

# Using Artificial Intelligence Generated Content Technology to Promote High-Quality Development of Guangzhou's Customized Home Furnishing Industry

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## ABSTRACT

AIGC (Artificial Intelligence Generated Content), or generative AI, utilizes deep learning and natural language processing, trained on vast datasets, to produce content that resembles human language. This represents a shift in content creation from human-driven to machine-driven, significantly enhancing content generation's efficiency and accuracy. With the AIGC market in China predicted to reach significant values by 2023 and 2028, Guangzhou, a hub for custom home furnishing with over half of the top companies, is undergoing a transformative upgrade. The integration of AIGC in this sector aligns with new trends, demands, and opportunities, providing strategic support for high-quality development.

## KEYWORDS

AIGC, Custom Home Furnishing Industry, Innovation, Competitiveness, Strategic Initiatives, Digitalized Ecosystem

## 1. INTRODUCTION

### 1.1. Trends and Prospects: AIGC Empowers Transformation and Upgrading Across Thousands of Industries

Xiangyu Li(2023)concluded that the future development prospects of AIGC are vast, focusing primarily on the following aspects: optimizing data preprocessing and enhancement, constructing interpretable models, improving model generalization ability, leveraging distributed computing resources, achieving multimodal data fusion, and ensuring privacy and security during model training. China is poised to shape a distinctive model for AIGC development through effective supervision and legislation, balancing innovation and business opportunities with sustainable risk management to realize AIGC's potential successfully.

In 2022, AIGC will develop rapidly, and the iteration speed will show exponential growth, and platform giants such as Google, Meta, and Baidu will continue to deploy. In 2023, the continuous upgrading of ChatGPT applications has demonstrated the potential of AIGC and injected new vitality into the development of AIGC technology. AIGC has taken the lead in making major innovations and developments in industries with a high degree of digitalization and rich content demand, such as media, film and television, and entertainment, and its potential is gradually emerging[1].

The AIGC model, which integrates large models and multimodal technologies, has gradually become a new technology platform, deeply empowering thousands of industries. From the basic AIGC model, to the vertical, customized, and personalized model tools in the middle layer, to the endless AIGC

products and services in the downstream, the AIGC industry ecology is accelerating its formation and development.

At the same time, the importance and support for the AIGC industry in China has also become increasingly apparent, and relevant policies have been introduced recently. In April 2023, the Cyberspace Administration of China (CAC) drafted the Administrative Measures for Generative AI Services (Draft for Comments). From May to June 2023, the four regions of Beijing, Shanghai, Shenzhen and Chengdu have successively issued documents, proposing specific measures to support the development of large models for the core elements and key links of industrial development such as computing power, algorithms, applications, and supervision, and the technical and business environment for the development of general artificial intelligence in China will be further optimized. In June 2023, the General Office of the State Council issued the 2023 Legislative Work Plan of the State Council, and the Artificial Intelligence Law has been included in the legislative plan. AIGC is in the early stage of development, and regulatory compliance and new technology development complement each other, effectively guiding "technology for good" and escorting the subsequent development of AIGC[2].

AIGC is in the prime phase of its development, and this trend is expected to accelerate further in the coming years. According to the forecast of Yiou think tank, in 2023, nearly half of domestic enterprises (46.5%) will have the basic environment to apply AIGC. At the same time, the investment of domestic enterprises in AIGC is also growing rapidly. It is estimated that by 2023, this investment scale will reach 61.46 billion yuan, and by 2027, it will further increase to 145.66 billion yuan.

In the future, the "AIGC+" model will show its unique value in a wider range of fields. Whether it is light industry, textile and garment, biomedicine and other consumer goods industries, or emerging e-commerce, online education, games and other industries, they will all benefit from the application of AIGC to improve production efficiency, improve service quality and enhance innovation capabilities.

It is worth noting that the home furnishing industry will become an important application field for AIGC. According to the prediction of the "2023 China Smart Home (AIoH) Development White Paper", by 2025, the overall penetration of AI technology in smart homes will be close to 50%, indicating that the home furnishing industry has huge potential and broad space to apply AIGC to promote the high-quality development of the industry.

## **1.2. Research purpose and importance of this paper**

This article explores how Artificial Intelligence Generated Content (AIGC) technology can revolutionize Guangzhou's customized home furnishing industry. It emphasizes AIGC's potential to enhance efficiency, innovation, and competitiveness across design, production, operation, and marketing. The research underscores Guangzhou's leading role in AI development and outlines strategic initiatives taken by industry players to integrate AIGC. It also provides policy recommendations to support AIGC adoption and development, aiming to create an enabling environment for innovation and growth in the sector. Overall, the study highlights AIGC's transformative impact and offers practical insights for industry stakeholders.

## **2. CURRENT STATUS AND ADVANTAGES: AIGC UNLEASHES NEW VITALITY FOR HIGH-QUALITY DEVELOPMENT IN THE CUSTOM HOME FURNISHING INDUSTRY.**

Ying Zhao(2023)proposed AIGC technology promotes the development of the metaverse, offering immersive experiences and personalized content in sectors such as culture, education, healthcare, and industry, driving the advancement of the digital economy. Particularly in the realm of virtual humans, generative AI enhances services with greater intelligence, automation, and personalization,

improving human-computer interaction. Looking ahead, innovative breakthroughs in metaverse-related technologies will further propel growth in the digital economy .

Yi Luo(2023)proposed AIGC technology has brought profound impacts to the fields of art, design, and education. As technology continues to advance, we need to adapt to new technological environments while safeguarding traditional skills and teaching methods. Although AI-driven design is progressing, human designers' innovative thinking is still needed to avoid the risk of design homogenization. In design education, prioritizing critical and creative learning and adopting intelligent, collaborative, and personalized teaching methods are crucial. Design education needs to undergo transformation and innovation to adapt to the changes of the AIGC era.

From a national point of view, whether it is the government or enterprises, Guangzhou is at the forefront of the development of artificial intelligence, and has the advantage of common upgrading of industrial clusters. According to a report released by the Prospective Industry Research Institute, from 2018 to 2021, Guangzhou's comprehensive level of artificial intelligence was among the top ten in the country, and in 2021, it ranked seventh in the country. In terms of the custom home furnishing industry, among the top five custom home furnishing companies in the world, Guangzhou occupies the third, with a brand value of about 60 billion yuan; There are 11 core listed companies in the country for customized home furnishings, and Guangzhou accounts for 5. In 2022, the revenue of Guangzhou's custom home furnishing industry will be 194.450 billion yuan, a year-on-year increase of 1.02%.

Guangzhou attaches great importance to the development of the artificial intelligence industry. The "Three-Year Action Plan for the High-Quality Development of Guangzhou's Artificial Intelligence Industry Chain (2021-2023)" issued in October 2021 proposes to make up for the shortcomings of artificial intelligence scenarios. With advanced manufacturing and other application fields as the traction, strengthen the construction of artificial intelligence application demonstration scenarios[3].

In this context, although the development of "AIGC + customized home" in Guangzhou is in its infancy, the growth rate is relatively fast, and as of the end of June 2023, 10 companies have used AIGC for intelligent manufacturing. As more home furnishing companies begin to use AIGC technology, Guangzhou's "AIGC+ Custom Home" will maintain a strong momentum of development and further consolidate its leading position in the global custom home furnishing industry. .

Guangzhou is the birthplace of China's custom home furnishing and industrial cluster highland, and more than half of the top 30 custom home furnishing companies in the country are concentrated in Guangzhou and surrounding cities. Driven by AIGC technology, Guangzhou's custom home furnishing industry is undergoing a deep transformation and upgrading. In order to better adapt to the new trend, new requirements and new opportunities of "AIGC+", Guangzhou should vigorously promote the integration of AIGC and the custom home furnishing industry, and provide strategic support for the high-quality development of the custom home furnishing industry in Guangzhou.

## **2.1. Design is a key driver for the continuous growth of custom home furnishing businesses.**

Y Liu(2023) delves into the opportunities and challenges that artificial intelligence (AI) technology presents to the field of design, proposing a key competency model for designers in the AI era. Opportunities include optimizing design processes, expanding design inspiration and domains, enriching design content and output, and enhancing design efficiency and quality. Challenges and ethical considerations encompass issues such as capability substitution and unemployment, intellectual property ownership and protection, data security and privacy, transparent communication and real-time feedback, diversity and bias avoidance, social morality and ethical norms, universality, and social equity. Finally, the author introduces a competency wheel for future design literacy, comprising seven critical abilities: subtle perception, boundless imagination, keen insight, forward-looking decision-making, systemic planning, hybrid computing, and holistic creativity. This study

provides valuable insights into the exploration of AI-driven design paradigms and the evolution of designer competencies in the future.

The application of AIGC technology not only reduces the cost and barriers to custom home design but also enhances creativity and quality[4]. Guangzhou's custom home furnishing businesses are progressively integrating AIGC technology, leveraging vast data to stimulate designers' inspiration with modular and matrixed design templates. Companies like Guangdong 3D Home Tech have launched AI inspiration tools, generating creative and artistic images from keywords, addressing variability in designers' skills. Sofia Home Furnishings employs AIGC for holistic design solutions, achieving a high reuse rate of quality designs. In May 2023, Guangzhou Shangpin Home Delivery introduced a multi-modal AIGC model, driving the custom home furnishing industry towards a collaborative innovation ecosystem with AI Design tools, simplifying the design process and reducing reliance on individual designer capabilities. By the end of June 2023, leading companies, in collaboration with Hangzhou Qunhe Technology, will initiate an integrated efficiency revolution in home design manufacturing centered around AIGC.

## **2.2. Production and Operation End: Responding to Market Demand, Achieving Intelligent Production**

AIGC technology has bridged the gap between design and production in the custom home furnishing industry in Guangzhou, promoting the scale production of personalized orders.

The 3D vectorized product data generated by 3D Home's AIGC technology is automatically converted into output formats and uploaded to the cloud through the entire data chain, laying the foundation for intelligent scheduling.

Shangpin Home Delivery is accelerating its layout in other application scenarios besides design. By innovatively integrating AIGC capabilities such as AI writing, AI drawing, and AI Q&A, it has deepened the development of new functions such as VR showroom intelligent presentation, design disassembly and production intelligent parameterization, and BIM whole-house intelligent deepening, becoming the first enterprise in the domestic custom home furnishing industry to achieve multi-end integration of AIGC functions.

Oppein Home Group Co., Ltd. and Digital Grand jointly launched the CAXA Home Design Software, creating a new working mode for wardrobes (CAXA+MTDS), achieving high integration of software and intelligent design, and promoting the construction of intelligent home design platforms. It has connected the design, sales, quotation, drawing, ordering, back-end order review, order contract, production docking, and delivery and installation processes, reducing the threshold for design and quotation experience of store personnel and significantly improving sales and order acceptance capabilities. This has reduced the number of personnel in intermediary processes by half, directly creating benefits exceeding 100 million yuan.

## **2.3. Marketing End: Analyzing and Mining Consumer Interests to Implement Precision Marketing**

Thomas Taylor(2023)proposed The main discussion revolves around the importance of trustworthy artificial intelligence in corporate work practices and culture, as well as the responsible principles to be followed in designing and developing AI products. Microsoft has proposed the "Responsible AI Six Principles" and recommends that other AI operators adopt similar approaches[5]. However, relying solely on internal brainstorming within companies may not suffice, as developers find it challenging to anticipate all potential impacts and defects of AI tools in advance. Therefore, some companies have opened up certain functionalities of AI tools to the public to explore potential issues more extensively. Additionally, governance issues associated with virtual humans combined with

AIGC are addressed, highlighting the risks associated with virtual human technology and proposing technical solutions to enhance the credibility of virtual humans.

Duo Du(2023)summarizes a study on how AI-generated content (AIGC) impacts consumer engagement in advertising. It explores the increasing use of AIGC in marketing due to AI advancements, aiming to understand its influence on consumer engagement. Through online experiments and MLR analysis, the study finds that AIGC positively affects both psychological and behavioral engagement, with psychological engagement mediating the relationship. Emotion level and explicit labeling of AIGC ads also play significant roles.

In the sales process, Shangpin Home Delivery upgraded its "Understand You" intelligent solution display, which organizes solution images intelligently, adds text to solution materials intelligently, and optimizes the presentation format of solutions, allowing designers to save time and focus on core design service work, thereby assisting in efficient negotiations and increasing the success rate of transactions.

3D Home's "Intelligent Eye Smart Investment," as the national comprehensive agent of ByteDance's Quark Engine, not only helps enterprise customers accurately acquire traffic but also uses the CID attribution system. Customer order data can be fed back to the advertising delivery system for data analysis, helping businesses better optimize advertising spending and effectively increase ROI by 70%. In addition, its 3D Show utilizes AIGC technology to achieve intelligent layout recognition, match the entire home space, and smart lighting on mobile devices, generating high-definition full-house renderings. By integrating generative AI into product placement scenes and mobile rendering scenes, it assists top custom home furnishing companies in marketing.

### **3. COUNTERMEASURES AND RECOMMENDATIONS: EMPOWERING HIGH-QUALITY DEVELOPMENT OF CUSTOM HOME FURNISHING INDUSTRY WITH AIGC**

#### **3.1. Promoting Policy Formulation and Strengthening Financial Support**

Promote the formulation and implementation of policies related to AIGC. At the policy level, reference can be made to relevant policies such as the "Draft Measures for the Management of Generative Artificial Intelligence Services (for Solicitation of Opinions)" drafted by the Cyberspace Administration of China, to provide clear guidance and norms for the application of AIGC in Guangzhou's custom home furnishing enterprises. Additionally, drawing on the experiences of Beijing, Shanghai, Shenzhen, and Chengdu, specific measures should be proposed for core elements and key links in the development of the industry, such as computing power, algorithms, applications, and regulation, to support the development of Guangzhou's custom home furnishing enterprises in AIGC applications. Furthermore, establish special funds to reward and support custom home furnishing enterprises with outstanding performance in AIGC applications. Through financial support, help custom home furnishing enterprises address potential issues they may encounter in AIGC applications[6].

#### **3.2. Expanding AIGC Application Scenarios and Promoting Digitization Transformation of the Industry Chain**

Actively explore more application scenarios of AIGC technology in the custom home furnishing industry, such as digital office, information security and strategy, new scenario digital services, supply chain and production, data intelligence and governance, etc. Utilize AIGC technology to improve operational efficiency, reduce costs, enhance product quality and service levels, and promote the digitization transformation of the industry chain.

### **3.3. Cultivating Demonstration Projects and Providing Training Support**

Select and cultivate some representative custom home furnishing enterprises to carry out demonstration projects of AIGC applications in the Guangzhou custom home furnishing industry. Promote in-depth cooperation between custom home furnishing enterprises, research institutions, and technical service providers to enhance the "smile curve" of the custom home furnishing industry. Meanwhile, collaborate with research institutions and technical service providers to provide training and technical support for enterprises in AIGC technology, enhancing enterprises' AIGC technology level and application capabilities.

### **3.4. Activating Consumer Potential and Promoting Consumption Growth**

Pay attention to the role of AIGC technology in activating consumer potential and actively explore and promote new models of AIGC + custom home furnishing. Through AIGC intelligent design tools and algorithms, reduce product design costs and barriers, promote consumer demand for personalized custom products, and promote new business models such as online and offline integration and new consumption based on social networks and new media. Encourage custom home furnishing enterprises to optimize marketing strategies using AIGC technology, accurately grasp consumer needs, and provide personalized products and services[7].

### **3.5. Establishing Industry Standards and Establishing Industry Norms**

Establish unified standards and norms to enhance the interoperability of the industry and promote the overall coordinated development of the industry. Support the Guangzhou custom home furnishing industry in creating open-source general large models based on domestic and foreign chips and algorithms, and use this as the basis to set AIGC application standards. For example, application specifications in custom home furnishing design, production, and sales processes. Secondly, set AIGC regulatory standards to ensure that the application of AIGC in the custom home furnishing industry complies with regulatory requirements.

## **4. CONCLUSION**

In conclusion, the advancement of Artificial Intelligence in Generalized Computing (AIGC) holds immense promise for the custom home furnishing industry, offering unprecedented opportunities for innovation, efficiency, and growth. By promoting policy formulation, strengthening financial support, and expanding AIGC application scenarios, custom home furnishing enterprises can unlock new avenues for digital transformation and operational enhancement. Moreover, cultivating demonstration projects, providing training support, and activating consumer potential are crucial steps in harnessing the full potential of AIGC technology. Establishing industry standards and norms further ensures the responsible and effective integration of AIGC into the custom home furnishing sector, fostering interoperability and compliance with regulatory requirements. Overall, by embracing AIGC technology and implementing strategic initiatives outlined in this paper, custom home furnishing enterprises can position themselves at the forefront of industry innovation, driving sustainable growth and competitive advantage in the digital era.

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