



The Impact of Artificial Intelligence on Live Streaming Commerce: Opportunities and Challenges

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Abstract. The Artificial Intelligence (AI) technology is rapidly changing the live e-commerce industry. This study examines the application of AI technology in live e-commerce and its impact. With the rapid development of live e-commerce in China, AI anchors are gradually being widely used to provide 24/7 live streaming services, increase brand exposure and reduce operational costs. AI technology is not only able to increase sales conversion through personalized recommendation systems, but also attract international consumers through real-time translation. However, there are many challenges associated with AI anchors, including a lack of emotional resonance with viewers, low consumer acceptance of AI, and the potential for unemployment. In addition, privacy and data security issues have raised concerns in the application of AI technology. Nonetheless, AI live e-commerce has brought new changes and innovations to the retail industry, and its potential will continue to expand in the future with the development of technology, making AI live e-commerce promises to be more advanced and specialized.

Keywords: Artificial Intelligence; Live Streaming Commerce; E-commerce Innovation; Consumer Engagement.

1 Introduction

Live streaming commerce, also known as LSC, is a rapidly growing trend nowadays in China and is continuing to spread among the world [1]. Consumers are able to buy items through live video streams forecasting internet influencers and celebrities to attract buyers and to introduce products. As technology further develops, artificial intelligence has been put into use in the live streaming commerce field. This step taken can provide a better shopping experience for both the shopper and the seller. Data from China Internet Network Information shows that by 2021, 32,9% of internet users in China has participated at least once in live streaming commerce [1]. The participation in e-commerce have grown significantly, especially during the Covid-19. Unavoidably, people experience city lockdown and are unable to shop offline. So they are forced to learn and experience e-commerce. Live streaming commerce, compared to the traditional online platform or application shopping, have many more advantages [2, 3].

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With the help of AI it brings the live streaming commerce business to a whole new perspective [4]. Live streaming commerce appears to have a bright future as AI technology advances [5]. More sophisticated AI features, including holographic presentations and virtual influencers, are likely to arrive, further concealing the distinction between online and offline purchasing. These changes will affect not only how customers engage with brands, but also how brands handle marketing and customer service. In summary, AI live streaming commerce represents an important shift in the retail industry rather than only a temporary trend. It provides businesses with an effective platform to engage with customers in a highly customized and engaging way, stimulating e-commerce innovation and establishing new standards for online shopping adventures. The live streaming commerce industry has enormous growth and transformation potential as AI develops, pointing to a time when purchasing will be both convenient and entertaining.

2 Case analysis

Although this emerging technology can bring many benefits live streaming platforms and its users, it doesn't mean that it can satisfy everyone's needs. There are still many shortcomings that cannot be ignored.

2.1 Positive

Due to the popularity of live streaming commerce, businesses are able to earn loads of money simply through a mobile phone and a live streamer as long as there is a stable source of goods. However, live streamers can be unstable. They may get tired, emotional, or unproductive. Paying wages to streamers, inviting popular influencers and celebrities to endorse their products on stream is a large cost. Therefore, AI live streamers are created. On Tmall.com and JD.com, the two leading e-commerce platforms in China, thousands of AI broadcasters have been put into use by retailers [6]. AI broadcasters can stream non-stop 24/7. It will be able to cover audiences from different time periods, increasing views and sales revenue. What's more, compared to the traditional live streamers, AI streamers can significantly reduce live streaming costs while maintaining high quality content output. Not only can AI technology create high efficiency streamers, but it can also recommend live streams of interest to specific groups of people. One such thing named the Recommender system has been widely put into use in the field of e-commerce [7]. Online shoppers are able to be recommended to live streams or products that they are interested in, which could grab onto the consumer's interest and increase total sales to make more profit. What's more, with the expansion of popular streaming platforms outside of its home country, there has been an increase in numbers of foreign consumers. By putting AI to use, these foreign shoppers can receive real-time translations as the stream goes on. To understand to context of the live streamer, viewers would need to rely o both the translation of the streamer's introduction on the product but also the discussion between other viewers [8]. This could engage the growing number of audience from all over the world and expand the business to the global market. Artificial intelligence chatbots are being used more and more in broadcasting live. They can respond to

questions from customers, make product recommendations, help with transactions, increase productivity, and guarantee that consumers get feedback right away, all of which improve the customer's experience in general.

On the Tmall platform, several brands have begun to introduce AI anchors for live e-commerce broadcasts. During the Double 11 period, Tmall introduced AI anchors to help merchants' sales. In the case of beauty brands, for example, AI anchors help brands to display products to consumers around the clock and without interruption, and push personalized product live broadcasts to different users through an intelligent recommendation system. This not only greatly improves the efficiency of live broadcasting, but also saves the cost of hiring real anchors. The results showed that the application of AI anchors significantly increased the length of live broadcast and the number of viewers, and also promoted sales conversion. During the promotion period, beauty brands maintained a high frequency of product exposure through the continuous live broadcasting of AI anchors, which attracted more consumers to participate and ultimately helped the brands increase sales.

2.2 Negative

Even though there are many attractive perspectives and benefits of using AI in the live streaming commerce field, many people and businesses still have concerns about this action. Many companies have invested loads of money, time and effort into the development and putting them into use [9]. AI, in many fields, can do much more better than human nowadays. For instance, weather prediction, diagnosing patients, detecting cancer and so on. Therefore it can cause unemployment in these businesses. Without jobs, people have low or no income. Which means that spending power would drop and may cause economic recession. In live stream commerce, companies may replace traditional live streamers with AI broadcasters for cutting down costs and improving efficiency. With that happening loads of live streamers nowadays may lose their job. What's more, AI may lack authenticity and emotional connection. AI streamers may not be able to fully express the emotional aspect and personalized interaction of real life broadcasters, which may affect the emotional connection and trust building between consumers and brands [10]. Another problem that could occur is the lack of consumer acceptance. Consumers may hold a reserved attitude towards AI streamers, especially if they prefer human interaction and a more humane shopping experience.

Well-known sports brand attempted to use AI anchors for live streaming during one of its new product launch events in 2023, expecting to increase exposure through 24/7 product presentations. However, in that live broadcast, although the AI anchor showed great stability and accuracy, and was able to introduce the features and functions of each sneaker in detail, the interactive feedback from the audience was much lower than expected. Some consumers said that the AI anchor lacked the emotional resonance and personalized advice of a real anchor, especially when it comes to the selection and matching of sports equipment, the mechanized language of the AI anchor made it difficult for users to establish a sense of trust. Although Li Ning saved operational costs through AI technology in that live broadcast, sales failed to

reach the expected goal due to low user interaction. This case reflects that AI anchors still face the problem of user acceptance in some specific consumption scenarios.

3 Development Perspective

AI can do many things that people cannot imagine before. However, there are still more to it that hasn't been developed. Users will enjoy a more enjoyable buying experience as interactive digital live streaming technologies grow more varied. AI digital persons can mimic human language, expressions, and behavior. They can also communicate directly with audiences, have a distinct personality, personality, and emotional expression, all of which improve the buying experience. What's more, Stricter moral standards and legal requirements will need to be followed when using AI to e-commerce in order to protect consumer privacy and security. The public's interest in learning more about the ethical and privacy concerns surrounding AI is growing, as does that of academics [11]. Here is an example. According to the data from Baidu, on June 3rd, 2021, a hacker obtained a total profit of 340000 yuan by stealing more than 1.1 billion pieces of Taobao customer information and giving it to his partner for commercial marketing purposes. Another thing that will occur in the future is that AI can improve e-commerce platform security by keeping an eye on unusual activity and interpreting it to stop scams.

4 Conclusion

Overall, in the retail sector, AI live streaming commerce has revolutionized the game, especially in China, where it has been quickly embraced. With the use of interactive features, real-time feedback, and personalized content, this technology significantly improves the buying experience for customers by merging state-of-the-art artificial intelligence technology with live streaming sales models. AI streamers can improve user engagement and purchase sales by analyzing customer behavior and preferences, adjusting live streaming content in real time, and offering personalized buying suggestions. But there are also difficulties with AI live streaming sales. Personalized experiences are merely one of the benefits of AI live streaming commerce. Additionally, it offers live streaming services that are continuous all the time, allowing businesses to communicate with customers anywhere in the world without being limited by time or location. AI streamers also have far lower running costs than human streamers, which makes it possible for small and medium-sized businesses to adopt this technology to become more competitive in the market. While technology has made the sector more convenient, brands still have concerns about protecting consumer trust, securing data, and creating a balance between artificial intelligence and human interaction. Furthermore, the employment of human monitors may be impacted by the growing popularity of AI, which is a concern for society and governments. It is expected that when AI technology develops further, sales of AI live streaming will grow ever more advanced and specialized. For brands to take full advantage of the opportunities presented by new technology, they must continuously

innovate and adapt. Small and medium-sized businesses' decision to begin AI live streaming sales will be influenced by a number of variables, such as market trends, organizational preparation, and technology readiness. Governments could encourage the use of this technology by offering subsidies, technical training, and improved internet services. To put it briefly, AI live streaming e-commerce is changing how customers shop and giving businesses new chances for expansion. With technology developing and the industry evolving, it is anticipated that this model would see increased global use.

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