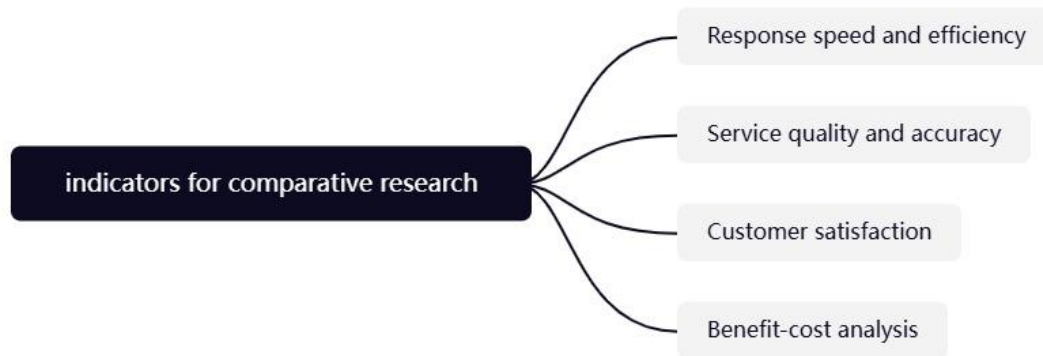
Then, in order to lay the groundwork for the ensuing comparative study, we must first define the fundamental components of excellent customer service before comparing manual and AI customer service in the e-commerce sector. The ability to address problems effectively, reaction time, overall service quality, cost-effectiveness, and customer happiness are the primary components of good customer service.

### 5.2. Construction of indicators for comparative analysis

Based on these components and the examined references in the relevant literature[6]-[8], the following indicators for comparative research are covered by the extensive comparative framework this paper builds (see Fig. 3).

First, response speed and efficiency: examine the difference in response times for client requests and problem-solving effectiveness between AI and human customer support. Second, evaluate the accuracy and quality of the services rendered while giving information, responding to inquiries, and handling complicated problems. Third, customer satisfaction: use customer feedback to assess the general degree of customer

satisfaction with both customer service approaches. Fourth, benefit-cost analysis: the comparison will focus on the operational, training, and long-term advantages and differences between manual and AI customer service.



**Fig.3. Construction of indicators**

### 5.3. Manual Customer Service and AI Customer Service

First come the response speed and efficiency. AI customer service is typically able to reply to consumer requests in a very short amount of time, is not constrained by working hours, and can provide services 24 hours a day thanks to automation and intelligent technology. On the other hand, response times for manual customer service are often slower, particularly during busy times when there may be lines and waiting. These factors include staffing levels, working hours, and individual efficiency variances.

Then, in terms of service quality and accuracy, AI customer service relies on preset algorithms and databases to provide information and is efficient and accurate in answering standardized and common questions. However, AI customer service might not be able to provide a suitable response in the case of difficult or unusual inquiries. In this case, the flexibility of artificial customer service and its capacity to fully comprehend client needs are especially crucial. Thanks to experience and knowledge, artificial customer service is better able to understand the demands of its users and offer tailored solutions.

From the standpoint of customer satisfaction, AI customer service can immediately satisfy the majority of customers' basic needs with its standardized service. However, it is evident that for customers with unique needs or issues, artificial intelligence's intimate service and humanized communication can frequently result in higher customer satisfaction. AI in customer service can give more humanized services by using speech recognition and emotional communication to better understand clients.

The benefit-cost analysis comes last. After the first investment, artificial intelligence customer service has comparatively cheap long-term running expenses and is more efficient since it can handle several consumer demands at once. On the other hand, manual customer service is constrained by the number of employees and working hours and necessitates continuous payroll costs. Nothing is flawless, though, and AI customer support is currently unable to match the value that human customer service may bring to the table when it comes to handling complicated problems and preserving client relationships.

### 5.4. Shortcomings and challenges of AI customer service in the e-commerce sector

After the comparative analysis in the previous section, it can be learned that in the field of e-commerce, AI customer service has certain deficiencies as well as challenges at the moment.

The volume of complicated and non-standard queries that AI customer support receives is overwhelming. When it comes to difficult or non-standardized issues, AI customer service tends to rely on preset algorithms and databases and is unable to provide truly good responses. This is true even though it is superior at handling frequent questions and some standardized processes. Compared to the adaptability and in-depth comprehension of consumer needs offered by human customer service, this is a substantial disparity. AI customer service faces difficulties when it comes to responding to a range of personalized concerns and wants that customers may have during e-commerce transactions. These requests often call for more thorough and knowledgeable responses.

Second, emotional communication and need comprehension are two areas where AI customer service falls short. Even while AI customer service can offer standardized services, they typically come out as more robotic and devoid of humanity when it comes to emotional customer communication and understanding consumer wants. In comparison, human customer support can offer more personal services and a deeper understanding of customers through emotional contact. Similar to this, in the e-commerce industry, clients require not only correct information to address their inquiries but also a sense of concern and deference from the

company, since the emotional component of e-commerce user operations plays a more significant role. This is one area where AI customer service still needs to be strengthened.

In addition to the above two points, AI customer service also faces challenges in maintaining customer relationships and creating customer value. Artificial customer service can create higher customer value by building trust and interaction with customers through personalized service and in-depth communication. However, AI customer service tends to be more passive and inflexible in this regard. AI customer service may be even more deficient in maintaining customer relationships and creating customer value.

In conclusion, even with all of AI customer service's benefits for e-commerce, there are still gaps and issues that need to be resolved in a number of areas. Consequently, these variables must be fully taken into account when implementing AI customer service in the e-commerce industry, and appropriate steps must be taken to compensate for or improve upon them.

## VI. THE EXPLORATION OF AI CUSTOMER SERVICE IN E-COMMERCE GOING FORWARD

Looking ahead, we have cause to think that the combination of human and AI customer care in the e-commerce sector will become a new trend in the growth of the industry due to the ongoing advancements in AI technology. AI technology will enable artificial customer service to handle everyday tasks more effectively, giving it more energy to handle problems that call for in-depth comprehension. Additionally, via constant learning and optimization, AI customer service will strengthen its capacity to handle complicated problems, offering clients more thorough, effective, and satisfying services.

2024: China's "big model + intelligent customer service" best practice cases TOP10 tells us that having technical support that can result in significant improvements in artificial intelligence customer care is a qualitative improvement, and optimizing AI technology to better empower customer service in e-commerce is a crucial area of current research. In my opinion, artificial intelligence has the potential to revolutionize customer service in e-commerce by improving human-computer interaction and doing it in a more thoughtful and compassionate manner.

## REFERENCES

- [1] Song Canhui, Liang Weiming. Research on Operators' Strategies to Promote Digital Transformation of Customer Service Based on Big Data and AI. *Guangdong Communication Technology*, 43(11): 22-24+54 (2023).
- [2] Ma Xiaoliang, Liu Ying, Du Dequan, Zhang Guoxin. Research and application analysis of AI customer service platform technology for telecommunication operation. *Telecommunication Science*, 39(09):141-152 (2023).
- [3] CHENG Li-Yong, JU Yajun, HUANG Peng-Yu. Research on the application of AI intelligent customer service in the field of library reader service. *East China Science and Technology*, (01): 38-40 (2024).
- [4] Zheng Sida, Yuan Ruiming, Zhou Lixia, Qi Chengfei, Wang Gao. Design of AI customer service business support system for power grid based on big data mining. *Electronic Design Engineering*, 29(22): 15-18+23 (2021).
- [5] Chu Shanbo. Exploration of new mode of AI-enabled e-commerce. *Science and Technology Wind*, (03): 19-20 (2021).
- [6] Xie Huajuan. Analysis of artificial intelligence customer service system in the context of big data. *China New Communication*, 25(18): 41-43(2023).
- [7] Gao Hansong, Xiao Ling, Xu Dewei. Artificial or Intelligent? E-commerce Online Customer Service Strategy Selection in AI Era. *Management Review*, 35(11): 166-178 (2023).
- [8] Tang Yijie. Overview of the application of artificial intelligence technology in e-commerce. *Modern Business*, (10):35-38 (2023).