Research on the Application of Computer and Information Technology in Brand Management

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Abstract. The application of computer and information technology represented by AI and big data in consumer insights, brand touch points, customer relationship and other fields, has brought changes in terms of accuracy, personality, experiences and efficiency to the brand management of enterprises. This application process also helps enterprises to obtain more scientific brand management decisions, and also brought better brand experiences to consumers. In the future, the role of computer and information technology in brand management will become more and more important. For the next step, the application of computer and information technology in brand management should focus on the direction of improving empathy, experience and efficiency, in order to use the power of technology to let enterprises create greater brand’s value.

Keywords: AI, Big Data, Computer and Information Technology, Brand Management

1. Introduction

The continuous progress of computer and information technology has changed the concept of brand management of enterprises. With the development of computer and information technology, modern technology has enabled marketing to become more and more mature, especially by Artificial Intelligent (AI) and big data[1]. Computer and information technology has become an important tool in brand management. It promotes the innovation of brand marketing in the fields of consumer insights, brand touch points, customer relationship, and helps enterprises realize the data-driven brand management. Nowadays, the application of new generation computer and information technology not only affects the formulation and implementation of brand management strategy, but also becomes one of the key factors to determine the brand competitive advantage[2].

2. Application of computer and information technology in brand management
2.1. Consumer insights

2.1.1. User profile

User profile is the premise of consumer insights. With big data and AI technology, brands can get through multi-source user data, draw more accurate user profiles, and help brands accurately identify the target market. Structural data and unstructured data from different sources are first collected through data mining, and then they are automatically classified and labeled into different user groups through machine learning. At the end, it can be encrypted through blockchain technology to protect customer data from loss. The results of machine learning will change dynamically with the changes of users' attributes. In addition, AI can attach more labels to users through label expansion. The advantages brought by these technologies ensure the accuracy of brand user profiles.

2.1.2. Need and Want prediction

Through data mining and machine learning, enterprises can create suitable algorithms according to their own reality. On the basis of intelligent analysis of data, they can predict consumers’ needs and wants, so as to improve the accuracy of brand decision-making. For example, the demand forecasting platform using AI technology, such as SAS Viya, can help enterprises effectively reduce inventory, optimize brand supply chain management, improve brand market response speed, and increase brand competitiveness.

2.2. Brand touch points

2.2.1. Advertising

Based on more accurate user profiles and better machine learning algorithms, enterprises can choose the best combination of advertising media, advertising mode and time to achieve efficient brand communication effect. Enterprises can also carry out intelligent analysis of advertising traffic through AI, adjust the integrated marketing communication programme of brands, and optimize the effect of brand communication. In addition, AI can automatically generate advertising ideas according to brand characteristics and specific scenes, making brand communication more intelligent and personalized, and enhancing the effect of brand touch. For example, in the advertisement implantation of movie and TV series, AI can recognize the lines, texts and opportunities in the series intelligently through deep learning, automatically generate the advertisement copy, transmit the brand information, perfectly integrate the brand communication into movie and TV works, and fully ensure the advertising efficiency and effect.

2.2.2. New retail

New computer and information technology have given birth to new retail formats. The online and offline omni-channel integration development advocated by new retail has greatly increased the brand touch points, bringing new challenges to the management of brand touch points[3]. The application of 5G, the Internet of Things (IoT), cloud computing, AI and other technologies can not only guarantee the expansion of brand touch points, but also guarantee the synchronization and docking of data between different brand touch points, greatly increase the convenience of brand consumption, and improve the brand experience to consumers.
2.3. Customer relationship

2.3.1. Customer service section

In customer relationship management, chatbot has become an application trend of brand customer service. Chatbot can be online 24 hours a day, respond to all kinds of information and queries at any time, and also save labor costs. The chatbot using natural language processing (NLP), speech recognition and other AI technologies allows customer service employees to focus more on sales revenue generating without sacrificing service[4]. These AI technologies improve performance of brand customer service, and boost customer satisfaction[5].

2.3.2. Selling section

The application of computer and information technology, such as big data, AI face recognition, voice recognition, Augmented Reality (AR), RFID, IoT, can transform the entity retail and improve the brand experience of consumers in the process of commodity sales.

In the process of commodity display, big data and AI technology can let massive commodities be displayed through virtual cloud shelves without worrying about the problems of inventory and SKU display. Virtual make-up mirror, virtual fitting room and other tools supported by AR technology bring consumers a brand new experience. 5G and IoT technology make the display process of commodities smoother.

In the process of shopping guide, AI robot salesmen who apply voice recognition, image recognition, machine learning and other technologies, such as OSHbot, can actively welcome and take care of customers, answer customer questions, guide and recommend customers to shop.

Face recognition, RFID and other technologies in the payment process can avoid the trouble of customers waiting in line. Such as Amazon Go, which uses computer vision, sensor fusion, deep learning and other technologies, omits the steps of queuing for checkout. Consumers can directly "just walk out" after selecting goods in Amazon Go.
3. The future of computer and information technology in the application of brand management

3.1. Improve empathy

Brand reflects and emphasizes the relationship and emotional attachment between brand and consumers. Although technology represented by big data and AI helps enterprises improve the accuracy of brand management decision-making, however technology should and can bring more to a brand. In order to build and consolidate the brand-consumer relationship, the application of computer and information technology in brand management in the future needs to move from "Precision" to "Empathy", which means to increase the "warmth" of technology, and use technology to help brands penetrate into the subjective world of consumers, understand the feelings of consumers, and resonate with consumers.

For example, agents, whether virtual spokesmen (avatars), chat robots or service robots, who interact with consumers on behalf of brands, should improve their personification degree both in form realism (dynamic, 3D) and behavioral realism (with social attributes) through relevant technologies, so as to improve the effect of interaction and form brand loyalty. AI can produce contents to meet the above goals through image, speech, and natural language generation (NLG). Through AI tools, the marketers can make the agent of the brand more in line with the characteristics of the target market, so as to strengthen the brand-consumer relationship.

3.2. Improve the experience

When pushing brand information to consumers, it is necessary to improve consumers' experience through technical means. Firstly, brand has to strengthen individuation into the advertising. To generate different advertising ideas for different users through AI tools, and realize the advertising

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**Figure 1.** Application of Computer and Information Technology in Brand Management.
ideas of thousands of people, so as to increase the clicks ratio of advertising and enhance the brand awareness. Secondly, it is needed to consider building an algorithm based on the best frequency of advertising exposure to avoid the consumer’s aversion to the brand caused by too frequent accurate information push. Thirdly, the consumers’ data should be encrypted to prevent the brand crisis caused by the leakage of consumer data privacy.

3.3. Improve brand efficiency

In the future, the competition of brands may focus on algorithms, computing power and big data. Enterprises should introduce more scientific algorithms, more powerful computing power, and build a more complete big data structure in brand management. These advantages are the guarantee for the brand to obtain higher output and achieve higher efficiency in the future.

With the popularity of 5G and IoT, brand touch points will increase exponentially. Enterprises should have the ability to integrate, connect, analyze and process the data of all brand touch points, so as to increase the accuracy of brand decision-making.

In addition to improving the ability of marketing data management, enterprises can also use more advanced AI technology tools to track and filter invalid traffic, reduce advertising cheating, and improve the return on investment (ROI) of brand advertising.

4. Conclusion

The progress of computer and information technology has brought about the change of enterprise management. The application of AI, big data and other technical tools in the field of marketing makes the decision-making of brand management more scientific and ensure the brand to reach the right consumers at the right time with the right message. In the future, the computer and information technology represented by AI and big data will become the key tools to formulate and implement the brand strategy, and play an increasingly important role in the brand management of enterprises[6].

Acknowledgements

The project of this paper is 2018 Provincial Philosophy and Social Sciences project, NO. GD18XGL52.

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