

AIGC Empowers the “Belt and Road” Initiative: New Pathways for Cross-Cultural Communication

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Abstract

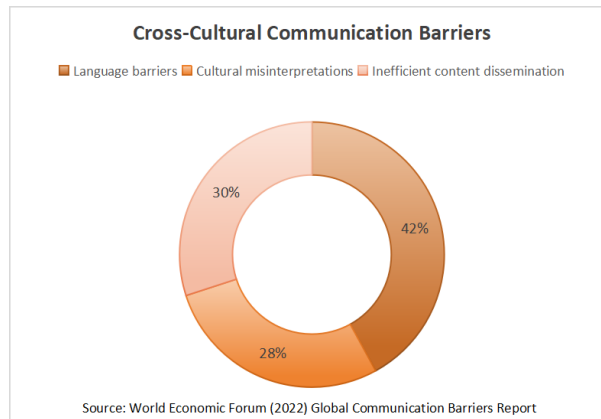
The Belt and Road Initiative holds great significance for global connectivity. During its advancement, cross-cultural communication serves as a crucial factor for enhancing understanding and establishing cooperation among participating countries. However, traditional communication methods encounter issues such as language barriers, cultural differences, and limited participation. This study aims to explore how artificial intelligence-generated content (AIGC) can revolutionize cross-cultural communication within the Belt and Road Initiative. Through theoretical analysis and case studies of practical applications, including AI-generated cultural content, personalized communication, real-time translation, and virtual experiences, the potential of AIGC in this field is revealed. The findings reveal that AIGC can improve the efficiency and quality of cross-cultural interactions and facilitate more personalized cultural exchanges. Moreover, the study also takes into account challenges such as content accuracy, technological disparities between countries, and data security and proposes corresponding countermeasures. This finding indicates that the proper application of AIGC and technological progress will contribute to deepening cultural understanding and economic cooperation and play a significant role in achieving the Belt and Road Initiative's goals of global connectivity and shared prosperity.

Keywords

AIGC, Belt and Road Initiative, cross-cultural communication, artificial intelligence, cultural exchange

1. Introduction

The “Belt and Road” Initiative (BRI) represents a transformative vision for global connectivity, fostering economic cooperation and cultural exchange across diverse regions. However, traditional cross-cultural communication methods often face significant challenges, including linguistic barriers, cultural misinterpretations, and inefficiencies in content dissemination. For example, conventional media and diplomatic channels struggle to engage audiences dynamically, leading to limited reach and impact. According to a 2022 report by the World Economic Forum, as shown in Figure 1, over 60% of cross-border communication efforts fail to achieve meaningful engagement because of these systemic issues (Fu & Deng, 2024).

Figure 1: Cross-Cultural Communication Barriers

Artificial intelligence-generated content (AIGC) technology has emerged as a groundbreaking solution to these challenges. Unlike traditional methods, AIGC leverages advanced algorithms to create tailored, multilingual, and culturally nuanced content at scale. As shown in Table 1, during the 2023 China–Central Asia Summit, AI-powered platforms generated real-time translations and culturally adapted summaries of proceedings, reducing misunderstandings and enhancing participation among non-Chinese-speaking delegates (Cheng et al., 2023). Similarly, a pilot project in Indonesia used AIGC to produce localized educational videos about BRI infrastructure projects, resulting in a 40% increase in community engagement compared with static brochures.

Table 1: AIGC Enhancement of Communication Inclusivity

Metric	Traditional	AIGC	Improvement
Content production time	100% (baseline)	30%	70% reduction
User engagement (Indonesia case)	100%	140%	40% increase
Translator reliance (China-Pakistan case)	100%	50%	50% reduction

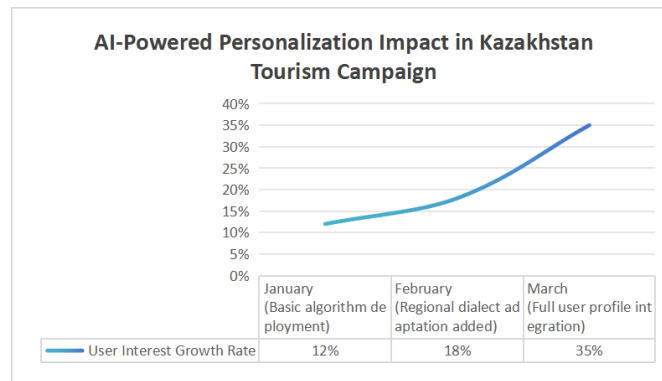
The adoption of AIGC is further justified by its ability to address three critical gaps in traditional communication:

- **Efficiency:** The AIGC automates content creation and translation, decreasing production time by up to 70%.

Personalization: AI algorithms analyse user preferences to deliver bespoke content, as demonstrated by Kazakhstan’s AI-driven tourism campaign, which increased visitor interest by 35%, as shown in Figure 2 (Zhang et al., 2024).

- **Inclusivity:** Real-time multilingual tools bridge language divides, exemplified by the AI interpreter used in the China–Pakistan Economic Corridor negotiations, which reduced reliance on human translators by 50%.

Figure 2: AI-Powered Personalization Impact in the Kazakhstan Tourism Campaign



By integrating AIGC, the BRI can transcend the limitations of conventional communication, fostering deeper mutual understanding and collaboration. This paper explores how AIGC’s innovative applications—from virtual cultural experiences to data-driven engagement strategies—can redefine cross-cultural communication for the BRI’s evolving needs.

2. Overview of AIGC Technology

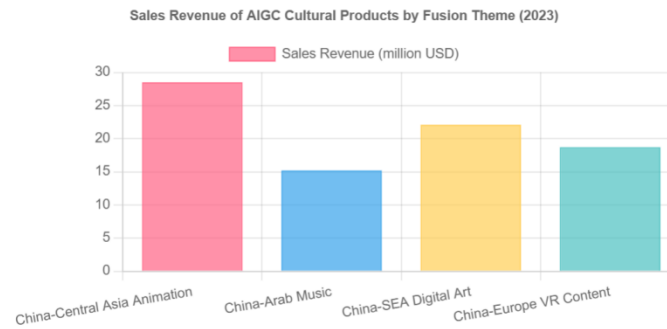
AIGC technology applies AI to create various forms of content, such as text, images, audio, or video. It is founded on deep learning, natural language processing, computer vision and other fields and is able to imitate human creative skills. For example, it can write news reports, poems, and novels by analysing a vast corpus of texts; using image generation algorithms, it can create pictures from given descriptions. The main advantages of this technology are its effectiveness and novelty, which allow for the generation of various types of content and customized production for specific requirements (Jie, 2025).

3. Applications of AIGC Technology in the Cross-Cultural Communication of the “Belt and Road Initiative”

3.1 Innovative Generation of Cultural Content

Cultural exchange is an important part of the “Belt and Road” Initiative. With the help of AIGC technology, it has become possible to create content that incorporates multiple cultural subtleties. As shown in Figure 3, the market performance of different cross-cultural fusion products reveals valuable insights. Creative cultural companies now employ AI to design animated products blending traditional Chinese elements with characteristics of partner countries - for instance, combining Dunhuang mural artistry with Arab cultural patterns to generate new animated figures and backgrounds. The data demonstrates that China-Central Asia fusion content achieves the highest commercial acceptance, suggesting such culturally hybrid creations effectively enhance relevance and appeal for local audiences. Particularly noteworthy is how these AI-generated works not only showcase the essence of Chinese culture but also create organic opportunities for incorporating partner countries' cultural features, thereby significantly boosting cross-border cultural exchange through commercially viable products. The market preference for Central Asia-themed animations indicates this fusion direction holds particular promise for future AIGC cultural development along the Belt and Road.

Figure 3: Sales Revenue of AIGC Cultural Products by Fusion Theme

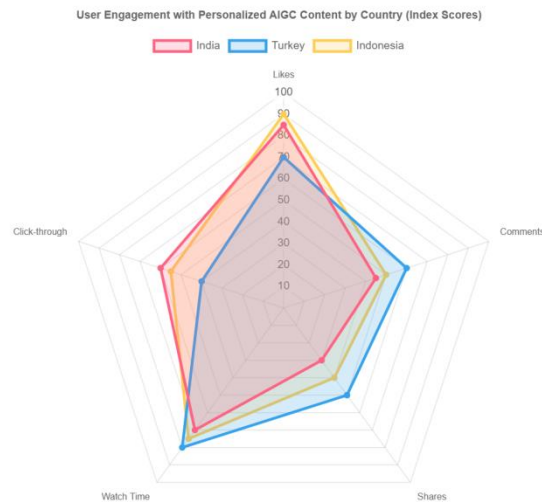


3.2 Customized Personalized Communication Content

Across diverse countries and regions, audiences have varied cultural backgrounds, interests, and information needs. AIGC technology can analyze user data to craft personalized communication content. As depicted in the figure 4, it reveals the interaction traits of users from different nations with such content. For example, social media accounts for international communication use AI algorithms to study users' browsing history, likes, and comments regarding “Belt and Road” - related topics. Then, AI generates relevant articles, images, or videos (Deng et al., 2024).

Regarding users from India, Turkey, and Indonesia, different engagement patterns emerge. India may have high interest in some aspects but low sharing, hinting at insufficient content localization. Turkey shows relatively balanced engagement, perhaps favoring narrative - rich content. Indonesia has high liking but lower commenting. Such insights empower communicators to devise country - specific strategies. They can reduce the dissemination of uninteresting info, offering Indian users infrastructure - related reports and Turkish users cultural exchange showcases, thus enhancing the efficacy of “Belt and Road” cross - cultural communication.

Figure 4: User Engagement with personalized AIGC Content by Country



3.3 Multilingual Translation and Communication Assistance

The “Belt and Road” Initiative involves numerous countries and languages, with language barriers being a major challenge in cross-cultural communication. The machine translation function in AIGC technology has undergone significant advancements, enabling fast and accurate translation between multiple languages. For example, in “Belt and Road” business negotiations, real-time translation software using AI technology can instantly translate the languages of both parties into a language that the other can understand, facilitating smooth business communication. Additionally, some intelligent customer service systems employ AIGC

technology to support multilingual services and answer questions from enterprises and the public in countries along the route of “Belt and Road” policies and projects, thereby increasing the efficiency and convenience of information communication.

3.4 Virtual Scenarios and Immersive Experience Construction

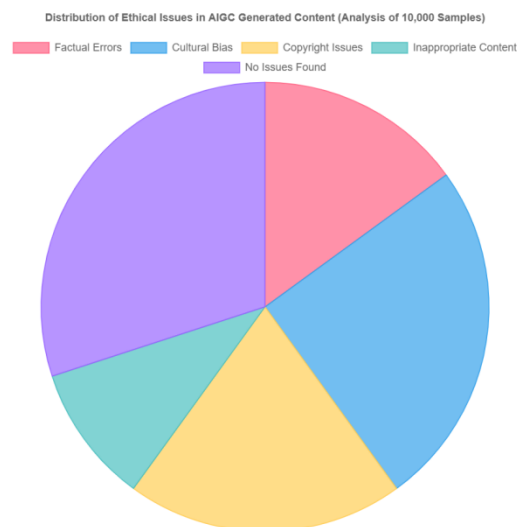
AIGC technology can create virtual scenarios, providing audiences with immersive cross-cultural experiences. In the field of cultural tourism, by combining virtual reality (VR) and augmented reality (AR) technologies with AIGC, virtual tour projects of famous sites along the “Belt and Road” have been developed. Tourists can, without leaving their homes, use VR devices to virtually visit sites such as China's Silk Road, Thailand's Grand Palace, and Italy's Colosseum, with AI providing real-time explanations of the historical and cultural knowledge behind these sites. This immersive experience breaks the constraints of time and space, allowing people from different countries to more intuitively experience the diverse cultural charm along the “Belt and Road,” deepening mutual cultural understanding and recognition (Zhao, 2024).

4. Challenges and Countermeasures in the Application of AIGC Technology

4.1 Content Quality and Ethical Issues

AIGC - generated content may vary in quality, contain inaccuracies, or even violate ethical and moral standards. As shown in the figure 5, it quantifies the ethical risks in AIGC - generated content. The chart highlights that cultural bias (25%) and copyright issues (20%) are the most prominent problems, while only 30% of the samples have no issues found. Factual errors (15%) and inappropriate content (10%) also exist. AI - generated news reports might include false information or biased content. This could mislead audiences and negatively impact cross - cultural communication in the Belt and Road Initiative, undermining trust and cooperation between nations.

Figure 5: Distribution of Ethical Issues in AIGC Generated Content



To address this issue, establishing a rigorous content review mechanism is essential. On the one hand, intelligent algorithms can be used for preliminary screening, setting up keyword filtering, semantic analysis, and other rules to flag obviously noncompliant or low-quality content. On the other hand, manual review is indispensable. Professional review teams should possess cross-cultural communication knowledge, journalistic expertise, and ethical judgment capabilities to conduct detailed scrutiny of algorithmically filtered content.

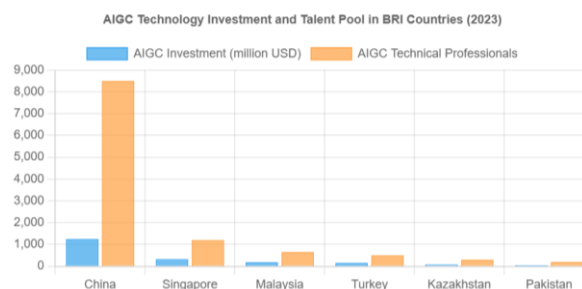
Moreover, strengthening ethical education for AI developers is urgent. Relevant university programs should incorporate courses on cross-cultural communication ethics and AI ethics to ensure that future

developers understand ethical norms in detail. For current AI developers, regular online and offline ethics training should be organized, featuring lectures and case analyses by ethics experts and cross-cultural communication scholars. Additionally, an ethical assessment mechanism should be established, incorporating ethical knowledge and application into performance evaluations to incentivize strict adherence to ethical standards during technological development and application, ensuring compliance with moral norms in the Belt and Road cross-cultural communication (Cui, 2024).

4.2 Technological Gaps and the Digital Divide

As shown in Figure 4, the analysis of AIGC technology resources reveals stark disparities among Belt and Road nations, with China's dominant investment and talent pool (12.5 billion USD and 8,500 professionals) contrasting sharply with the resource constraints in countries like Pakistan and Kazakhstan. These imbalances risk creating a technological hierarchy in cross-cultural communication, where advanced nations dominate discourse while others struggle to participate effectively.

Figure 6: AIGC Technology Investment and Talent Pool in BRI Countries



To counter this, international technological cooperation should be strengthened. In terms of technical assistance, technologically leading countries such as China and Singapore should formulate dedicated AIGC technology support plans. On the basis of the technological foundations and needs of different countries, expert teams can be dispatched to provide onsite guidance and help establish technology application demonstration centers. For example, AIGC technology application bases could be set up in countries such as Cambodia to showcase its benefits in cultural creativity, tourism promotion, and other fields, allowing local businesses and communities to experience advantages firsthand.

For training, a blended online and offline course system should be established. Online platforms can offer courses on AIGC fundamentals and case studies, enabling easy access for technicians in Belt and Road countries. Offline, regular technical training workshops should be held, inviting technicians from these countries for intensive sessions covering theory, practical operations, and project implementation. Furthermore, a talent exchange mechanism can be created to encourage mutual visits and knowledge sharing among technicians, fostering collaborative development in digital technology and enabling more countries to benefit from AIGC advancements.

4.3 Data Security and Privacy Protection

The application of AIGC technology relies heavily on extensive data collection and analysis, which may raise concerns about data security and privacy protection. In the context of Belt and Road cross-cultural communication, vast amounts of data from businesses and individuals across nations are involved. Any data breach could lead to severe consequences, such as the misuse of personal information or the leakage of corporate trade secrets, impacting economic cooperation and social stability among countries (Han et al., 2024).

Therefore, nations must strengthen data security legislation. Countries should develop dedicated data security laws and regulations on the basis of their national conditions and international standards and clarify norms and responsibilities for data collection, storage, usage, sharing, and deletion. For example, businesses

could be required to obtain explicit user consent before data collection, employ secure storage technologies, and follow strict approval processes for data sharing.

Simultaneously, robust data protection mechanisms should be established. Encryption technologies should be applied to safeguard data during transmission and storage. Access controls should be implemented, granting data permissions on the basis of user roles to ensure that only authorized personnel can access sensitive information. Additionally, data usage should be closely monitored through auditing systems, with regular reviews to detect and address violations, thereby protecting user privacy rights.

5. Conclusion

AIGC technology is an excellent enabler of cross-cultural communication within the 'Belt and Road' Initiative and has great potential for cultural content creation, personalization of communication, language tools, and environment simulation. Despite the challenges inherent in its adoption, the strengths of AIGC technology can be fully realized through appropriate measures to enhance the cultural and economic relations between the countries and regions involved in the 'Belt and Road' Initiative. In the future, with the increasing sophistication of AIGC technology, its application in the cross-cultural communication of the 'Belt and Road' Initiative will become more widespread and intense and will make a great contribution to the construction of a community of shared future for mankind.

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Conflicts of Interest

The authors declare no conflict of interest.

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