

# FRAMEWORK OF CHINESE TRADITIONAL RESIDENTIAL BUILDING DECORATIONS FOR THE SUSTAINABILITY OF CHINESE CULTURE IN CULTURAL AND CREATIVE INDUSTRIES

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#### **ABSTRACT**

Culture supports the achievement of multiple sustainable development goals. Promoting the sustainability of Chinese culture could make a positive contribution to global sustainable development. Chinese traditional residential building decorations (TRBDs) are carriers of Chinese culture. This study is part of a large-scale research project exploring the relationship between Chinese traditional residential building decoration culture and the development of the cultural and creative industries (CCIs). It aims to explore the application of Chinese traditional residential building decorations for the sustainability of Chinese culture in CCIs using a systematic literature review method. This paper elucidates the latest research progress on CCIs, Chinese TRBDs, and the sustainability of Chinese culture. Subsequently, through a cross-analysis method, this paper proposes a framework for CCIs to use traditional Chinese residential building decorations to promote cultural sustainability. The framework advocates exploring the cultural genes within traditional Chinese residential building decorations to foster the synergistic effects of the economy, society, culture, and technology within CCIs. This approach is expected to promote innovation in content, technology, and culture within CCIs while bringing economic and social benefits and enhancing the protection and innovation of Chinese culture.





**Keywords:** Residential building, Decorations, Sustainability, Chinese culture, Cultural industries

## INTRODUCTION

As a collection of unique spiritual, material, intellectual, and emotional characteristics of society or social groups, culture, in all its diverse forms, supports the sustainable development of the economy, environment, and society (UNESCO, 2017). Scholars agree that the sustainable development of culture is a primary condition for achieving other sustainable development goals since the achievement of sustainability goals fundamentally depends on human thoughts, actions, and behaviors, and these are rooted in culture (Loach & Rowley, 2022; Osman, 2022; Palang et al., 2017; Soini & Dessein, 2016). Chinese civilization is the only one among the "Four Ancient Civilizations" that has maintained historical continuity (Li. Deshun. 2016). As a unique spiritual symbol of the Chinese nation, Chinese culture includes profound insights into the philosophy of life, a unique grasp of natural and social order, enduring and profound literary and artistic works, and outstanding achievements in technological innovation (Zhong, 2024). Promoting the sustainable development of Chinese culture has positive significance for the realization of global sustainable development goals. For example, China's concept of "harmony with nature" aligns with the core requirements of current social and environmentally sustainable development (C. Fang et al., 2020).

Globalization has brought about cultural integration and collision, driving the development of cultural and creative industries (CCIs) in various countries, making it an important force to promote economic growth and enhance cultural exchange and dissemination (Kalfas et al., 2024; Liang & Wang, 2020). Previous studies demonstrated that cultural and creative industries (CCIs) centered around cultural heritage play a prominent role in promoting the sustainable development of traditional culture (Chen & Sharul Azim Sharudin, 2024). These industries link tangible and intangible cultural heritage with end consumers, supporting the preservation and advancement of traditional culture in contemporary times. They achieve this through heritage conservation, promoting cultural exchange and identity, inspiring business innovation, and driving economic growth (Gumulya et

al., 2023; X. Li et al., 2020; L. Zhang & Hong, 2022).

Traditional residential buildings (TRBs) are an important component of China's architectural and cultural heritage. As symbols of "historical memory" and "chains of urban cultural development," traditional residential buildings carry on the continuity and changes of a nation or region's history, society, and culture (Formolly & Saraei, 2024; Fu et al., 2021). Architectural decoration is a significant part of Chinese traditional residential culture. The Chinese traditional residential building decorations (TRBDs) have evolved over thousands of years, encompassing diverse traditional folk handicraft techniques and artistic forms (Qiao, 2019). It not only reflects the unique way of life, values, folk beliefs, and aesthetic consciousness of local people but also embodies the creative view rooted in traditional Chinese culture, embodying the diverse yet unified characteristics of Chinese culture (Lu & Zhao, 2020). Therefore, exploring Chinese TRBDs could help promote the sustainable development of Chinese culture.

Despite the extensive attention paid to the integration of Chinese cultural heritage and the CCIs in many studies and practices, these studies mainly focus on the protection and utilization of specific architectural heritage. The literature lacks a comprehensive exploration of applying Chinese traditional residential building decorations (TRBDs) in cultural and creative industries (CCIs) from the perspective of cultural sustainability. Therefore, this study employs systematic literature review synthesis to address the following questions:

- 1. What is the core role of the cultural and creative industries (CCIs)?
- 2. What are the cultural components of Chinese traditional residential building decoration (TRBDs) that contribute to the cultural and creative industries (CCIs)?
- 3. How to promote the sustainability of Chinese culture through cultural and creative industries (CCIs) of Chinese traditional residential building decorations (TRBDs)?

# **METHODOLOGY**

Drawing on the work of Wu et al,. (2024), this study conducted a review of selected literature on three research questions: the cultural and creative

industries (CCIs), Chinese traditional residential building decorations (TRBDs), and the promotion of Chinese cultural sustainability.

This study systematically reviewed the major contributions of existing studies in each defined theme and how these studies laid the groundwork for future research. It critically evaluated aspects within each selected area that need further refinement and enhancement. The outcomes of this work will generate comprehensive information to offer highly probable solutions. The paper concludes by proposing potential integrated solutions for future development in applying Chinese traditional residential decorations (TRBDs) in cultural and creative industries (CCIs) to promote the sustainability of Chinese Culture.

This study selected the Science Direct and Web of Science databases for literature screening because these two databases cover multiple academic fields. At the same time, the journals in these two databases have undergone rigorous academic review, ensuring the academic quality and reliability of the literature. Six keywords were used in the literature screening process: traditional Chinese architectural decoration, traditional Chinese dwellings, traditional Chinese decoration, cultural and creative industries, sustainability of Chinese culture, and sustainable Chinese culture. These keywords were combined using the "OR" operator. After removing duplicate entries, the initial search yielded a total of 1,036 articles. Subsequently, inclusion and exclusion criteria were established based on the research objectives, and the literature was manually screened.

The selection of literature employed the following inclusion and exclusion criteria: All the literature, including research papers and review articles, was written in English. Studies that weren't about cultural sustainable development, like economic and policy studies, weren't included in the literature on CCIs. Studies that weren't about heritage culture and traditional architectural decoration, like studies on architectural layout and space, weren't included in the literature on TRBDs. And in the literature on promoting Chinese cultural sustainability, studies that weren't about CCIs, like studies on political support for culture, weren't included in the literature. A secondary selection was conducted by reading the abstracts, as it was challenging to judge some articles solely based on their titles. Additionally, by examining the references of existing articles, the "snowball" technique

was used to find new sources of information (Badampudi, D et al., 2015). Ultimately, the review included 57 articles out of 1036. Figure 1 illustrates the flowchart of the literature review methodology.

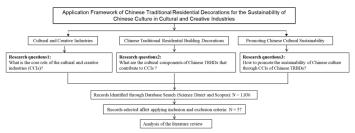


Figure 1. Flowchart of The Systematic Literature Review Synthesis Process Source: Author, 2025

## RESULTS AND ANALYSES

# **Cultural and Creative Industries for Culture Development**

The concept of CCIs can be traced back to the 1980s, when sociologist Bernard Miège first proposed the notion of "cultural industries," describing industries that integrate industrialization and new technologies to innovate and develop culture in a commercialized manner (Hesmondhalgh, 2007). In 1988, the UK government officially introduced the concept of the creative economy. Economist John Howkins outlined it as creative activities expressed through arts, culture, or innovation (Howkins, 2001). With technological advancements and shifts in the cultural and creative markets, the concept of CCIs has replaced the singular notion of cultural industries. UNESCO categorizes organizations primarily engaged in the production, reproduction, promotion, marketing, and distribution of goods, services, and activities stemming from cultural, artistic, and historical heritage as cultural and creative industries (Cano et al., 2000). This encompasses six core domains: cultural and natural heritage, performing arts and celebrations, visual arts and crafts, books and periodicals, media and design, and creative services (UNESCO, 2009). The combination of cultural, innovative, and commercial capabilities is recognized as the core characteristic of these industries (Kalfas et al., 2024).

Over the past decade, researchers, policymakers, and stakeholders worldwide have conducted extensive studies on the CCIs. Firstly, utilizing cultural industries for economic development is a common feature in many countries around the globe. This includes transforming cultural capital into potential economic capital through product innovation, innovation in the industry, facilitating cross-border cooperation, and providing employment opportunities (Schiuma & Lerro, 2014; Faraone, 2022). In turn, these developments help foster creativity and technological innovation (Corral & Unesco, 2000). Data show that, despite the global economic crisis in 2008, between 2005 and 2015, the CCIs generated \$225 billion in revenue and 29 million jobs globally, contributing 3% to global GDP (Lhermitte et al., 2015). Compared to other industries, CCIs have shown higher resilience during the COVID-19 pandemic (Stock & Stock, 2024). In addition, studies have demonstrated that the development of CCIs can contribute to the advancement of sustainable social development (Gustafsson & Lazzaro, 2021). For example, the cultural heritage industry could enhance cultural identity by presenting an image of the culture and history of a country, or region, and promoting the sharing and dissemination of culture among consumers (Zhang et al., 2020). This helps to improve understanding of different cultures and promote cultural inclusiveness (Arizpe & Lourdes, 2000). At the same time, the development of culturally representative industries and products could nurture citizens' identity, sense of belonging, and social values in innovative ways (Gustafsson & Lazzaro, 2021). Therefore, CCIs also have an outstanding contribution to promoting social cohesion and preserving cultural heritage (Borre et al., 2023; Kalfas et al., 2024).

The above studies have demonstrated the crucial role of the CCIs in economic, social, and cultural sustainable development, as well as the mutually supportive relationships between them. In general, cultural industries promote economic growth through cultural and creative capital, which in turn drives cultural innovation, fostering creativity, technology, and cultural diversity (Faraone, 2022; Gustafsson & Lazzaro, 2021; He & Zhang, 2022; Yang et al., 2020). However, the impact of CCIs on the sustainable development of local cultures is not always positive. As described by Zhao et al. (2022), cultural innovation and collisions can also alter and dilute the authentic core values and spirit of local cultures. Previous studies have largely focused on comprehensive analyses and assessments of CCI cases,

with a lack of in-depth exploration in the literature on how CCIs could maintain traditional cultural sustainability.

Corral & UNESCO (2000) and Zhang et al. (2020) argue that economic and social sustainability serve as the foundation for the sustainable development of culture. Economic support provides necessary resources and platforms for cultural inheritance, while social identity enhances the influence and acceptance of culture, enabling traditional culture to thrive in modern society. Additionally, based on Jiang et al. (2021), this study suggests focusing on the cultural educational function of the cultural and creative industries and exploring the feasibility of integrating cultural industries with national education to enhance the overall cultural literacy of the nation, thereby increasing public understanding and awareness of traditional culture. Furthermore, Dadan et al. (2023) posit that cultural genes represent inheritable and identifiable cultural information formed in specific geographical and cultural environments. They include concepts of symbolic semantics, vocabulary, context, and their evolution and development. These genetic symbols serve the functions of cultural representation and identity expression (M. Li et al., 2022). Therefore, based on Deng et al. (2022), Chen & Sharul Azim Sharudin, (2024), and Y. Zhao, (2023), this study recommends exploring cultural genetic symbols from a semiotic perspective. Various fields of cultural and creative industries can apply these symbolic systems to promote cultural transmission, communication, and interpretation through symbol representation, thereby enhancing the cultural competitiveness of these sectors.

In summary, this section concludes that cultural and creative industries could integrate key functions of the economy (promoting cross-border cooperation, providing employment opportunities, and fostering creativity and technological innovation), society (enhancing national education and social cohesion, protecting cultural heritage), and culture (identification of genetic symbols) to promote cultural development (exhibition, transmission, exchange, interpretation, and identification).

# **Cultural components of Chinese traditional residential building decoration (TRBDs)**

The term 'traditional residential buildings (TRBs)' is commonly

defined as civilian dwellings constructed by artisans in the past using local materials and used for residential purposes. Professional designers or architects did not participate in the construction of these indigenous, spontaneous, folk, and traditional buildings (Wang & Chiou, 2020). Chinese TRBs have undergone thousands of years of historical evolution and are the crystallization of the wisdom of the Chinese people's long-term interaction with nature (Fu et al., 2021; Xu et al., 2024). Architectural decoration plays a crucial role in Chinese TRBs, serving both decorative and aesthetic functions while also reflecting their core cultural values (Qiao, 2019; Song & Liao, 2023).

In cultural studies, scholars typically divide culture into three systems: tangible (material) culture, behavioral (institutional) culture, and intangible (spiritual) culture (Fang & Li, 2022; Leong & Clark, 2003). Existing studies demonstrated that Chinese TRBDs integrate the attributes of both material and intangible cultural heritage, forming a unique cultural system comprised of material culture, behavioral culture, and spiritual culture (Qiao, 2019). As shown in Table 1.

Table 1. Cultural System of Chinese Traditional Residential Building Decorations

Cultural system	Detail
Material culture	Architectural structures, patterns, shapes, colors, and materials
Behavioral culture	Traditional crafts, Design philosophies, Construction experience, Social and cultural norms
Spiritual culture	Beliefs, Aesthetics, Values, and Stories

Source: Author, 2025

According to Table 1, the material culture is the foundational layer of TRBDs, consisting of various tangible and perceptible elements. It is the most direct manifestation of Chinese TRBD's culture and includes decorative architectural structures, patterns, shapes, colors, and materials. Behavioral culture represents the intermediate layer, encompassing various traditional crafts, design philosophies, construction experience, and related social and cultural norms. Spiritual culture is the core layer, including the cultural connotations, beliefs, aesthetics, stories, and values embedded in these decorations (Li et al., 2024; Song & Liao, 2023; Yang & Gui, 2020). For example, Figure 2 illustrates that the protective railing on the walls of the residential building is crafted using traditional brick carving techniques. This

railing serves both decorative and safety purposes, while also contributing to the roof's waterproofing function. The decoration employs relief techniques, and the design reflects the compositional features of Chinese patterns. The motifs include elements such as orchids, gourds, and incense burners, each symbolizing auspiciousness and blessings.



Figure 2. Qiao's Compound, Qi County, Shanxi Province Source: Qiao, (2019)

Previous studies demonstrated that Chinese TRBDs exhibit diverse cultural characteristics due to variations in time and geography (L. Li et al., 2020; W. Li et al., 2024). At the same time, these cultures are rooted in the Chinese worldview of "harmony between humans and nature," reflecting the common traits inherent in the genes of Chinese civilization. For example, the patterns, colors, and materials embody an ecological view of harmony with nature and a moderate and peaceful aesthetic. Traditional craftsmanship showcases techniques and wisdom, and through implicit symbolic language, it expresses aspirations and wishes for a better life (Qiao, 2019; Sun, 2024; Knapp, R. G., 1999). Therefore, Chinese TRBDs reflect the unity and diversity of Chinese culture. However, existing research mainly focuses on the cultural characteristics of TRBDs in specific regions and their heritage, lacking an in-depth exploration of traditional residential decoration culture from the overall perspective of Chinese culture.

According to Chen & Sharul Azim Sharudin (2024) and Qiu (2023), this study proposes to explore Chinese cultural features in Chinese TRBDs from the behavioral and spiritual dimensions, including traditional crafts, design philosophies, construction experience, social and cultural norms, aesthetics, values, stories, and customs. These elements could provide rich creative themes for different CCIs and inspire innovative thinking to enhance consumers' perceptions of the value of Chinese culture and create a sense of local identity. For example, Ying et al. (2024) demonstrate that the unique

attributes of intangible cultural heritage embedded in e-commerce live broadcasts, such as captivating narratives, consumer interactions based on intangible cultural heritage, and the construction of culturally characteristic scenes, all contribute to enhancing consumers' perceptions of the quality of cultural and creative products. This aligns with consumers' psychological expectations of the products, thereby increasing their willingness to purchase. Moreover, this study suggests a systematic analysis and synthesis of the forms, colors, and material characteristics of Chinese TRBDs from an external, tangible perspective. The study aims to delve into visual symbols that represent unique aspects of Chinese culture. Innovative integration of these visual symbols with modern technology could yield more appealing cultural and creative products. These products could enhance consumer engagement and interest, thereby increasing the perceived value of the products and promoting consumers' cultural identification with them (Yin et al., 2024; B. Zhang et al., 2023) Furthermore, based on Wei & Si (2017), Rong & Bahauddin (2023) and Ren (2021), this study recommends exploring the Chinese traditional values reflected in the Chinese TRBDs from the perspective of spiritual culture. These values could enrich the cultural connotations of CCIs and inspire innovation within them. Lastly, Deng et al. (2022) and Leong & Clark (2003) say that this study calls for a thorough look at the cultural roots of traditional Chinese residential architecture on three different cultural levels. This gives designers of modern cultural and creative products a solid theoretical base and new ways to use these roots in practice. This would endow the industry with profound emotional connotations and facilitate the transformation of valuable traditional cultural assets into economic and social benefits (Leong & Clark, 2003).

In summary, this section concludes that analyzing material culture (architectural structures, patterns, shapes, colors, and materials), behavioral culture (traditional crafts, design philosophies, construction experience, social and cultural norms), and spiritual culture (beliefs, aesthetics, values, and stories) from Chinese traditional residential building decorations (TRBDs) to explore Chinese cultural genes contributes to inspire innovation (technological innovation, thinking innovation, content innovation) in cultural and creative industries (CCIs), and enhances their cultural competitiveness (disseminate Chinese culture values, create local and cultural identity, enrich emotional experience).

# **Promoting Sustainability of Chinese Culture**

In the 2030 Agenda for Sustainable Development, the United Nations clearly states the importance of culture in sustainable development (UN, 2015). In recent years, research on cultural sustainability has covered many areas such as planning, art, heritage, philosophy, and cultural industries (Soini & Dessein, 2016). Scholars agree that the development of cultural and creative industries can protect cultural heritage and enhance cultural vitality through preservation, communication, dissemination, and innovation (Borre et al., 2023; Yin et al., 2024). However, the majority of these studies focus on specific themes, such as tourism and the preservation of built cultural heritage (Gao et al., 2021; Zhang et al., 2020), and the development of cultural and creative products for museums (Gu et al., 2022). Some studies discuss the contemporary translation and innovation of traditional culture from the perspective of industrial transformation, and modern technology (Zhan et al., 2024; Zhang et al., 2023). These studies provide valuable insights into the sustainable development of culture. However, research on how to develop cultural and creative industries to promote the sustainable development of China's outstanding traditional culture is still limited. According to (Soini & Birkeland, 2014), sustainable development of culture includes the maintenance of all core cultural elements that embody a culture's unique identity and character, as well as the question of whether or not these elements will exist in the future. This study focuses on the current as well as future development of Chinese culture, which involves both the preservation and transmission of cultural heritage and the vitality and innovation of culture.

Architectural heritage is a non-renewable resource that is susceptible to being influenced by environmental changes and human factors (Li et al., 2023). For example, erosion and color degradation due to climate change (Phillips, 2015) and destruction of cultural elements due to human intervention during conservation and development (Organ, 2019). These problems can lead to the loss of heritage cultural information. Therefore, the authentic and complete recording of heritage information is particularly important for the preservation and transmission of architectural heritage culture. Based on Calvo-Serrano et al. (2022), Zhong (2024), and Ismail et al (2023), this study recommends exploring the application of modern technology in the identification, acquisition, and management of cultural

elements in TRBDs. Such as using digital technology to analyze and preserve the symbol of TRBDs. Moreover, digital technologies play a beneficial role in enhancing the cultural vitality of heritage. Following the suggestions of Zhang et al. (2023) and C. Li et al. (2019), this study advocates for the integration of modern technology and outstanding traditional cultural genetic symbols in the development and production of cultural creative products, as the utilization of new technologies can enhance individuals' perception of product value, motivating their interest and identification with the product's culture (Zhan et al., 2024; Zhang et al., 2023). Furthermore, Yin et al. (2024) demonstrates that the application of Virtual and Augmented Reality technologies in the tourism sector can assist in introducing and identifying cultural heritage while enhancing sensory experiences. Building on this conclusion, this study proposes exploring the use of AR and VR technologies in the dissemination of China's traditional architectural decorative culture. For example, utilizing virtual technology to convey visually appealing cultural content and introduce the traditional cultural values it embodies. This approach can facilitate the widespread dissemination of culture through educational, entertaining, or aesthetic cultural activities, thereby enhancing people's understanding and appreciation of Chinese culture. Lastly, this study proposes to explore the integration of heritage culture into various other cultural creative industries, drawing on the work of Costa & Carneiro (2021) and Manola & Balermpas (2020). Cultural transformation within these industries can enhance the role of creative industries in communication. education, interpretation, and entertainment.

In summary, this study concludes that to promote the sustainable development of Chinese culture, the CCIs need to integrate new technologies to support the protection and transmission of Chinese TRBDs (analysis, documentation, and preservation) and enhance cultural vitality and innovation (industry convergence, and product innovation) to enrich cultural dissemination channels and improve communication effectiveness, all while ensuring the authenticity, completeness, and readability of the information.

# DISCUSSION ON APPLYING CHINESE TRBDS FOR THE SUSTAINABILITY OF CHINESE CULTURE IN CCIS

This study presents the preliminary literature review results related to the

"cultural and creative industry," "decorative elements of traditional Chinese residential architecture," and "promoting sustainability of Chinese culture." Subsequently, these results will be cross-analyzed and talked about some more to see the pros and cons of different combinations of perspectives and to come up with possible theoretical ideas for future research on how to use Chinese TRBDs to keep Chinese culture alive in CCIs.

Through a cross-analysis of the summaries between CCIs and Chinese TRBDs, this study found that to promote the sustainability of Chinese culture, the cultural and creative industries (CCIs) could explore Chinese cultural genes embedded in traditional residential building decorations (TRBDs), including aspects of material culture, behavioral culture, and spiritual culture. By doing so, CCIs could integrate functions across the economy, society, and culture. Economically, this approach can promote cross-border cooperation and provide employment opportunities. Socially, it could enhance national education, foster social cohesion, and strengthen local and cultural identity. Culturally, it could disseminate Chinese cultural values, enrich emotional experiences, and inspire innovation. These efforts collectively support the exhibition, transmission, exchange, and interpretation of Chinese culture. In addition, through a cross-analysis of the summaries between Chinese TRBDs and promoting sustainability of Chinese culture, this study recommends that utilizing new technologies to analyze, record, and preserve Chinese cultural elements in traditional residential building decorations for the innovation of cultural and creative industries (CCIs)—including technological innovation, conceptual innovation, content innovation, industry convergence, and product innovation—can enhance cultural competitiveness, enrich cultural dissemination channels, and improve communication effectiveness, all while ensuring the authenticity, completeness, and readability of the information. Subsequent, through a cross-analysis of the summaries between CCIs and promoting sustainability of Chinese culture, this study suggests that integrating the economy (promoting cross-border cooperation, fostering creativity and technological innovation), society (national education and social cohesion, protecting cultural heritage), and technologies (Identify and protect cultural genes, product innovation) with cultural and creative industries (CCIs) could promote the sustainability of Chinese culture.

Finally, through further cross-analysis of the above results, this study proposes a theoretical framework for applying Chinese traditional residential building decorations to cultural and creative industries (CCIs) to promote the sustainability of Chinese culture, as illustrated in Figure 3. The framework suggests that by exploring the Chinese cultural genes from Chinese traditional residential building decorations (material, behavioral, and spiritual cultures), CCIs can leverage emerging technologies to protect and innovate these cultural elements to promote a synergistic effect across technology (cultural preservation and product innovation), economy (industry integration and innovation), society (cultural identity and national education), and culture (enriching emotional experiences and inspiring innovation), thereby promoting the protection and dissemination of Chinese culture, enhancing cultural vitality to achieve the sustainable development of Chinese culture.



Figure 3. Theoretical Framework for Applying Chinese Traditional Residential Building Decorations to Cultural and Creative Industries (CCIs) to Promote the Sustainability of Chinese Culture

Source: Author, 2025

# CONCLUSION

This study introduces a method for applying Chinese traditional residential building decorations to the cultural and creative industries to promote the sustainable development of Chinese culture. Through a systematic review of relevant literature, the results propose a potential model for integrating traditional Chinese residential decoration to advance the development of cultural and creative industries aimed at sustainability. This model analyzes the decorative aspects of traditional Chinese residences from the

perspectives of material culture, behavioral culture, and spiritual culture, thereby uncovering the genetic symbols of Chinese culture. Consequently, it will enhance the protection and inheritance of this outstanding culture. The application of emerging technologies to innovate using these genetic symbols can boost the cultural vitality of the industry, facilitate cultural education, communication, and dissemination, and consequently foster societal recognition of China's traditional culture. The study expects this approach to foster the sustainable development of China's excellent traditional culture, enhance the cultural competitiveness of the cultural and creative industries, and contribute to the sustainable development of the economy, society, and culture. This research not only assists in establishing a model for cultural industries that promotes cultural sustainability but also addresses the issue of cultural dilution caused by globalization, while contributing to the protection of cultural heritage. The findings are anticipated to provide valuable guidance on how the cultural and creative industries can promote local sustainable development. The primary limitation of this paper lies in its focus on the application of traditional Chinese architectural decoration within the cultural and creative industries, aiming to promote the sustainable development of China's cultural heritage. However, it does not delve into other factors affecting cultural sustainability, such as the interplay between society, economy, and the cultural and creative industries. Furthermore, all viewpoints are based on a review and synthesis of existing literature, lacking field investigations on traditional Chinese architectural decoration. Future research will incorporate field investigations and design practices to further refine this approach.

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## **AUTHOR CONTRIBUTIONS**

All authors contributed to the design of the research and the write-up. All authors have read and approved the final manuscript.

# CONFLICT OF INTEREST

The authors declare no conflict of interest.

# REFERENCES

- Arizpe, L. (2000). Cultural diversity, conflict and pluralism. *UNESCO*. https://unesdoc.unesco.org/ark:/48223/pf0000121058
- Borre, J. R., Romero, G. C., Gutiérrez, J. M., & Ramírez, J. (2023). Discussion of the aspects of the cultural and creative industries that impact on sustainable development: A systematic review. *Procedia Computer Science*, 224, 532–537. https://doi.org/10.1016/j.procs.2023.09.077.
- Badampudi, D., Wohlin, C., & Petersen, K. (2015). Experiences from using snowballing and database searches in systematic literature studies. *In Proceedings of the 19th International Conference on Evaluation and Assessment in Software Engineering* (pp. 1–10). http://dx.doi.org/10.2139/ssrn.1992601.
- Calvo-Serrano, M. A., Ortiz-Cordero, R., Hidalgo-Fernandez, R. E., Mesas-Carrascosa, F. J., de Paula Montes-Tubío, F., & Triviño-Tarradas, P. (2022). Historical-graphical analysis and digital preservation of cultural heritage: Case study of the baptismal font of the church of Santiago Apóstol in Montilla (Córdoba, Spain). *Heritage Science*, 10(1), 149. https://doi.org/10.1186/s40494-022-00782-7.
- Cano, G. A., Garzón, A., & Poussin, G. (2000). *Culture, trade and globalization: Questions and answers* (Vol. 1, p. 12). UNESCO.
- Chen, Y. & Sharul Azim Sharudin. (2024). Research on the Application of Chinese Traditional Carved Symbols in Cultural and Creative Product Design. *International Journal of Education and Humanities*, 13(2),

- 92–95. https://doi.org/10.54097/55myyy78.
- Corral, M. del & Unesco (Eds.). (2000). *Culture, trade and globalization: Questions and answers.* UNESCO Pub. ISBN :92-3-103748-x, 978-92-3-103748-1.
- Costa, M., & Carneiro, M. J. (2021). The influence of interpretation on learning about architectural heritage and on the perception of cultural significance. *Journal of Tourism and Cultural Change*, *19*(2), 230–249. https://doi.org/10.1080/14766825.2020.1737705.
- Dadan, S., Nugroho, H., & Budiman, C. (2023). The Representation of Identity Politic of Banyumas Culture As a Javanese Sub-Culture in Banyumas Style T-Shirt Design. *Asian Journal of Social and Humanities*, 1(11), 928–935. https://doi.org/10.59888/ajosh.v1i11.109.
- Deng, L., Zhou, F., & Zhang, Z. (2022). Interactive genetic color matching design of cultural and creative products considering color image and visual aesthetics. Heliyon, 8(9), e10768. https://doi.org/10.1016/j. heliyon.2022.e10768.
- Fang, C., Wang, Z., & Liu, H. (2020). Beautiful China Initiative: Humannature harmony theory, evaluation index system and application. *Journal of Geographical Sciences*, *30*(5), 691–704. https://doi.org/10.1007/s11442-020-1750-7.
- Fang, Q., & Li, Z. (2022). Cultural ecology cognition and heritage value of huizhou traditional villages. *Heliyon*, 8(12), e12627. https://doi.org/10.1016/j.heliyon.2022.e12627.
- Faraone, C. (2022). Territorial Challenges for Cultural and Creative Industries' Contribution to Sustainable Innovation: Evidence from the Interreg Ita-Slo Project DIVA. *Sustainability*, *14*(18), Article 18. https://doi.org/10.3390/su141811271.
- Formolly, A., & Saraei, M. H. (2024). Socio-cultural transformations in modernity and household patterns: A study on local traditions housing and the impact and evolution of vernacular architecture in Yazd, Iran. *City, Territory and Architecture, 11*(1), 15. https://doi.org/10.1186/s40410-024-00236-6

- Fu, J., Zhou, J., & Deng, Y. (2021). Heritage values of ancient vernacular residences in traditional villages in Western Hunan, China: Spatial patterns and influencing factors. *Building and Environment*, 188, 107473. https://doi.org/10.1016/j.buildenv.2020.107473.
- Gao, J., Lin, H., & Zhang, C. (2021). Locally situated rights and the 'doing' of responsibility for heritage conservation and tourism development at the cultural landscape of Honghe Hani Rice Terraces, China. *Journal of Sustainable Tourism*, 29(2–3), 193–213. https://doi.org/10.1080/09 669582.2020.1727912.
- Gu, M., Kusumawati Hidayat, I., & Rifqi Novica, D. (2022). The Inheritance and Innovation Value of Cultural and Creative Products of the Palace Museum in Beijing. *KnE Social Sciences*, 157–165. https://doi.org/10.18502/kss.v7i13.11656.
- Gumulya, D., Purba, J. T., Hariandja, E. S., & Pramono, R. (2023). Cultural Product Design as a Key Strategy for Innovation Capability Development: Evidence from Indonesian Creative Social Enterprises. *Archives of Design Research*, *36*(1), 21–41. https://doi.org/10.15187/adr.2023.02.36.1.21.
- Gustafsson, C., & Lazzaro, E. (2021). The Innovative Response of Cultural and Creative Industries to Major European Societal Challenges: Toward a Knowledge and Competence Base. *Sustainability*, *13*(23), Article 23. https://doi.org/10.3390/su132313267.
- He, Y., & Zhang, J. (2022). Branding for the Sustainable Development of Cultural Heritage in Zhejiang Province: 2022 7th International Conference on Financial Innovation and Economic Development (ICFIED 2022), Zhuhai, China. https://doi.org/10.2991/aebmr.k.220307.224.
- Hesmondhalgh, D. (2007). *The Cultural Industries*. SAGE Publication of London. Thousand Oaks, New Delhi and Singapore, 456.
- Howkins, J. (2001). *The creative economy: How people make money from ideas* (2nd ed.). Penguin Press.
- Jiang, L., Zuo, Q., Ma, J., & Zhang, Z. (2021). Evaluation and prediction of the level of high-quality development: A case study of the Yellow

- River Basin, China. *Ecological Indicators*, 129, 107994. https://doi.org/10.1016/j.ecolind.2021.107994.
- Kalfas, D., Kalogiannidis, S., Ambas, V., & Chatzitheodoridis, F. (2024). Contribution of the Cultural and Creative Industries to Regional Development and Revitalization: A European Perspective. *Urban Science*, 8(2), 39. https://doi.org/10.3390/urbansci8020039.
- Knapp, R. G. (1999). *China's living houses: Folk beliefs, symbols, and household ornamentation*. University of Hawaii Press. ISBN 0-8248-1998-5.
- Leong, B. D., & Clark, H. (2003). Culture-Based Knowledge Towards New Design Thinking and Practice—A Dialogue. *Design Issues*, *19*(3), 48–58. https://doi.org/10.1162/074793603768290838.
- Lhermitte, B., Perrin, B., & Blanc, S. (2015). *Cultural times: The first global map of cultural and creative industries*. Retrieved July 26, 2024. https://unesdoc.unesco.org/ark:/48223/pf0000235710.
- Li, C., Cui, Z., Chen, J., & Zhou, N. (2019). Brand Revitalization of Heritage Enterprises for Cultural Sustainability in the Digital Era: A Case Study in China. *Sustainability*, *11*(6), Article 6. https://doi.org/10.3390/su11061769.
- Li, D. (2016). Value orientations of Chinese traditional culture. *In On Chinese culture* (pp. 97–125). https://doi.org/10.1007/978-981-10-0279-3 7
- Li, L., Xu, D., Chen, X., & Fadelelseed, S. (2020). Application of Decoration Culture of Traditional Manchu Residence in Architectural Landscape Design. *Journal of Architectural Research and Development, 4*(1), Article 1. https://doi.org/10.26689/jard.v4i1.1006.
- Li, M., Wang, Y., & Xu, Y.-Q. (2022). Computing for Chinese Cultural Heritage. *Visual Informatics*, 6(1), 1–13. https://doi.org/10.1016/j. visinf.2021.12.006.
- Li, W., Ma, S., Shi, W., Lin, H., Liu, Y., Cui, Y., & Ao, J. (2024). Artistic heritage conservation: The relevance and cultural value of Guangzhou clan building paintings to traditional rituals from a kinship perspective

- through perceptual assessment and data mining. *Heritage Science*, *12*(1), 216. https://doi.org/10.1186/s40494-024-01328-9.
- Li, X., Jiang, H., & Nam, K.-M. (2020). Adaptation in cultural industry under conservation pressure: Case study of two Chinese embroidery clusters. *International Journal of Cultural Policy*, 26(2), 202–222. https://doi.org/10.1080/10286632.2018.1486826.
- Li, Y., Zhao, L., Chen, Y., Zhang, N., Fan, H., & Zhang, Z. (2023). 3D LiDAR and multi-technology collaboration for preservation of built heritage in China: A review. *International Journal of Applied Earth Observation and Geoinformation*, 116, 103156. https://doi.org/10.1016/j.jag.2022.103156.
- Liang, S., & Wang, Q. (2020). Cultural and Creative Industries and Urban (Re)Development in China. *Journal of Planning Literature*, *35*(1), 54–70. https://doi.org/10.1177/0885412219898290.
- Loach, K., & Rowley, J. (2022). Cultural sustainability: A perspective from independent libraries in the United Kingdom and the United States. *Journal of Librarianship and Information Science*, *54*(1), 80–94. https://doi.org/10.1177/0961000621992824.
- Lu, X., & Zhao, N. (2020). Research on Digitalization of Traditional Building Decoration in Guanzhong Based on Internet Environment. 2020 International Conference on Intelligent Design (ICID), 50–54. https://doi.org/10.1109/ICID52250.2020.00019.
- Manola, M., & Balermpas, A. (2020). Souvenirs: Their role in tourism industry, cultural heritage and their utilization in experiential teaching. *Archives of Business Research*, 8(9), Article 8970. https://doi.org/10.14738/abr.89.8970
- Ismail, N. H., Rashidi, N. A. S., Abdul Latip, N. S., & Norwawi, N. (2023). An overview of web development for digital archive of Malaysian cultural heritage. *Malaysian Journal of Sustainable Environment* (*MySE*), 10(1), 319-335. https://doi.org/10.24191/myse.v10i1.21266.
- Organ, S. (2019). The opportunities and challenges of improving the condition and sustainability of a historic building at an international

- tourist attraction in the UK. *International Journal of Building Pathology and Adaptation*, 38(2), 329–355. https://doi.org/10.1108/IJBPA-09-2018-0076.
- Osman, A. (2022). Empirical measure of cultural sustainability. *Applied Geography*, *145*, 102745. https://doi.org/10.1016/j.apgeog.2022.102745.
- Palang, H., Soini, K., Printsmann, A., & Birkeland, I. (2017). Landscape and cultural sustainability. Norsk Geografisk Tidsskrift Norwegian *Journal of Geography*, 71(3), 127–131. https://doi.org/10.1080/0029 1951.2017.1343381.
- Phillips, H. (2015). The capacity to adapt to climate change at heritage sites— The development of a conceptual framework. *Environmental Science & Policy*, 47, 118–125. https://doi.org/10.1016/j.envsci.2014.11.003.
- Qiao, F. (2019). Research on the architectural decoration of traditional Chinese vernacular dwellings. *Journal of Architectural Conservation*, 25(3), 136–191. https://doi.org/10.1080/13556207.2019.1631589.
- Qiu, Q. (2023). Identifying the role of intangible cultural heritage in distinguishing cities: A social media study of heritage, place, and sense in Guangzhou, China. *Journal of Destination Marketing & Management*, 27, 100764. https://doi.org/10.1016/j.jdmm.2023.100764.
- Ren, T. (2021). A Study on the Symbolic Significance of Decorative Art of Huizhou Traditional Residential Buildings. *Open Access Library Journal*, 8(8), Article 8. https://doi.org/10.4236/oalib.1107815.
- Rong, W., & Bahauddin, A. (2023). Design Styles and Restoration of Traditional Residential Buildings in Northern China. *The 1st International Online Conference on Buildings, 44.* https://doi.org/10.3390/IOCBD2023-16328.
- Schiuma, G.; Lerro, A. Do Cultural and Creative Industries (CCI) matter for innovation and value creation in knowledge-based business? Aims, forms and practice of collaboration in Italy. *In Proceedings of the 7th Knowledge Cities World Summit,* Tallinn, Estonia, 23–27 September 2014.

- Soini, K., & Birkeland, I. (2014). Exploring the scientific discourse on cultural sustainability. *Geoforum*, *51*, 213–223. https://doi.org/10.1016/j. geoforum.2013.12.001.
- Soini, K., & Dessein, J. (2016). Culture-Sustainability Relation: Towards a Conceptual Framework. *Sustainability*, 8(2), 167. https://doi.org/10.3390/su8020167.
- Song, Y., & Liao, C. (2023). Research on the Architectural Features and Artistic Elements of Traditional Buildings in Different Regions of Jiangxi, China. *Buildings*, *13*(7), 1597. https://doi.org/10.3390/buildings13071597.
- Stock, F., & Stock, A. (2024). *Creative Economy Outlook 2024*. Retrieved July 26, 2024. https://www.developmentaid.org/api/frontend/cms/file/2024/07/ditctsce2024d2 en.pdf.
- Sun, Z. (2024). Sustainable Management of Decorative Patterns of Shanghai Shikumen Architectural Houses Based on ROI Optimization. *Applied Mathematics and Nonlinear Sciences*, 9(1), 20231519. https://doi.org/10.2478/amns.2023.2.01519.
- UNESCO. (2017). Culture: At the heart of Sustainable Development Goals. United Nations Educational, Scientific and Cultural Organization. Retrieved July 26, 2024. https://courier.unesco.org/en/articles/culture-heart-sustainable-development-goals.
- UNESCO. (2009). Framework for cultural statistics. UNESCO Institute for Statistics.
- United Nations. (2015). *Transforming Our World: The 2030 Agenda for Sustainable Development* (A/RES/70/1). https://sustainabledevelopment. un.org/post2015/transformingourworld. Accessed March 11, 2024.
- Wang, H., & Chiou, S. (2020). Spatial Form Analysis and Sustainable Development Research of Traditional Residential Buildings. *Sustainability*, 12(2), 637. https://doi.org/10.3390/su12020637.
- Wei, X., & Si, Z. (2017). Fully Exploring Traditional Chinese Culture and Promoting Organic Development of Green City. *Procedia Engineering*, *180*, 1531–1540. https://doi.org/10.1016/j.proeng.2017.04.315.

- Wu, Y., Azmi, A., Ibrahim, R., Ghafar, A. A., & Salih, S. A. (2024). Dynamics in harmonious human-nature urban ecosystem model for environment sustainability: A review. *Malaysian Journal of Sustainable Environment*, 11(2), 45-74. https://doi.org/10.24191/myse.v12i1.1566.
- Xu, S., Suksamran, S., & Kotchapakdee, P. (2024). Traditional Chinese Vernacular Dwellings: Architectural Features of Nanjing Tulou. *International Journal of Religion*, *5*(7), 913–925. https://doi.org/10.61707/s9yzyg61.
- Yang, C., Zeng, W., & Yang, X. (2020). Coupling coordination evaluation and sustainable development pattern of geo-ecological environment and urbanization in Chongqing municipality, China. *Sustainable Cities and Society*, *61*, 102271. https://doi.org/10.1016/j.scs.2020.102271.
- Yang, S., & Gui, L. (2021, January). The Landscaping Art and Cultural Interpretation of Walls in Traditional Suzhou Buildings. In The 6th International Conference on Arts, Design and Contemporary Education (ICADCE 2020) (pp. 522-526). Atlantis Press.
- Yin, Z.-Y., Huang, A.-M., & Huang, Z.-Y. (2024). Virtual tourism attributes in cultural heritage: Benefits and values. *Tourism Management Perspectives*, *53*, 101275. https://doi.org/10.1016/j.tmp.2024.101275.
- Yingqing, X., Mohd Hasan, N. A., & Mohd Jalis, F. M. (2024). Purchase intentions for cultural heritage products in E-commerce live streaming: An ABC attitude theory analysis. *Heliyon*, 10(5), e26470. https://doi.org/10.1016/j.heliyon.2024.e26470.
- Zhan, C., Kim, C.-S., & Wei, X. (2024). 3D image processing technology based on interactive entertainment application in cultural and creative product design. *Entertainment Computing*, *50*, 100701. https://doi.org/10.1016/j.entcom.2024.100701.
- Zhang, B., Cheng, P., Deng, L., Romainoor, N. H., Han, J., Luo, G., & Gao, T. (2023). Can AI-generated art stimulate the sustainability of intangible cultural heritage? A quantitative research on cultural and creative products of New Year Prints generated by AI. *Heliyon*, *9*(10), e20477. https://doi.org/10.1016/j.heliyon.2023.e20477.

- Zhang, G., Chen, X., Law, R., & Zhang, M. (2020). Sustainability of Heritage Tourism: A Structural Perspective from Cultural Identity and Consumption Intention. *Sustainability*, *12*(21), 9199. https://doi.org/10.3390/su12219199.
- Zhang, L., & Hong, J. (2022). *Research on the Design of Cultural Creative Products From the Perspective of Cultural Identity*. 87–96. https://doi.org/10.22492/issn.2435-9475.2022.8.
- Zhao, M., Ang, L. H., & Toh, F. H. C. (2022). Hybridising the cultural identity of Mulan from a Chinese ballad to American films. *Asian Journal of Social Science*, 50(2), 130–136. https://doi.org/10.1016/j. ajss.2021.10.001.
- Zhao, Y. (2023). Redefining 'Sign'/'Symbol' and Semiotics. *Signs and Media*, 2(1–2), 55–70. https://doi.org/10.1163/25900323-12340022.
- Zhong, X. (2024). The development and dissemination of intelligent storage management software of Chinese excellent traditional culture based on blockchain in the era of financial media. *Heliyon*, 10(7), e27262. https://doi.org/10.1016/j.heliyon.2024.e27262.