THE APPLICATION OF ARTIFICIAL INTELLIGENCE GENERATED CONTENT (AIGC) TECHNOLOGY FOR COMMERCIAL PHOTOGRAPHY

Zhang Jian Chao[1], Asst. Prof. Dr. Chamroen Khangkhasri[2], Dr. Puripat Kaewtathanawattan[3]

[1]Faculty of Communication Arts, Rambhai Barni Rajabhat University

Corresponding Author E-mail: zhangjianchao.rbru@gmail.com

[2,3]Lecturer, Faculty of Communication Arts, Rambhai Barni Rajabhat University

Abstract

This mixed-methods research investigated the application and impact of Artificial Intelligence Generated Content (AIGC) technology within commercial photography. The study utilized quantitative surveys (326 participants) and qualitative in-depth interviews (15 key informants in major economic cities of China) to examine AIGC's effects on creative processes and image quality. The quantitative results revealed that a high percentage of respondents (87.1%) strongly agreed that AIGC significantly accelerated idea generation, and participants estimated that AIGC reduced typical project workflow time by 30-60%. Crucially, 81.0% of respondents disagreed that AIGC could entirely replace human creativity, highlighting its role as a supplementary tool. While participants noted significant advantages in cost efficiency and productivity, over half (52.4%) indicated that AIGC-generated images still lacked the authenticity and emotional depth of traditional photography. The research confirms that AIGC is not a replacement but an effective tool that enhances efficiency. The study concludes that the role of the commercial photographer is transforming from a hands-on practitioner into a creative director who strategically leverages AI tools while preserving the irreplaceable human elements of artistic sensibility and emotional understanding.

Keywords: *Artificial Intelligence Generated Content, commercial photography, media innovation*

Introduction

The rapid advancement of Artificial Intelligence Generated Content (AIGC) technology (Wu et al., 2023) has initiated a major revolution in digital content creation, fundamentally transforming commercial photography workflows, artistic expression, and cost structures. The global AIGC market is projected to expand significantly, underscoring its potential to redefine the industry. Recent studies indicate that professional photographers anticipate industry changes due to AI, viewing automation as a system that enhances creativity and elevates work standards. This shift moves the focus from replacement to capability expansion. However, AIGC introduces significant challenges, including ethical concerns, potential employment impacts, and the "authenticity gap" in visual communication. This research bridges theory and practice by comprehensively analyzing both the opportunities and challenges of AIGC, proposing strategic

approaches for stakeholders to maximize technological potential, mitigate risks, and maintain a competitive advantage in the digital era.

Research Objectives

1. To examine AIGC technology's effects on creative processes and commercial photography quality

2. To study approaches for integrating AIGC technology with commercial photography workflows.
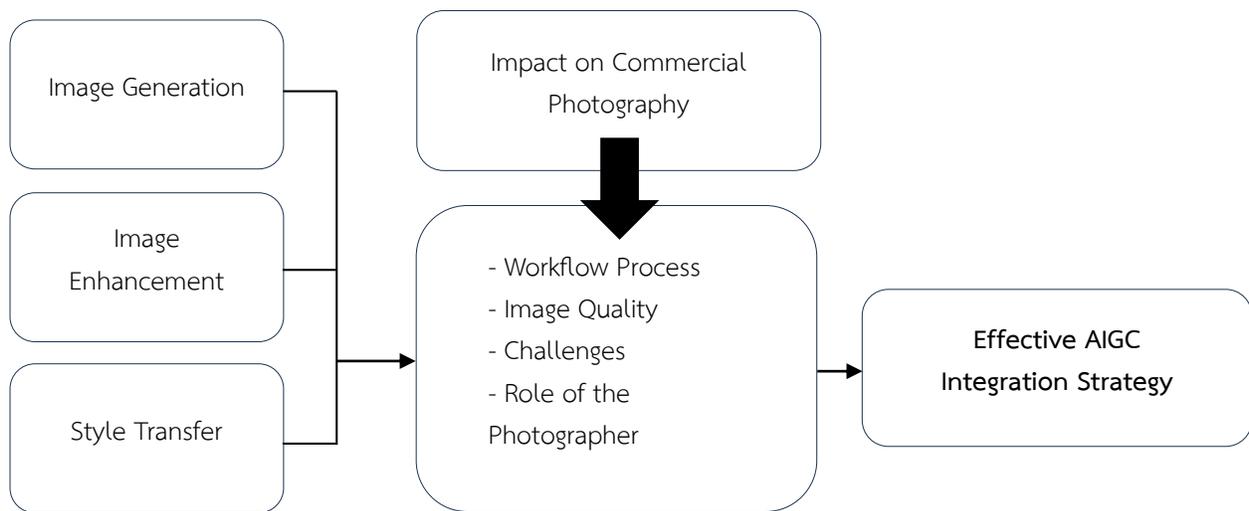
Conceptual Framework

Figure 1: Research Conceptual Framework for The Application of Artificial Intelligence Generated Content (AIGC) Technology for Commercial Photography

Literature Review

This review synthesizes key concepts across Artificial Intelligence Generated Content (AIGC), technology management, and creative theory. AIGC is defined as the process of creating digital content using AI and machine learning (Wu et al., 2023). It differs from Professional and User Generated Content by automatically producing new content from learned patterns (Li et al., 2023a). The evolution of AIGC, moving from early models to Transformer Architecture and Large Language Models (Cao et al., 2023; Genspark, 2024), utilizes technologies such as Generative Adversarial Networks (Goodfellow et al., 2014) and Diffusion Models. Its transformative impact spans industries, leveraged in commerce for visual merchandising (Chen et al., 2025; Guo et al., 2024; Li et al., 2025). Critically, AIGC raises legal and ethical issues concerning copyright and intellectual property (Financial Times, 2025; QUT Law, 2025).

Effective Technology Management, defined as coordinating people and technology (Emerald Insight, 2007), structures the adoption of AIGC. The Five-Process Framework—Identification, Selection, Acquisition, Exploitation, and Protection (Stanley & Davis, 2006)—provides a structure for evaluating and implementing AIGC tools. AIGC can significantly enhance the Preparation and Verification stages, acting as a thinking partner to rapidly generate ideas in line with Human-centered Design principles (Rutter et al., 2024). The use of generative AI in photography is shifting the human role from manual creator to conceptual director and curator of machine-assisted creativity (Logis, 2024). Studies confirm that adoption is influenced by perceived usefulness, trust, and creative control (Liu & Wang, 2024).

Commercial Photography is work created for business purposes to communicate brand information (Walton, 2023; Falmouth University, 2023), employing Analogical and Indexical symbols for persuasion (Messaris, 1997). Effective images are governed by perceptual principles outlined in the Color-Composition-Perception model. Integrating AIGC into commercial photography, particularly in e-commerce, represents a strategic innovation that transforms production efficiency and visual communication strategy (Sriarun, 2025; Issaraporn, 2024). This structural change necessitates examining how these powerful tools are managed within established creative and business practices.

Research Methodology

The population consisted of commercial photographers, advertising companies, and AIGC technology developers/providers. Using Taro Yamane's formula (N=2,000, 95% confidence, 0.05 margin of error), the required sample size was 334. Ultimately, 326 valid questionnaires were obtained and analyzed using statistical software to examine AIGC's effects on creative processes and commercial photography quality. For the qualitative component, In-depth interviews were conducted with 15 key informants selected through purposive sampling, comprising three groups: (1) Commercial photographers (minimum 3 years' experience, used AIGC in the past 12 months); (2) Project managers in advertising companies; and (3) AIGC technology developers and service providers. Data were analyzed using a thematic analysis approach. The coding process involved open coding to identify initial concepts, followed by axial coding to group them into five main themes: AIGC application in workflows, impacts on efficiency and time, impacts on creativity and quality, cost/resource reduction, and human roles in the AIGC era. The research was conducted across major Chinese economic and marketing cities, covering the period 2019–2024.

Research Results

Quantitative Research

Demographic analysis revealed that 55.8% of respondents were female, with the majority (42.3%) aged 21-30 years, followed by 31-40 years (33.7%). Regarding education, 92.1% held bachelor's degrees or higher, with 66.0% holding bachelor's degrees and 26.1% holding master's degrees. Professionally, 53.7% were commercial photographers, 36.8% were advertising industry personnel, and 9.5% were AIGC technology developers/providers.

Regarding AIGC's impact on creative processes, 87.1% of respondents agreed that AIGC helped generate ideas quickly (46.0% strongly agreed, 41.1% agreed). Similarly, 68.1% agreed that AIGC-generated images could create new inspiration. However, 81.0% disagreed that AIGC could completely replace human creativity (48.8% strongly disagreed, 32.2% disagreed), confirming that AIGC was viewed as an effective supplementary tool rather than the primary creator.

Concerning quality and efficiency impacts, respondents strongly agreed that AIGC offered advantages in cost (87.4% agreement, mean 4.41) and suitability for efficiency-focused work (88.9% agreement, mean 4.34). AIGC significantly increased work efficiency (82.2% agreement, mean 4.22) and reduced redundant work in image editing (67.5% agreement, mean 3.92). However, regarding authenticity, 52.4% indicated that AIGC images still lacked realism and emotion compared to traditional photography (mean 3.09, S.D. 1.34), showing the highest opinion variation among all topics.

Qualitative Research

Qualitative interviews provided deeper insights into AIGC's integration and impact. AIGC application in workflows was found to be most beneficial in the planning and presentation phases (pre-production and pitching), where it rapidly created mockups and concept examples, reducing trial-and-error and increasing client decision confidence. AIGC also aided post-production tasks like background retouching. Practitioners estimated AIGC saved over 50% of total time and costs in these two phases, although they maintained that actual photography was essential for image authenticity and emotion.

In terms of efficiency and time impacts, interviewees reported AIGC reduced overall work time by 30-60% per project, particularly in planning and retouching, enabling faster delivery and allocating more time for creative focus. Experts' views on creativity and quality impacts positioned AIGC as an assistant creating inspiration that diversified ideas and unlocked previous limitations. However, they consistently observed that AI-generated images often felt overly perfect and lacked emotional depth, making them unsuitable for work requiring communication of human emotion or authentic atmosphere. This limitation echoes external research on AIGC's challenges with data inaccuracy and quality inconsistency (UTCC, 2023; ETDA, 2023).

The findings on cost and resource reduction confirmed that AIGC significantly lowered costs for set design, location rental, equipment, and redundant labor, allowing businesses flexibility in presenting multiple ideas without escalating expenses. Interviewees considered AIGC software a valuable long-term investment for sustainable competition and growth. The discussion on human roles in the AIGC era revealed a necessary transformation: photographers' future roles will shift from hands-on practitioners to concept designers and Creative Directors, focusing on storytelling, client brief interpretation, and emotional understanding. Essential future skills include accurate prompt writing, design thinking, data analysis, creativity, storytelling, ethics/legal knowledge related to AI, and cross-functional collaboration. Adaptation approaches recommended gradual learning, establishing clear AI usage policies covering copyright and

ethics, and viewing AI as a partner to focus on advanced creative thinking for sustainable career development.

Research findings clearly demonstrated that AIGC played a significant role as a supplementary tool promoting and stimulating creative processes for photographers and related personnel. This discovery aligned with fundamental AIGC concepts regarding its key characteristic of novelty capability and ability to efficiently produce creative and useful content, particularly in rapid idea generation and serving as new inspiration sources. This reflected AIGC's distinctive feature of processing large-scale data to automatically create new content (Li et al., 2023b).

The research revealed important AIGC technology limitations that could not completely replace human creativity, confirming the concept that AIGC remained merely a highly efficient supplementary tool rather than the primary creator. Furthermore, AIGC-generated images still had limitations in authenticity and emotional communication compared to actual photographs. These limitations aligned with challenges mentioned in various research regarding quality and reliability issues where AIGC might create inaccurate or non-existent information (hallucination) (UTCC, 2023), quality inconsistency (ETDA, 2023), and lack of emotional dimensions crucial for business communication.

Conversely, this research confirmed AIGC's outstanding advantages in cost and efficiency, consistent with research by Chen et al. (2025) and Guo et al. (2024) who developed AIGC models for creating product backgrounds for commerce and e-commerce, significantly reducing studio time and costs. This discovery also connected with research by Li et al. (2025) demonstrating AIGC application potential in large-scale commerce for cost reduction and business operation efficiency enhancement.

In-depth interview findings revealed diverse and efficient AIGC application approaches, consistent with practical research showing AIGC implementation in various production phases, especially in pre-production or planning and presentation phases, enabling clients to see mockups and examples quickly and clearly. Additionally, post-production applications helped reduce redundant work and increase efficiency, such as retouching and various image adjustments. These application approaches aligned with AIGC usage in other industries such as media and entertainment, which significantly reduced production costs and human labor (AIGC White Paper Excerpt, 2022).

The research confirmed the transformation of commercial photographers' roles from hands-on practitioners in all phases to Creative Directors or concept designers with creativity and clear vision. This role transformation aligned with Logis's (2024) study examining Generative AI's impact on advertising photographers' creativity and emerging roles when photographers adopted AIGC in work processes, reflecting systematic skill and role transitions in the industry. This transformation did not mean photographers would become obsolete but rather elevated them to creative thought leaders with more powerful tools.

Discussion

The findings clearly demonstrate that AIGC functions as a supplementary tool rather than a comprehensive replacement for human creativity. While technology significantly accelerates workflows by 30-60%, the study reveals a critical trade-off between efficiency and emotional resonance. Specifically, 52.4% of respondents questioned the "soul" and authenticity of AI-generated images, a sentiment that aligns with visual communication theories suggesting AI lacks the lived experience necessary to encode complex human emotions. This limitation creates an "uncanny valley" effect where images are aesthetically pleasing but emotionally hollow (Kirk & Givi, 2025). Consequently, the role of the photographer shifts from a hands-on "craftsman" to a "Creative Director," where value lies in conceptualization, prompt engineering, and ethical curation (Logis, 2024). However, these findings must be interpreted within the specific context of the Chinese commercial photography industry, which benefits from a unique digital ecosystem and high receptiveness to innovation. Comparative studies (e.g., Kim et al.) suggest that Chinese audiences may be more open to AI content than those in the West; therefore, generalizing these results to cultural contexts with different artistic traditions or regulatory environments requires caution

Conclusion

This research comprehensively investigated AIGC technology application in commercial photography through mixed methods, revealing that AIGC served as an effective supplementary tool significantly impacting creative processes, work efficiency, and cost structure, while possessing limitations in authenticity and emotional communication that actual photography better conveyed. The findings demonstrated that AIGC reduced work time by 30-60% per project, particularly in planning and post-production phases, while 87.1% of respondents agreed AIGC accelerated idea generation, though 81.0% disagreed it could completely replace human creativity.

The research identified commercial photographers' role transformation from hands-on practitioners to Creative Directors requiring new skill development including prompt engineering, design thinking, data analysis, storytelling, and ethics and AI-related legal knowledge. Successful future adaptation would depend on balancing technology utilization with maintaining human uniqueness and individual creativity. The study provided valuable recommendations for photographers, entrepreneurs, and policymakers to prepare for upcoming industry changes.

Based on research findings, recommendations included: (1) For industry, individuals and organizations should seriously learn and master AIGC technology as a creative aid tool rather than replacement, combine AIGC advantages with traditional photography, and establish standardized workflows integrating AIGC into planning and editing phases; (2) For regulations and ethics, establish clear copyright ownership policies protecting both creators' and technology providers' rights, set industry standards controlling AIGC-generated content accuracy and usage scope to prevent misuse, and promote technology education reducing concerns and misunderstandings about AIGC among practitioners; (3) For future research, expand research scope to other countries and regions for more universal conclusions,

explore AIGC application effects in other creative fields such as fashion photography and photojournalism, and monitor AIGC technology evolution and long-term impacts on commercial photography industry development.

References

Aftershoot. (2025, May 1). *Photography industry trends 2024: What's shaping the future?* https://aftershoot.com/blog/photography-industry-trends/

AIGC White Paper Excerpt. (2022). *Artificial Intelligence Generated Content (AIGC) White Paper Excerpt.* Interpret. https://interpret.csis.org/translations/artificial-intelligence-generated-content-aigc-white-paper-excerpt/

ArtSmart AI. (2024, November 15). *AI in photography: Revolutionizing the industry.* https://artsmart.ai/blog/ai-in-photography-statistics/

Cao, Y., Li, S., Liu, Y., Yan, Z., Dai, Y., & Yu, P. S. (2023). *A comprehensive survey of AI-generated content (AIGC): A history of generative AI from GAN to ChatGPT.* arXiv preprint arXiv:2303.04226. https://doi.org/10.48550/arXiv.2303.04226

Chen, Y., Zhao, K., Li, Q., & Zhang, J. (2025). *Paid framework: Product-centered advertising design system with diffusion models.* Journal of Advertising Research.

Emerald Insight. (2007). *Technology management.*

ETDA. (2023). *AI-Generated Content: AIGC.* Electronic Transactions Development Agency. http://www.etda.or.th/th/Useful-Resource/Knowledge-Sharing/Articles/AIGC.aspx

Falmouth University. (2023). *What is commercial photography?* https://www.falmouth.ac.uk/news/what-commercial-photography

Financial Times. (2025). *Copyright and intellectual property concerns in the age of generative AI.*

Fortune Business Insights. (2023). *AI image generator market size, share & industry growth 2030.* https://www.fortunebusinessinsights.com/ai-image-generator-market-108604

Genspark. (2024). *The development history of AI-generated content (AIGC).* https://www.genspark.ai/spark/the-development-history-of-ai-generated-content-aigc/669587c5-879d-45d9-9441-48cb8df3e78d

Goodfellow, I. J., Pouget-Abadie, J., Mirza, M., Xu, B., Warde-Farley, D., Ozair, S., Courville, A., & Bengio, Y. (2014). *Generative adversarial networks.* Advances in Neural Information Processing Systems, 27. https://arxiv.org/abs/1406.2661

Guo, Y., Zhang, L., & Wang, Y. (2024). *Product2IMG: Prompt-free e-commerce product background generation with diffusion models.* In ACM Multimedia. https://doi.org/10.1145/3664647.3680753

Issaraporn, S. (2024). *Effects of generative AI on digital content creation and human authorship in marketing agencies.* Journal of Thai Digital Media.

Kim, J., et al. (2025). AI, human or a blend? How the educational content creator influences consumer engagement. Journal of Services Marketing.

Kirk, C. P., & Givi, J. (2025). Artificial intelligence and emotional engagement in marketing: A framework. Journal of Marketing Theory and Practice.

Li, B., Bai, Y., Zhan, X., Wang, X., & Zhao, Y. (2023a). *The technical features and aomorphosis of artificial intelligence generated content (AIGC).* Documentation, Information & Knowledge, 40(1), 66–74. https://doi.org/10.13366/j.dik.2023.01.066

Li, M., Tang, T., Zhang, S., & Wu, X. (2023b). *The conceptual and comparative analysis of AIGC vs. PGC and UGC.* Journal of Digital Content Studies.

Li, X., Guo, Q., & Zhang, Y. (2025). *Revolutionizing e-commerce with personalized AI-generated items (AIGI).* arXiv:2503.22182.

Liu, Y., & Wang, S. (2024). *Factors influencing creative professionals' acceptance of AIGC tools.* Springer.

Logis, D. (2024). *Generative artificial intelligence and creativity of photographers in advertising in France.* ResearchGate. https://doi.org/10.13140/RG.2.2.23967.78248

Messaris, P. (1997). *Visual persuasion: The role of images in advertising.* SAGE Publications.

QUT Law, Technology and Justice Journal. (2025). *The legal status of AI-generated works: A comparative analysis of US and Chinese jurisprudence.*

Rutter, S., Roper, S., & Lettice, F. (2024). *Empowering design innovation using AI-generated content.* Journal of Engineering Design. https://www.tandfonline.com/doi/full/10.1080/09544828.2024.2401751

Sriarun, C. (2025). *The impact of AI on digital branding and marketing strategies in the Thai market.* Southeast Asian Journal of Marketing.

Stanley, J., & Davis, K. (2006). *Communication systems: Course book.* Wadsworth.

Studio EFEF. (2024). *AI in product photography.*

UTCC. (2023). *Challenges and drawbacks of AI in the workplace.* University of the Thai Chamber of Commerce. https://cce.utcc.ac.th/blogs/challenges-and-drawbacks-of-ai-in-the-workplace/

Verified Market Research. (2025, May 28). *Artificial intelligence generated content (AIGC) market size, share.* https://www.verifiedmarketresearch.com/product/artificial-intelligence-generated-content-aigc-market/

Walton, S. (2023). *Full guide to commercial photography.* iPhotography. https://www.iphotography.com/blog/commercial-photography/

Wu, J., Gan, W., Chen, Z., Wan, S., & Lin, H. (2023). *AI-generated content (AIGC): A survey.* arXiv preprint arXiv:2304.06632. https://arxiv.org/pdf/2304.06632v1

Zenfolio. (2025, April 16). *Report overview from the 2025 state of the photography industry survey.* https://zenfolio.com/blog/state-of-the-photography-industry-2025/