

Practices and Challenges of Customer Psychological Empowerment in the AI Era

Jiang Qiang

Zhejiang Yuexiu University, Zhejiang, China

Email: 737134765@qq.com (J.Q.)

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Abstract—In the modern market environment, the customer role has evolved from a passive recipient of products and services to an active participant in value co-creation, a shift that coincides with the evolution of the concept of customer psychological empowerment. Customer psychological empowerment involves the autonomy, sense of control, and influence that customers feel during the consumption process. Artificial Intelligence (AI) technology has played a key role in enhancing customer psychological empowerment. Through personalized recommendations, 24/7 customer support, data analysis, and behavior prediction, AI has increased customer autonomy, sense of competence, and engagement. However, the application of AI also brings challenges such as data privacy and security, decision transparency and interpretability, ethical issues, and customer acceptance. To address these challenges, companies must strictly comply with data protection regulations, implement robust security measures, and enhance the interpretability of AI systems to build trust. Additionally, ensuring the fairness of AI systems and improving customer acceptance through a human-machine integrated service model are crucial. By taking these measures, companies can leverage AI technology to enhance customer psychological empowerment while optimizing customer experience and enhancing brand competitiveness.

Keywords—customer psychological empowerment, artificial intelligence, customer autonomy

I. INTRODUCTION

In the current competitive and ever-changing market environment, the role of customers has undergone a fundamental transformation, from being mere recipients of products and services to active participants in the value co-creation process. Since the concept of customer psychological empowerment was introduced, it has gradually become one of the hot topics of interest in the field of marketing. Scholars have conducted extensive and in-depth research on this subject, covering various aspects from the evolution of the concept to the practical application of customer psychological empowerment in the era of artificial intelligence, as well as the challenges faced.

II. THE EVOLUTION OF THE CONCEPT OF CUSTOMER PSYCHOLOGICAL EMPOWERMENT

Customer Psychological Empowerment (CPE) generally refers to the sense that customers feel capable and empowered to control their own behavior and environment. This feeling can enhance personal confidence and engagement. CPE evolves with market dynamics, technological advancements, and changes in consumer behavior, representing a concept that is continuously developing. It can be traced back to the psychological theory of “psychological empowerment” in the field of psychology,

which emphasizes the meaning, competence, autonomy, and impact individuals feel in the workplace (Spreitzer, 1995). This theory has gradually permeated into the field of marketing, where researchers have begun to focus on the similar sense of empowerment that customers experience during the consumption process. For instance, when customers are able to independently choose product configurations and decide on the timing and manner of services, they experience this psychological empowerment. In recent years, scholars have increasingly studied this concept, revealing its multi-layered connotations and broad application scenarios.

Researchers are focused on the multifaceted characteristics exhibited by customer psychological empowerment. Fuchs *et al.* (2010) defined customer psychological empowerment as the sense of control, competence, significance, and influence that customers experience over products and services during the consumption process. Füller *et al.* (2012) proposed that customer psychological empowerment can be divided into four dimensions: information acquisition, choice autonomy, competence enhancement, and influence perception. Information acquisition refers to the ease with which customers can obtain relevant information about products and services; choice autonomy means that customers can freely choose products that meet their individual needs; competence enhancement involves the skills and knowledge that customers gain during the use of products and services; and influence perception refers to the extent to which customers feel that their choices and feedback can affect the design of the company’s products and services. Baker & Sinkovics (2015) believe that customer psychological empowerment is a multi-dimensional psychological construct, which includes not only a sense of control over the transaction process but also encompasses dimensions such as self-efficacy, autonomy, and sense of meaning. Self-efficacy is reflected in the customer’s belief in their ability to make wise consumer decisions; autonomy emphasizes the customer’s right to free choice during the consumption process; and the sense of meaning reflects the customer’s belief that their consumption behavior has significant value and meaning.

With the development of digital technology, research on customer psychological empowerment has made new progress in various fields, involving digital experience, online shopping, social media, and more. Han *et al.* (2019) found that service fairness positively affects customer satisfaction through the mediating role of customer psychological empowerment. In other words, when customers feel that the service is fair, they feel respected

and capable of participating in the service process, thereby having a higher satisfaction with the service. This discovery provides a theoretical basis for enterprises to optimize service strategies. Qiu *et al.* (2021) explored how service climate promotes customer citizenship behavior through the mediating role of customer psychological empowerment. Wei *et al.* (2023) investigated how emotional intelligence and psychological empowerment affect customer repurchase intention in the context of online shopping service recovery. In the context of online shopping service recovery, emotional intelligence indirectly promotes customer repurchase intention by enhancing the sense of psychological empowerment. In other words, when customers feel respected and capable of participating during the service recovery process, they are more likely to make a repeat purchase. Moedeen *et al.* (2024) showed that Social Media Marketing Activities (SMMA) can promote the development of self-consistency and consumer empowerment. They are the key drivers to strengthen positive brand experiences and ultimately lead to the formation of brand equity. Almahamid (2019) explores how the usage of ERP systems (ERP System Usage) affects an organization's agile capabilities through the mediating role of users' psychological empowerment. The effective use of Enterprise Resource Planning (ERP) systems can optimize business processes, enhance information sharing and decision-making efficiency, thereby strengthening an organization's agile capabilities. Users' psychological empowerment plays a mediating role between ERP system usage and agile capabilities. The use of ERP systems can enhance users' sense of psychological empowerment (such as sense of control, competence, and meaning), thereby increasing users' work enthusiasm and innovation, ultimately enhancing the organization's agile capabilities.

In summary, the concept of customer psychological empowerment has evolved from initial theoretical exploration to the identification of multi-dimensional characteristics, and then to practical applications in various business scenarios. It has become an important tool for companies to enhance customer experience and brand loyalty. With the continuous advancement of technology, research on customer psychological empowerment will be further deepened, providing richer opportunities for research and practice for businesses and scholars.

III. HOW DOES AI TECHNOLOGY ENHANCE CUSTOMER PSYCHOLOGICAL EMPOWERMENT?

In the current business environment, Artificial Intelligence (AI) technology is revolutionizing the way customer service and experience management are conducted, significantly enhancing customer psychological empowerment. Psychological empowerment encompasses the autonomy, influence, competence, and sense of meaning customers feel during interactions. AI technology enhances these feelings through various means, thereby increasing customer satisfaction and loyalty.

A. AI-driven Personalized Recommendation Systems Can Enhance Customer Autonomy and a Sense of Meaning

By analyzing customers' purchase history, browsing behavior, and preference settings, AI can provide

customized products and services, making the service feel more tailored to individual needs and interests. Bleier and Eisenbeiss (2015) point out that in online retail environments, personalized product recommendations can significantly enhance the shopping experience and satisfaction of customers. Customer trust in retailers is a key factor for the success of personalized recommendations. In retailers with a higher level of trust, personalized recommendations with high depth (personalization depth) and high breadth (personalization breadth) have the best effect. For example, Amazon analyzes customers' purchase history and browsing behavior to provide highly personalized product recommendations, which not only increases customers' willingness to purchase but also enhances their dependence on the platform, thereby increasing customers' sense of psychological empowerment.

B. Enhance Customers' Sense of Competence and Engagement through Interactive and Participatory Mechanisms

In customer support, chatbots can provide service around the clock, answering common customer inquiries and even handling simple transactions such as order status inquiries and product returns and exchanges. Virtual assistants take this a step further by learning customer habits and preferences to offer more considerate and personalized service. This not only enhances the customer's ability to resolve issues but also increases their sense of engagement and control, thereby boosting their psychological empowerment. Xu *et al.* (2017) indicated that by utilizing Natural Language Processing (NLP) and Machine Learning (ML) technologies, it is possible to understand and respond to customer inquiries, significantly improving the response speed and efficiency of customer service, enhancing customer experience and satisfaction.

C. Understand Customer Needs More Accurately by Using Data Analysis and Behavior Prediction Tools

Through AI-driven data analysis tools, enterprises can quickly respond to customers' explicit needs and proactively predict implicit needs, providing corresponding products or services at the right time. This timeliness makes customers feel that the business is highly sensitive to their needs, enhancing their psychological sense of empowerment. Matz and Netzer (2017) believe that by analyzing big data, companies can gain deep insights into consumer preferences, needs, and behaviors, thereby better predicting future consumer demands and providing personalized products and services. This approach enhances customer satisfaction and loyalty, and strengthens the perceived value and sense of empowerment among customers. Davenport and Ronanki (2018) pointed out that AI is applied to automatically handle repetitive tasks, analyze customer data to predict purchasing behaviors and trends, and interact with customers to provide personalized services and support, among three major categories. Furthermore, Retailers can also use AI to optimize inventory management and sales forecasting.

D. Gain Real-time Insights into Customer Behavior on Social Media, Actively Engage in Customer Conversations, and Enhance Customer Influence

Customers' behavior and feedback on social media is a

complex yet highly valuable process. Through AI-driven analytical tools, companies can gain a deep understanding of customers' behavior and feedback on social media, engage more effectively in customer conversations, and adjust strategies based on their feedback. This allows customers to feel that their opinions are valued, which helps to enhance psychological empowerment. For example, using social media monitoring tools (such as Hootsuite, Brandwatch, etc.) to collect mentions about brands, products, or services. These tools can capture public posts, comments, and shares from customers on various platforms in real-time. By applying Natural Language Processing (NLP) technology to analyze text data, key themes and sentiments are extracted to identify the main topics customers are discussing, the keywords they are using, and the emotions they are expressing (positive, negative, or neutral). Hennig-Thurau *et al.* (2015) investigated the impact of word-of-mouth dissemination on consumer behavior on social media platforms such as Twitter, particularly focusing on how to identify key influencers by analyzing social network data, building closer relationships with them, and thereby expanding the brand's market influence.

Overall, AI technology has enhanced customer psychological empowerment in a comprehensive manner by providing personalized experiences, real-time support, in-depth data insights, and enhanced interactive influence. The application of these technologies not only optimizes customer experiences but also drives innovation and competitiveness for businesses.

IV. WHAT CHALLENGES WILL CUSTOMER PSYCHOLOGICAL EMPOWERMENT FACE IN THE ERA OF ARTIFICIAL INTELLIGENCE?

In the process of using AI technology to enhance customer psychological empowerment, companies must face a series of complex challenges. These challenges involve various aspects such as technology, ethics, law, and acceptance.

A. Data Privacy and Security

As AI technology becomes increasingly widespread in processing and analyzing large amounts of customer data, the risks of data breaches and misuse also increase. Acquisti *et al.* (2015) explored the complexity of privacy issues in the information age, particularly the discrepancies between consumers' attitudes and behaviors towards privacy. They pointed out that people's level of concern for privacy and their behaviors can vary in different situations. For instance, on social media platforms, individuals may be more willing to share personal information, whereas they tend to be more cautious in financial transactions. Therefore, companies implement robust data security measures to build customer trust and avoid legal risks.

B. Transparency and Explainability of Decision-making

Artificial intelligence systems, especially those based on deep learning models, are often viewed as "black boxes" due to the difficulty in understanding and explaining their decision-making processes. In the decision-making process, the lack of transparency may undermine customers' trust in AI's decision-making, especially when these decisions are

directly related to their interests (Castelvecchi, 2016). Calo (2017) discussed the fundamental principles and road map of artificial intelligence policy, pointing out the manipulative issues of AI in consumer decision-making, which has raised concerns about consumer autonomy.

C. Ethical Issues

This issue mainly involves informed consent and bias phenomena. Acquisti *et al.* (2016) pointed out that due to consumers often being in a position of incomplete or asymmetric information regarding the timing, purpose, and consequences of data collection, informed consent is often limited to a formal level. Zou and Schiebinger (2018) explored the issues of gender and racial biases present in AI systems, particularly when historical data is used for model training, where this problem is especially prevalent.

D. Customer Acceptance

Customer acceptance is also a key factor that must be considered when promoting AI technology. Although AI can provide efficient and convenient services, not all customers are willing to accept services provided by machines. Consumers have a lower acceptance of AI systems that lack emotional and personalized interaction (Qiu and Benbasat, 2020). Therefore, when designing AI services, companies need to consider how to maintain human elements to increase customer satisfaction and acceptance.

V. HOW TO DEAL WITH THE CHALLENGES FACED BY CUSTOMER PSYCHOLOGICAL EMPOWERMENT IN THE ERA OF ARTIFICIAL INTELLIGENCE?

With the rapid development of Artificial Intelligence (AI) technology, companies are increasingly utilizing AI to enhance customer psychological empowerment, provide personalized services, and enhance customer experiences. However, companies also face a series of complex challenges in the application process. How can these challenges be addressed to ensure that AI technology can truly bring a win-win situation for both customers and businesses?

A. Comply with Data Protection Regulations, Implement Security Measures, and Adopt Transparent Data Usage Policies

Enterprises must adopt a series of measures to ensure data privacy and security. First, companies should strictly comply with international and regional data protection regulations, such as the General Data Protection Regulation (GDPR) in the EU, to ensure that their data processing complies with these regulations and to avoid legal risks. Second, they need to implement robust data security measures, including encryption technology, multi-factor authentication, and regular security audits. These measures can effectively prevent data breaches and misuse, protecting customers' personal information. Furthermore, a transparent data usage policy should be established, clearly communicating to customers how their data will be used and protected, to build trust. For example, Apple has successfully protected customer personal information and won their trust by implementing strict data privacy policies and advanced encryption technology. This approach not

only enhances customer psychological empowerment but also boosts the brand's reputation.

B. Enhance the Interpretability of AI Systems, Increase Decision Transparency and Customer Trust

To address this issue, researchers and developers are working hard to improve the explainability of AI systems. Explainable AI (Explainable AI, XAI) aims to develop AI models that can provide clear explanations. These models not only increase the transparency of decision-making but also help customers understand how AI makes specific recommendations or decisions, thereby enhancing their trust. For example, Google's "What-If Tool" is an explainability AI tool that allows users to explore and understand AI model behavior through an interactive interface without the need to write code. This tool makes the AI decision-making process more transparent and helps to enhance customer psychological empowerment.

C. Ensure Fairness and Impartiality in AI Systems Through Diversity in Data Processing and Ethical Review Mechanisms

To address the challenges of ethical issues, firstly, diversity and inclusivity should be emphasized during data collection and processing to ensure the representativeness and fairness of datasets. This can be achieved by incorporating diverse data sources and avoiding the use of biased data. Secondly, establishing effective oversight and accountability mechanisms to promote interdisciplinary cooperation among technology developers, ethicists, and legal experts, ensuring that the application of AI technology aligns with societal values and ethical standards (Mittelstadt, 2019). Interdisciplinary cooperation is key to effectively integrating ethical principles into the development and deployment of AI systems. For instance, Microsoft has established an AI ethics committee responsible for overseeing the development and application of its AI systems to ensure they meet ethical standards and societal values. This approach not only helps to prevent biases and discrimination in AI systems but also enhances customer trust and psychological empowerment.

D. Combine AI with Human Services and Focus on Humanized User Experience Design to Enhance Customer Satisfaction and Service Acceptance

Firstly, AI technology can be combined with human services to provide a more personalized and warm service experience. For instance, banks can integrate human customer service into their AI customer service systems, allowing for a quick transfer to human service when customers need more complex or emotional support. Secondly, user experience design should be emphasized to make AI systems more humanized. For example, using natural language processing technology, AI systems can understand and respond to customers' emotions and needs, thereby offering more personalized and considerate services. For example, Amazon's Alexa smart assistant, through natural language processing technology, not only answers customers' questions but also understands their emotions and needs, providing personalized suggestions and services. This approach has significantly increased customer satisfaction and acceptance.

VI. CONCLUSION

Although artificial intelligence technology offers unprecedented opportunities to enhance customer psychological empowerment, it also comes with numerous challenges. As AI technology continues to develop, the future will rely on interdisciplinary collaboration, integrating wisdom from psychology, information technology, ethics, and law, to more deeply understand and promote the practice of customer psychological empowerment in the AI era. In terms of research direction, the study will focus on how to use AI technology to enhance customers' sense of control and engagement, while ensuring data security and adhering to ethical guidelines. Furthermore, AI technology can provide personalized experiences and predict customer behavior when dealing with big data. Future research needs to delve into how this personalization affects customers' psychological experiences and behavioral decisions.

In terms of technological development, there will be a greater focus on how to enhance the transparency and interpretability of AI decision-making, as well as how to protect customer privacy through technological means. At the same time, with the widespread adoption of AI technology, research will also explore the differences in customer acceptance and psychological empowerment of AI across different cultural and social contexts. Through these efforts, not only can technological progress be promoted, but also the rights and interests of customers can be safeguarded, contributing to the harmonious development of society.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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