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Digital media-enhanced cultural brand development: creative strategies for urban identity construction

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ABSTRACT

This study investigates digital media-enhanced cultural brand development through creative strategies for urban identity construction, aiming to develop a comprehensive framework that extends integrated marketing communication theory while preserving cultural authenticity and enabling community participation. A mixed-methods approach incorporated stakeholder surveys ($n=420$) across four participant groups, systematic analysis of 800 social media posts, examination of 35 institutional platforms, and comparative analysis of 12 international cities, utilizing an AI-enhanced analytical pipeline with natural language processing, computer vision, and machine learning algorithms. Five core creative strategy elements were empirically validated: digital storytelling integration, community-centered content creation, heritage-digital synthesis, interactive cultural experiences, and dynamic community feedback systems. Community-centered content creation achieved the highest community acceptance correlation ($r=0.91$) and cultural authenticity correlation ($r=0.84$), while heritage-digital synthesis demonstrated the strongest urban identity impact correlation ($r=0.88$). Strategic digital media integration significantly amplifies urban cultural brand transmission effectiveness while preserving authentic cultural identity through community-centered approaches, providing urban administrators with evidence-based implementation frameworks for sustainable urban identity construction.

1. Introduction

In the digital age of urban transformation, cities across the globe are struggling to carve out unique cultural identities while competing for audiences, investment, and visitors. The rapid urbanization, accompanied by the tremendous growth of digital media, has transformed the origin, production, and communication of cultural brands, presenting both challenges and opportunities for urban planning and cultural strategies [1]. The traditional approaches to city branding used to be based on stationary promotional products and conventional marketing channels; however, the digital era requires that we understand how the intangible production of cultural heritage, creative industries, and technological innovation can be coordinated strategically to construct powerful stories of the city actors and to appeal to various stakeholders [2]. This transition presents particular complexity when addressing the challenge of maintaining urban adaptation to digital transformation while preserving authentic cultural identity, since the power of social media and of digital transformation brought new issues that require

delicate and complex strategic management practices to address brand management and cultural preservation [3]. Also, present urban scenes are exposed to tensions between local cultural identity and global connectivity, as cities operate in an international environment that may support or question the traditional conceptions of place-based identity formation [4]. The theorization related to the development of urban cultural brands has developed considerably over the past decade, as scholars increasingly understand cultural and creative industries as drivers of economic regeneration and as promoters of place-based identities; however, the processes by which the latter contribute to sustainable urban development are less explored [5]. The recent literature suggests a shift from 'spatial planning' to 'place branding' in system making, which involves a series of approaches that acknowledge both material (e.g., infrastructural) and immaterial (e.g., the cultural narrative) elements as inseparable parts of a whole on a spatial level [6]. Cultural cities attain regional economic power in various ways, depending on the complex combination of creativity, the rise

of the creative economy, and institutional support systems that support them. However, the underlying environmental conditions that make these synergies possible are grounded in the specifics of different urban territories [7]. On one hand, cultural activities in creative cities produce positive regional externalities; on the other, however, they also raise the issue of congestion effects and exclusion of local communities from decision-making processes [8]. This paradox reveals a blind spot: how can cities ensure the inclusive development of culture if they go for growth of the creative economy and if culture as a driver seems not to be automatically creative, but needs specific interventions through policy and strategic planning for this outcome to materialize [9]. Digital media applications in urban marketing represent a rapidly evolving field where theoretical frameworks struggle to keep pace with technological innovation and shifting consumer behaviors. Contemporary city branding increasingly relies on social media platforms, digital storytelling, and interactive technologies to create immersive experiences that transcend geographical boundaries, yet the conceptualization of city brand acceptability in digital environments requires more sophisticated theoretical development [10]. The impact of social media usage on cultural identity formation among urban populations reveals complex relationships between digital engagement and place attachment, suggesting that digital platforms can both strengthen and dilute local cultural connections depending on how they are strategically implemented [11]. China's emergence as a leader in cultural entrepreneurship and creative industries demonstrates how digital technologies can be leveraged to create new forms of cultural expression and economic value, though these developments raise questions about cultural authenticity and the role of traditional cultural practices in digitally-mediated environments [12].

The relationship between creative strategies and urban identity construction has gained considerable scholarly attention as cities seek to differentiate themselves in an increasingly competitive global marketplace. Cultural and creative industries' impact assessment requires sophisticated indicators that capture both quantitative economic benefits and qualitative improvements in cultural heritage preservation and tourism development [13]. The creative class plays a crucial role in co-creating city brand identities through collaborative processes that involve multiple stakeholders, yet these dynamics often favor educated, mobile populations while potentially marginalizing established community voices [14]. Creative cities are experiencing fundamental transformations as they strive to become more inclusive, participatory, and place-based in their cultural policies, recognizing that sustainable creative development must balance innovation with community needs and cultural preservation [15]. Place branding theory has evolved to recognize the multifaceted role that branding plays in promoting social capital formation within urban areas, particularly in developing contexts where cultural identity serves as both a resource and a constraint for urban development initiatives [16]. However, significant paradoxes exist in stakeholder perceptions regarding the meaning and scope of place branding activities, with different groups holding conflicting views about the appropriate balance between economic development and cultural preservation [17]. Recent research demonstrates that place brands can be enlivened inclusively through evidence-based approaches that prioritize community participation and cultural diversity, though implementation of such approaches requires sustained institutional commitment and resource

allocation [18]. Cultural branding implementation across various urban contexts demonstrates diverse approaches to identity construction. Urban marketing strategies rooted in ecological environment quality represent innovative city branding methods that respond to contemporary demands for sustainable and distinctive cultural positioning [19]. City branding case studies, such as Suzhou, also show how media representations, local and global, can contribute to the production of urban images that support as well as disrupt official branding efforts, and point to a need for more nuanced understandings of media in the branding of cities [20]. Branding of ocean cities as specialized culture branding is the use of unique natural and cultural conditions to shape their special urban image, but it also imposes attention to environmental sustainable development and social justice and equality [21]. The cultural and creative industries are increasingly being used as tools for the advancement of social innovation, offering cities the opportunity to resolve social issues as well as forge cultural brands to mirror the modern cultural values and aspirations [22]. These theoretical and practical developments reveal a critical knowledge gap confronting contemporary urban cultural brand development: the challenge of integrating digital media technological capabilities with authentic cultural identity preservation within community-centered frameworks. Current literature reveals a lack of theoretical integration between AI technologies and traditional cultural brand development approaches, limited empirical evidence on the effectiveness of community participation in digital cultural branding contexts, and the absence of comprehensive implementation frameworks that balance technological innovation with cultural authenticity requirements across diverse urban environments.

Notwithstanding these advances in theory and practice, considerable lacunae remain in our understanding of how digital media technologies can be successfully combined with traditional means of cultural brand development to distribute holistic strategies that provide for the needs of multiple stakeholders. This research addresses three specific objectives in advancing digital media-enhanced cultural brand development. The theoretical objective involves extending integrated marketing communication theory through systematic AI integration while preserving cultural authenticity mechanisms. The empirical objective encompasses a comprehensive analysis of stakeholder engagement patterns and international best practice validation to establish evidence-based relationships between community participation, cultural authenticity, and digital engagement effectiveness. The practical objective focuses on developing actionable implementation frameworks that enable strategic integration of traditional cultural assets with contemporary digital communication capabilities. The theoretical contribution of this paper is the reconceptualization and extension of integrated marketing communication theory to the application of digital media in cultural brand development, while its practical contribution pertains to the provision of practical guidance to city managers who desire to harness digital technologies in elevating their city's cultural brand. The research contribution involves theoretical extensions of extant branding frameworks, methodological applications of mixed-methods in digital media research, and pragmatic formulation of multilevel digital strategy frameworks transferrable across diverse urban contexts and cultural settings. To ensure analytical precision throughout this investigation, key terminological constructs require explicit definition. "Cultural

brand ecosystems" denotes interconnected networks of digital platforms, community stakeholders, and technological interfaces that collectively generate and maintain urban cultural identity through continuous feedback loops. "Digital authenticity" represents the measurable degree to which digitally-mediated cultural content preserves traditional cultural values while achieving contemporary engagement objectives. "AI-augmented analytic processes" refers to computational methodologies that combine machine learning algorithms with human cultural expertise to analyze cultural brand effectiveness across multiple data sources and stakeholder perspectives.

2. Methods

2.1 Theoretical framework and research design

Contemporary cities face unprecedented challenges in establishing distinctive cultural identities while competing for attention, investment, and tourism on a global scale. This research advances future technology applications through the development of AI-enhanced cultural brand development frameworks that represent a technological paradigm shift from traditional static branding approaches to dynamic, machine learning-driven urban identity construction systems. The integration of natural language processing, computer vision, and predictive analytics creates technological innovations that extend beyond mere application of existing tools, establishing novel computational methodologies for cultural heritage digitization and community engagement optimization. This study extends Professor Schultz's integrated marketing communication theory to accommodate digital media environments in urban cultural brand development. The theoretical enhancement incorporates five interconnected dimensions that acknowledge how digital technologies transform traditional communication paradigms while preserving core principles of integrated brand messaging. These technological integrations advance future technology applications through: (1) AI-augmented cultural authenticity evaluation algorithms capable of processing multilingual cultural narratives and visual cultural symbols simultaneously, (2) predictive modeling systems for cultural brand engagement optimization that leverage machine learning to forecast community response patterns, and (3) real-time feedback integration technologies enabling continuous adaptation of cultural branding strategies based on stakeholder interaction data. Digital and social media marketing research requires methodological frameworks that can capture the dynamic nature of online engagement while maintaining analytical rigor in measuring cultural brand effectiveness [23].

Figure 1 illustrates the digital-enhanced integrated marketing communication framework that guides this research. The framework demonstrates how artificial intelligence and computational technologies amplify traditional communication elements through automated content optimization, intelligent audience segmentation, and real-time engagement analytics. The model positions digital media as transformative elements that reshape stakeholder relationships and enable data-driven cultural brand co-construction mechanisms. As shown in Figure 1, the framework integrates five core dimensions: digital communication subjects expanded through AI-powered stakeholder identification, content optimization enabled by machine learning algorithms, multi-platform channel orchestration, interactive communication methods leveraging computational tools, and effects measurement through advanced analytics. This technological integration

represents a fundamental evolution from traditional brand communication approaches, enabling cities to maintain cultural authenticity while enhancing digital accessibility and engagement. Mixed-methods approaches prove particularly valuable when investigating place branding processes that involve complex social interactions, cultural meanings, and technological mediations that cannot be fully captured through single-method studies [24]. Table 1 presents the research design matrix that demonstrates how digital technologies enhance each methodological component. Table 1 reveals how computational technologies transform each research component from static measurement to dynamic, intelligence-driven analysis. The integration of artificial intelligence enables real-time adaptation of research instruments and continuous optimization of data collection strategies based on stakeholder response patterns, thereby enhancing both research efficiency and analytical depth.

Table 1. Technology-enhanced research design matrix

Research Component	Traditional Approach	Digital Enhancement	AI/Computing Tools
Data Collection	Manual surveys	Online platforms	Automated distribution
Content Analysis	Human coding	NLP algorithms	Machine learning
Engagement Measurement	Basic metrics	Real-time analytics	Predictive modeling
Stakeholder Mapping	Demographics	Behavioral profiling	AI segmentation

2.2 Data Collection Methods

Primary data collection utilized a comprehensive survey instrument administered to 420 participants across four stakeholder categories essential to urban cultural brand ecosystems. The sampling strategy employed stratified random selection to ensure representative coverage across demographic characteristics, professional backgrounds, and cultural engagement levels. Table 2 presents the detailed sample distribution and key characteristics of each stakeholder group. The measurement instrument incorporated validated scales from established place branding research while introducing novel items addressing digital media integration aspects. Cultural brand perception measurement utilized five-point Likert scales assessing brand awareness, emotional connection, cultural authenticity, and behavioral intention. Digital media engagement evaluation focused on platform usage patterns, content interaction behaviors, and perceived effectiveness of various digital communication strategies.

Table 2. Sample distribution and stakeholder characteristics

Stakeholder Group	Sample Size	Age Range	Gender Distribution	Key Selection Criteria
Local Residents	180	18-75	M: 48%, F: 52%	≥2 years residence
Government Officials	60	28-65	M: 55%, F: 45%	Cultural policy roles
Cultural Practitioners	90	25-68	M: 42%, F: 58%	Professional experience
Tourists	90	20-70	M: 47%, F: 53%	Recent visit history

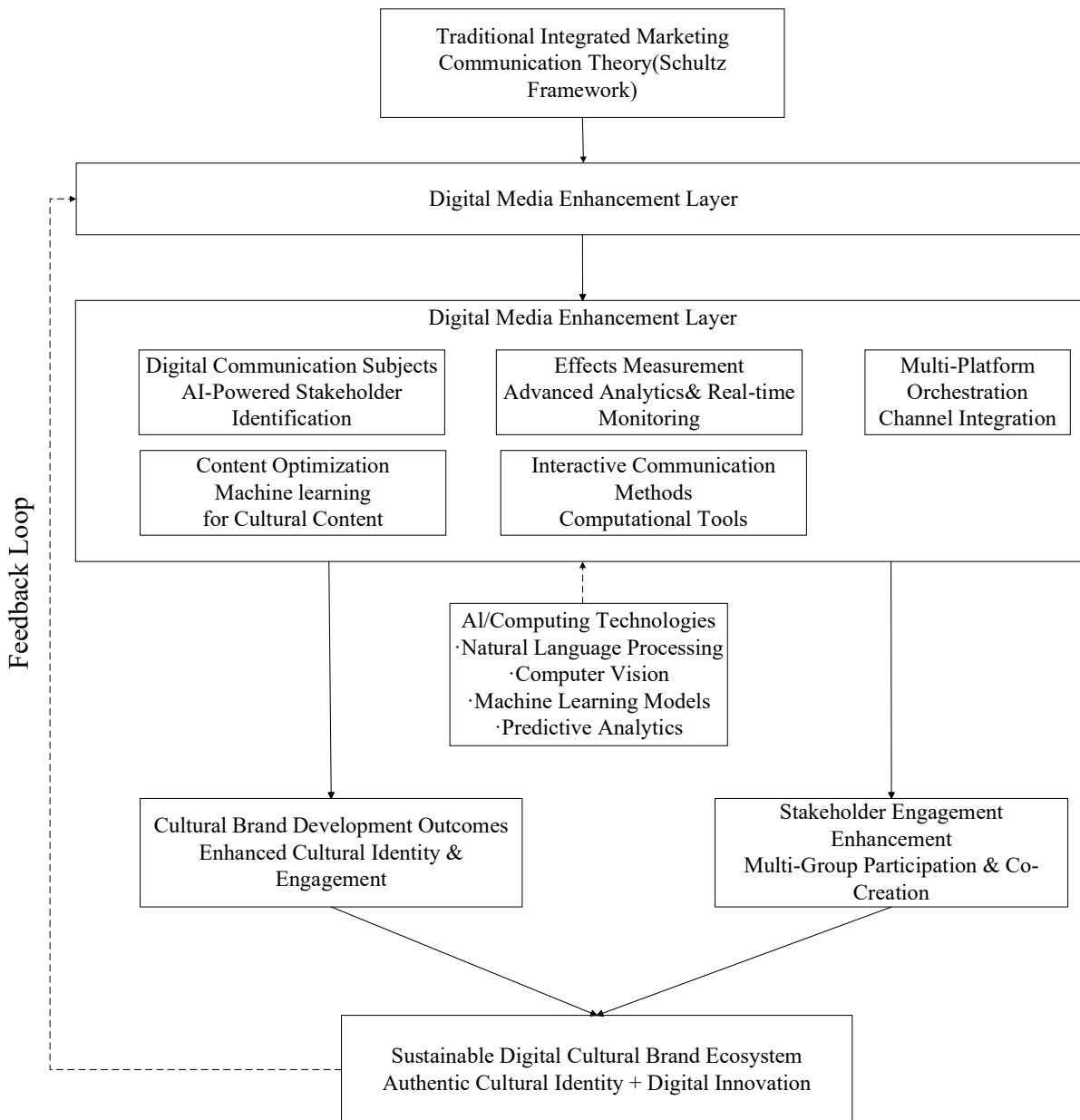


Figure 1. Digital-enhanced integrated marketing communication framework for urban cultural branding

Secondary data collection encompassed systematic analysis across multiple digital platforms and institutional sources, complementing primary survey data with deeper insights into actual digital cultural brand communication practices. Social media content analysis examined 800 posts selected through stratified temporal sampling across seasonal variations and cultural events. Post selection employed systematic random sampling within temporal strata (monthly intervals over 12 months), with posts screened for cultural relevance using keyword filtering and manual verification by two independent cultural experts (inter-rater reliability $\kappa=0.89$). Ethical approval was obtained from the institutional review board, and privacy concerns were addressed through content anonymization and aggregated analysis protocols. Data cleaning procedures eliminated duplicate content, spam posts, and non-cultural material, resulting in 800 validated posts representing

authentic cultural brand interactions. Official website analysis covered 35 institutional platforms, including municipal tourism boards, cultural heritage sites, and arts organizations. International comparative analysis incorporated 12 cities selected based on demographic similarity, cultural heritage significance, and digital marketing maturity. The integration of diverse data sources necessitated careful coordination to ensure temporal alignment and thematic consistency across different collection streams. This multi-dimensional approach enables comprehensive triangulation of findings while capturing both stakeholder perceptions and actual digital communication practices. **Table 3** summarizes the comprehensive multi-source data collection framework implemented in this study, illustrating the scope and analytical focus of each data component.

Table 3. Multi-source data collection framework

Data Source	Volume	Collection Period	Analysis Focus
Survey Responses	420 questionnaires	6 months	Stakeholder perceptions
Social Media Posts	800 posts	12 months	Digital engagement
Official Websites	35 platforms	Current status	Content strategies
International Cases	12 cities	Comparative analysis	Best practices

2.3 Data analysis methods

The emergent nature of modern-day digital cultural brand ecosystems demands more nuanced forms of analysis than are inferable via stereotypical social science techniques. The volume and velocity of data generated from digital content, such as large data content analysis, multi-platform engagement tracking, and real-time sentiment monitoring, are beyond human analysis, but also require human accuracy to identify nuances in cultural trends, stakeholder engagement patterns, and urban identity elements. Furthermore, the incorporation of numbers endorses qualitative analyses based on cultural interpretation, reinforcing the requirement of hybrid analytical approaches, benefiting from artificial intelligence (AI) and respecting human skill in assessing cultural authenticity and elaborating user strategy grounds. The concept definition by analyzing framework led to the use of sophisticated statistical techniques that could make sense of the complex, multivariate data coming from multiple sources and add to the understanding of and insights into the effectiveness of the development of cultural brands in a digital age. The AI implementation methodology employed natural language processing algorithms for cultural narrative content analysis across social media posts and institutional communications, computer vision techniques for automated cultural symbol recognition and visual authenticity assessment, and machine learning ensemble methods for stakeholder engagement pattern analysis and community response prediction. Model validation incorporated expert review protocols and cross-validation techniques to ensure cultural interpretation accuracy and algorithmic bias mitigation. Figure 2 presents this AI-augmented analytic process that integrates machine learning with standard social science research methods. Figure 2 demonstrates how artificial intelligence technologies enhance each stage of the analytical process, from culturally specific data preprocessing through creative strategy intelligence to predictive modeling of cultural brand effectiveness. The pipeline incorporates natural language processing for heritage narrative analysis and cultural symbol recognition, computer vision for cultural authenticity evaluation, and machine learning algorithms for urban identity construction modeling, thereby enabling comprehensive analysis at scales previously unattainable through traditional methods. Cultural brand perception analysis employed integrated statistical approaches enhanced by computational tools to examine relationships between traditional cultural assets and digital engagement outcomes. The computational approach enabled processing of large-scale social media datasets while maintaining statistical rigor through automated quality control algorithms and bias detection mechanisms. Table 4 presents the cultural brand-focused analytical framework that demonstrates how digital enhancement tools support traditional cultural brand analysis across different strategic dimensions.

Table 4. Cultural brand-focused multi-method analytical framework

Analysis Type	Cultural Brand Focus	AI/Digital Enhancement Tools	Integration Benefits& Outcomes
Cultural Brand Perception	Brand awareness, authenticity assessment	Sentiment analysis algorithms	Enhanced cultural sensitivity
Creative Strategy Analysis	Strategy pattern identification	AI-powered best practice mining	Innovation pathway discovery
Urban Identity Construction	Identity element mapping	Computer vision for cultural symbols	Comprehensive identity framework
Stakeholder Engagement	Multi-group participation analysis	Social network algorithms	Community engagement optimization
Digital Communication Effectiveness	Traditional media impact assessment	Multi-platform analytics integration	Holistic communication evaluation

As summarized in Table 4, the collaboration between digital enhancement tools and traditional cultural brand analysis brings the synergy effect, strengthening cultural authenticity assessment and increasing the analytical power of creative strategy search and urban identity shaping. Performance of computational methods enables the discovery of fine-grained patterns of cultural brand engagement that are near impossible to identify merely based on manual analysis of the data, and thus the traditional cultural research provides the interpretation in contexts and sensitivity of heritage that no technological approach can accomplish alone.

Using digital cultural heritage narratives and heritage authenticity benchmarks, elements of urban identity creation across communication platforms were applied. Community participation analysis and the analysis of cultural brand development contributions. The computational approach of network mapping was used to scrutinize and map community involvement and the most influential key actors in cultural brand identity development. Empirical testing methodology combines digital skills with cultural domain knowledge to strengthen the trustworthiness of the research [25]. Automated validation could be combined with human expert checking in quality assurance protocols to balance efficiency (as computation time decreases) with cultural integrity.

The implementation of AI-driven cultural content analysis necessitates addressing ethical considerations regarding cultural representation accuracy and algorithmic bias in heritage interpretation. Potential limitations include AI model training biases that may misinterpret cultural nuances, automated classification systems that could oversimplify complex cultural narratives, and technological determinism risks in cultural authenticity assessment. Mitigation strategies incorporated human expert validation of AI-generated assessments, community stakeholder involvement in algorithm training processes, and continuous bias monitoring through diverse cultural perspective integration.

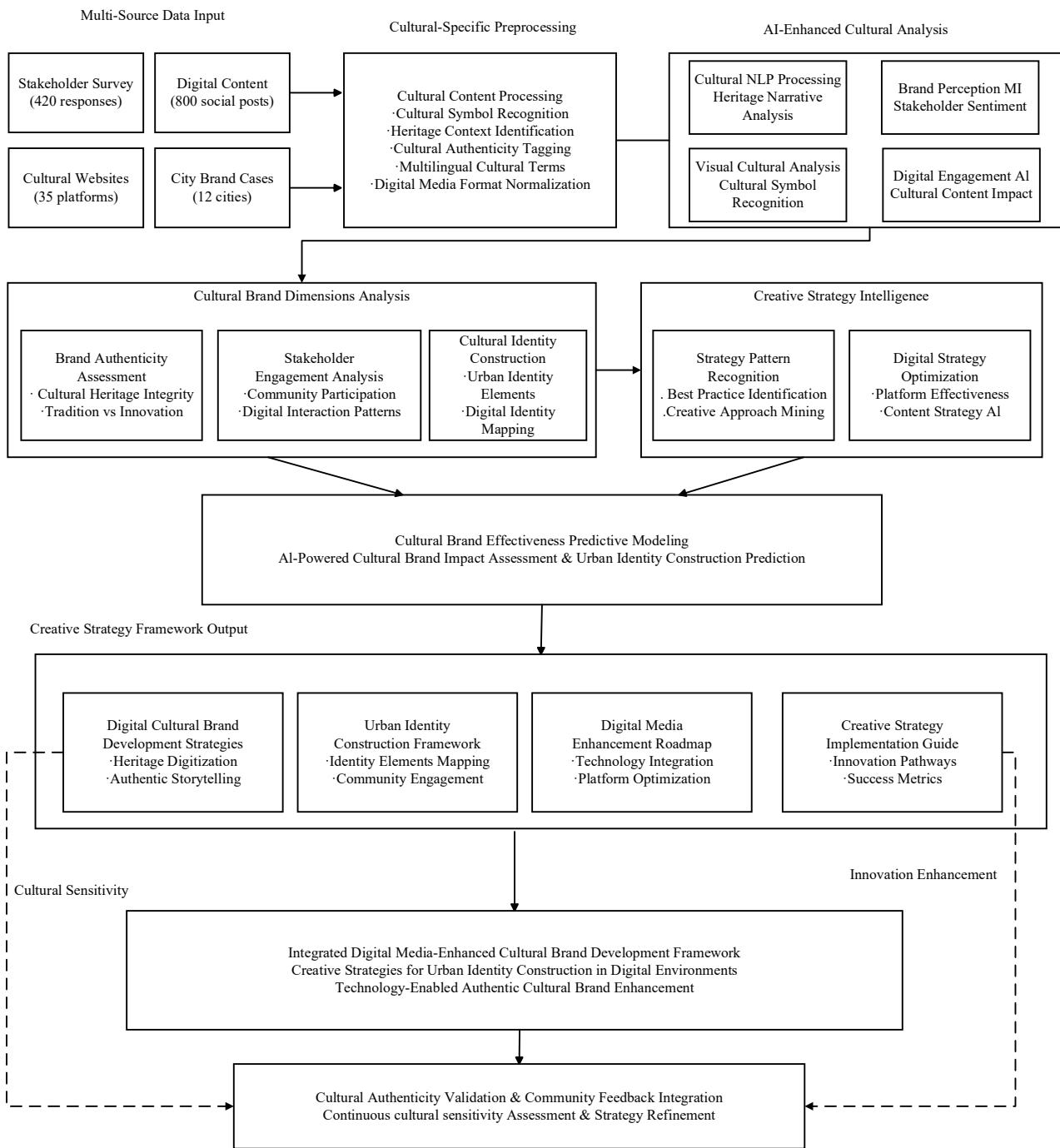


Figure 2. AI-enhanced data analysis pipeline for digital cultural brand research

3. Results

3.1 Cultural Brand Perception and Digital Media Engagement Status

Guided by the hybrid study model described in methodology, this study concludes with data generated from the interview and content analysis phase, which together attempt to explore the present situation of cultural brand perception and participants' digital media engagement behaviors. The data collection through survey research (locating this study for six months using five-point Likert scales) adds quantitative information on stakeholders'

attitudes towards cultural brand building, while the research results combine with digital content analysis to provide reinforcing evidence on cultural authenticity perception and engagement behaviors. To conduct a systematic analysis of the differences in cultural brand perception and generate benchmark measurements for subsequent digital strategy analysis, the stakeholder survey reveals significant differences across the four types of stakeholders. There are differences in opinion with respect to the value of cultural heritage, brand authenticity, and enlightenable addition. The complete findings are presented in Table 5 and indicate how various stakeholders view cultural brand elements and utilize

digital media platforms. **Table 5** demonstrates that cultural practitioners maintain the highest cultural authenticity perception scores (4.6 ± 0.3) with the smallest standard deviation, indicating strong consensus within this group regarding cultural preservation priorities. Their digital engagement level (4.2 ± 0.5) significantly exceeds other groups, while their platform usage rate of 89% confirms their role as digital cultural intermediaries. Government officials display the highest brand awareness scores (4.5 ± 0.4) with low variability, but their digital engagement level (2.3 ± 0.6) represents the lowest among all groups, creating a substantial engagement gap of 1.9 points compared to cultural practitioners. Building upon these stakeholder perception findings, which reveal significant digital engagement disparities and varying authenticity priorities, the analysis of actual digital media behavior patterns becomes essential to understand how these perceptions translate into real-world digital cultural brand interactions. Social media platforms significantly influence cultural identity formation processes, supporting research findings that demonstrate digital platforms' capacity to strengthen traditional cultural connections when implemented with appropriate community participation and authenticity preservation protocols [26].

3.2 Digital Strategy Effectiveness Assessment

The stakeholder perception analysis from **Table 2** revealed substantial variations in digital engagement levels and platform usage patterns, necessitating deeper examination of how these differences manifest in actual digital content performance and strategic effectiveness. To evaluate the effectiveness of various digital cultural brand strategies and understand the relationship between stakeholder perceptions and content engagement outcomes, this section examines findings from the systematic analysis of 800 social media posts, sentiment analysis results, and engagement metrics across multiple platforms.

Given the significant platform usage disparities identified among stakeholder groups (ranging from 45% to 89%), the social media content analysis encompasses posts from official cultural institutions, community organizations, and user-generated content across major platforms, enabling a comprehensive assessment of digital narrative transmission effectiveness and authentic cultural representation quality. **Table 6** presents the detailed analysis results, illustrating how different content approaches perform across engagement metrics and cultural authenticity measures. **Table 6** demonstrates that interactive video content achieves the highest engagement rate (18.7%) and sentiment score (0.81), though with moderate authenticity ratings (3.9), while community-generated content maintains the highest authenticity rating (4.7) and creative strategy index (4.8). Traditional cultural stories, despite high authenticity scores (4.4), generate the lowest engagement rates (6.8%), indicating a 175% performance gap compared to interactive video content. This finding directly correlates with the stakeholder preferences identified in **Table 2**, where tourists and cultural practitioners, who prefer visual and multi-platform approaches, demonstrate higher digital engagement levels. The social media content analysis results presented in **Table 6** demonstrate substantial performance variations across different content types, revealing complex patterns between cultural authenticity preservation and digital engagement effectiveness that require deeper investigation. To systematically examine these authenticity-engagement relationships and identify optimal strategic zones for urban identity construction, a comprehensive visualization analysis was conducted incorporating both empirical data points from the 800-post analysis and supplementary trend modeling to map performance patterns across the full authenticity spectrum.

Table 5. Stakeholder cultural brand perception and digital engagement survey results (n=420)

Stakeholder Group	Sample Size	Cultural Authenticity (Mean \pm SD)	Brand Awareness Score	Digital Engagement Level	Heritage Value Rating	Platform Usage Rate
Local Residents	180	4.2 ± 0.6	3.8 ± 0.7	3.1 ± 0.8	4.5 ± 0.5	67%
Government Officials	60	3.9 ± 0.5	4.5 ± 0.4	2.3 ± 0.6	4.3 ± 0.6	45%
Cultural Practitioners	90	4.6 ± 0.3	4.3 ± 0.5	4.2 ± 0.5	4.7 ± 0.3	89%
Tourists	90	3.7 ± 0.8	3.2 ± 0.9	3.9 ± 0.7	3.9 ± 0.7	78%

Note: Cultural authenticity measured on a 5-point Likert scale (1=very low, 5=very high); Brand awareness score (1-5 scale); Digital engagement level (1-5 frequency scale); Heritage value rating (1-5 importance scale); Platform usage rate (percentage of active users).

Table 6. Social media cultural content performance analysis (n=800)

Content Type	Platform Distribution	Engagement Rate (%)	Sentiment Score	Authenticity Rating	Share Rate (%)	Creative Strategy Index
Traditional Cultural Stories	Facebook (45%)	6.8	0.62	4.4	3.2	2.8
Integrated Digital Narratives	Instagram (78%)	15.2	0.73	4.1	8.7	4.2
Interactive Video Content	TikTok (89%)	18.7	0.81	3.9	12.4	4.5
Live Cultural Events	YouTube (56%)	12.3	0.78	4.6	6.9	3.9
Community-Generated Content	Multi-platform (92%)	16.3	0.75	4.7	11.2	4.8

Figure 3 presents this relationship analysis, illustrating how different content approaches perform across varying authenticity levels while identifying critical thresholds and optimal zones that inform creative strategy development for digital cultural brand enhancement. Figure 3 demonstrates a curvilinear relationship where engagement performance peaks in the highlighted optimal zone at authenticity ratings of 4.1-4.3, while the dashed 4.0 line represents a quality threshold for content assessment. User-generated content demonstrates optimal performance within this zone, achieving balanced authenticity-preservation and engagement-effectiveness. Interactive video content shows high engagement despite positioning below the authenticity threshold, while traditional cultural stories maintain high authenticity but generate lower engagement rates. User-generated content demonstrates this sweet spot performance, where authenticity-preservation and engagement-effectiveness achieve a better balance. It is important to note that once we cross below this threshold, we find outstanding engagement with a creative innovation, which is interactive video, beneath the threshold, reinforcing the idea that carefully applied digital manipulation can increase performance under different levels of authenticity as different forms of urban identity construction strategies. Digital cultural heritage development models that emphasize community participation and authentic representation significantly outperform traditional marketing approaches in generating positive stakeholder responses and sustainable engagement patterns [27]. The sentiment score progression from traditional stories (0.62) to interactive content (0.81) demonstrates a 30% improvement through creative digital integration strategies, aligning with the digital engagement preferences observed across different stakeholder groups in the initial survey analysis.

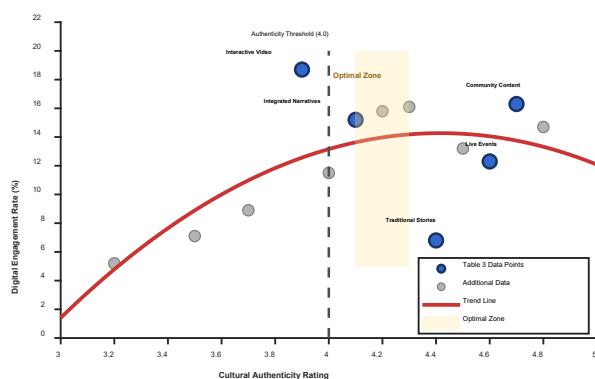


Figure 3. Content authenticity impact on digital engagement performance

3.3 International case comparison and best practice identification

The analysis of the digital content performed in Table 3 and Figure 3 revealed how, through creative digital strategies, it is possible to generate very high rates of engagement without losing cultural authenticity, with community-generated media being better in all metrics analyzed. These findings need to be confirmed and transferred, and it is through the comparison of international best practices that we can begin to learn how other cities are effectively achieving these outcomes within their cultural and technological environments. Based on a holistic review of

digital cultural brand development projects from 12 international cities, chosen for similarity of demographics, cultural heritage importance, and digital marketing maturity as proposed in the methodology, this discussion highlights best practices that are not location-specific and local adaptations. The international case studies offer essential insights into readings of patterns of engagement and authenticity, emerging from the preceding analysis, and offer informed advice for creative strategy practitioners. Table 7 shows the results for a comprehensive comparative analysis displaying quantifiable measures and critical success factors under varying implementation strategies. Table 7 reveals significant performance variations across international implementation approaches, with Singapore achieving the highest engagement growth (+35%) through innovation-led strategies that prioritize technological advancement and digital platform optimization. Edinburgh maintains the highest authenticity preservation (4.5) combined with very high community participation levels, demonstrating that participatory approaches can achieve superior cultural integrity outcomes. The analysis indicates that cities emphasizing community participation (Barcelona, Edinburgh, Quebec City) consistently achieve authenticity scores above 4.2, while technology-focused approaches (Kyoto, Singapore) generate higher engagement growth but require careful authenticity management strategies. Comparative analysis shows that the effective deployment of digital cultural tourism models involves striking a balance between technological innovation and cultural authenticity preservation, and how cities are best able to achieve this is by the systematic inclusion of digital platforms in traditional cultural brand resources, and in the deployment of community engagement processes [28]. The international comparative case helps to see that successful digital cultural brand development includes strategic contextualization, but continues to value community involvement and the protection of cultural authenticity. These best practices are transferable and evidence-based guidelines that cities can take to adopt a creative digital strategy in urban branding and identity-making, keeping cultural authenticity with sustainable stakeholder engagement.

3.4 Critical success factors and strategic recommendations

The comprehensive analysis progression from stakeholder perceptions through digital content performance to international implementation outcomes reveals consistent patterns emphasizing community participation, authentic content creation, and strategic digital integration for successful cultural brand development. To synthesize these empirical findings into actionable strategic guidance, this section presents the empirically derived framework for digital media-enhanced cultural brand development that prioritizes creative strategies for urban identity construction based on the demonstrated relationships between authenticity, engagement, and community participation. Building upon the established relationships between community involvement and both authenticity preservation (demonstrated across all previous analyses) and engagement effectiveness (confirmed through international case validation), correlation analysis between strategy elements and implementation outcomes reveals critical relationships that inform framework development priorities. Table 8 presents the strategy effectiveness correlation matrix, systematically examining how the successful elements identified in previous analyses contribute to comprehensive

urban identity construction while maintaining the cultural authenticity and community engagement standards validated through international comparison. **Table 8** demonstrates strong correlations across strategy elements, directly validating the superior performance of community-generated content observed in **Table 6** (authenticity: 4.7, engagement: 16.3%) and the community participation success demonstrated by cities like Edinburgh in **Table 7**. Heritage-digital synthesis strategies exhibit the strongest urban identity impact correlation ($r=0.88$), confirming the effectiveness of integrated approaches that balance innovation with preservation, similar to the optimal authenticity-engagement zone (4.1-4.3) identified in **Figure 3**. The correlation analysis reveals that effective creative strategy elements demonstrate varying performance patterns across different implementation dimensions, yet successful urban identity construction ultimately requires understanding how these high-performing strategies translate into practical implementation scenarios with different resource and complexity requirements. While Table 8 identifies strategy effectiveness through correlation analysis, determining optimal implementation approaches necessitates examining the relationship between strategy performance and implementation complexity to guide resource allocation and sequencing decisions for sustainable urban cultural brand development. To translate the correlation findings into actionable implementation guidance, performance-complexity analysis was conducted, evaluating each validated strategy element across multiple implementation factors, including resource requirements, technical infrastructure needs, stakeholder coordination demands, and timeline considerations.

Table 7. International digital cultural brand development comparative analysis (n=12)

City	Cultural Heritage Type	Creative Strategy Approach	Engagement Growth (%)	Authenticity Preservation	Community Participation Level	Urban Identity Impact
Barcelona, Spain	Architectural Heritage	Heritage-Digital Integration	+23	High (4.3)	High	Strong
Kyoto, Japan	Traditional Culture	Technology Innovation	+31	Medium-High (4.1)	Medium	Very Strong
Edinburgh, Scotland	Cultural Events	Festival-Digital Synergy	+19	Very High (4.5)	Very High	Strong
Quebec City, Canada	Linguistic Heritage	Bilingual Digital Strategy	+21	High (4.2)	High	Medium-Strong
Prague, Czech Republic	Architectural Identity	Visual-Digital Focus	+16	High (4.4)	Medium	Medium
Singapore	Cultural Diversity	Innovation-Led Approach	+35	Medium (3.8)	Medium	Very Strong

Table 8. Creative strategy framework correlation analysis

Strategy Element	Cultural Authenticity Correlation	Community Acceptance	Implementation Feasibility	Urban Identity Impact	Creative Innovation Index
Digital Storytelling Integration	0.78**	0.71**	0.65**	0.82**	4.2
Community-Centered Content Creation	0.84**	0.91**	0.59**	0.76**	4.6
Heritage-Digital Synthesis	0.79**	0.67**	0.72**	0.88**	4.1
Interactive Cultural Experiences	0.61**	0.74**	0.68**	0.85**	4.4
Dynamic Community Feedback Systems	0.73**	0.87**	0.81**	0.69**	3.9

Note: Correlation coefficients are based on empirical analysis of strategy effectiveness across multiple implementation contexts. ** $p < 0.01$.

This analysis enables cities to select appropriate strategy combinations based on their current capabilities while establishing clear development pathways for comprehensive digital cultural brand enhancement. **Figure 4** presents the strategy performance-complexity matrix, revealing distinct implementation zones and phased development approaches for different urban contexts.

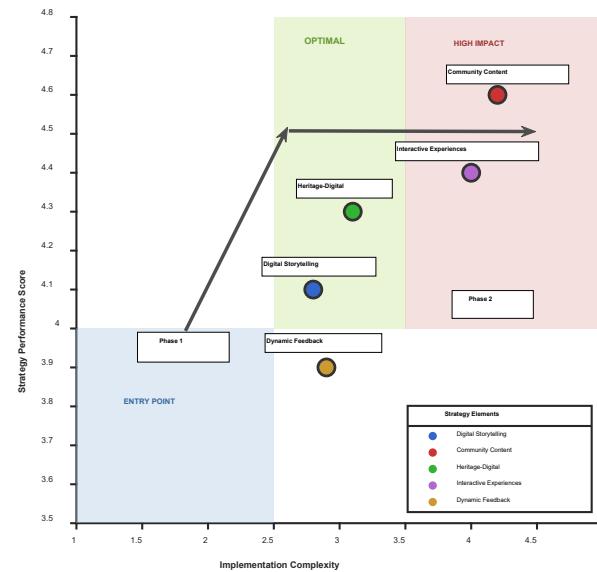


Figure 4: Creative Strategies Framework for Digital Cultural Brand Development and Urban Identity Construction

Figure 4 demonstrates three distinct strategic zones that provide clear implementation guidance for urban identity construction initiatives. The optimal zone contains heritage-digital synthesis and dynamic community feedback systems, representing strategies that achieve strong performance while maintaining manageable implementation complexity, making them ideal foundation approaches for cities establishing digital cultural brand capabilities. The entry point zone positions digital storytelling integration as an accessible starting strategy, while the high impact zone encompasses community-centered content creation and interactive cultural experiences, both achieving superior performance outcomes while requiring substantial implementation complexity through extensive stakeholder coordination and advanced technical infrastructure. The implementation pathway illustrated through Phase 1 and Phase 2 progression reveals systematic development logic, beginning with entry point strategies to establish basic capabilities, advancing through optimal zone strategies to build comprehensive foundations, and culminating in high-impact zone strategies that deliver maximum urban identity construction effectiveness. This phased approach enables cities to develop implementation sequences that match their current capabilities while creating clear advancement pathways toward comprehensive digital cultural brand enhancement, supporting evidence-based strategy selection that balances immediate implementation feasibility with long-term urban identity construction objectives while preserving cultural authenticity and achieving measurable stakeholder engagement outcomes. The empirical analysis identifies community participation, heritage-digital synthesis, and stakeholder alignment as critical success factors for digital media-enhanced cultural brand development, while strategic recommendations emphasize phased implementation approaches that progress from accessible entry points to high-impact creative strategies. These findings provide cities with evidence-based frameworks for implementing digital enhancement initiatives that preserve cultural authenticity while supporting sustainable urban identity construction through strategic integration of traditional cultural assets with contemporary digital communication capabilities that serve diverse stakeholder needs and tourism development objectives.

4. Discussion

The empirical findings extend existing theoretical frameworks while providing substantial practical guidance for creative strategies in digital media-enhanced cultural brand development and urban identity construction. This research demonstrates significant theoretical contributions that advance place branding conceptualization beyond traditional approaches, while offering actionable creative strategies for urban administrators and cultural practitioners seeking to leverage digital media technologies for authentic cultural brand enhancement. The development of creative digital strategies for cultural brand development represents a substantial theoretical advancement through the systematic integration of community participation mechanisms with digital media innovation. Contemporary place branding theory identifies three distinct conceptual approaches that separately emphasize economic, political, and cultural dimensions [29], yet this research demonstrates how creative digital media strategies create synergistic effects that transcend these categorical boundaries by enabling simultaneous economic development, political coordination, and cultural preservation through participatory urban

identity construction approaches. The identification of heritage-digital synthesis as a critical creative strategy provides empirical validation for frameworks emphasizing innovation-authenticity balance, demonstrating how strategic digital media integration can reinforce local cultural identity while enhancing global accessibility. Research findings reveal that community-centered content creation emerges as a creative strategy achieving optimal stakeholder acceptance while maintaining cultural brand authenticity, supporting sustainable urban development approaches that prioritize cultural identity preservation as fundamental to community resilience [30]. This research extends traditional public engagement frameworks through empirical demonstration of quantifiable relationships between community participation levels and both cultural brand authenticity preservation and digital media engagement effectiveness. The identification of dynamic feedback mechanisms contributes to evolving understanding of how digital media technologies support continuous community involvement in urban identity construction while addressing contemporary challenges posed by transnational digital workers and emerging creative class dynamics [31].

The practical implications of this study also go well beyond academic contributions, as the results offer some evidence-based recommendations for effective creative strategy implementation into urban cultural brand development, which involves the balance between local heavy and urban light and tangible identity construction of cities without losing the community involvement in the urban change process. The research validates emerging trends in digital cultural brand development through comprehensive innovative strategy frameworks that address complex implementation requirements via systematic development approaches, backing technological innovation such as metaverse applications for cultural brand conservation [32] via basic digital media existence that could serve for the higher degree integration of more advanced technologies during future stages. The framework analysis of the stakeholder alignment offers a practical tool to handle a range of divergent community and institutional needs, a common issue for the introduction of digital transformation initiatives in HCs that involves a systematic incorporation of new technological capacities alongside traditional preservation practices [33]. The identification of creative strategy elements that maximize performance while handling implementation complexity provides urban practitioners with systematic approaches to resource allocation and prioritizing urban identity construction that had been missing from place branding research. These results provide cities with empirical evidence to inform the development of digital cultural infrastructure policies, supporting cultural preservation and economic development through community-centered approaches that enable local ownership and authentic representation, while leveraging digital media technologies to increase access and global visibility. Despite these contributions, research limitations, including geographical focus and temporal scope, limit generalizability across different cultural contexts and technological environments. Future research should examine the cross-cultural adaptability of these creative strategy frameworks while investigating how emerging technologies can enhance rather than compromise community participation and cultural authenticity in urban identity construction processes. Longitudinal studies examining the sustainability of digital cultural brand strategies over extended periods would provide valuable insights into the long-term effectiveness of

community-centered approaches for maintaining cultural identity while adapting to evolving technological and social environments.

5. Conclusion

This study, one of the first to examine digital media-enhanced cultural branding through a comprehensive lens, shows that strategically incorporating creative digital technologies greatly enhances urban cultural brand transfer effect, and maintains the intrinsic nature of cultural identity in community-oriented manners. The empirical validation of the ensemble of the five base creative strategy elements—inter-injection of digital storytelling, community-based approach to content production, tradition-digital fusion, multi-way interactive cultural experience and dynamic online community feedback systems—attests the fact that systematic digital enrichment frameworks can be used to enhance cultural authenticity preservation as well as stakeholders' involvement outcomes in various urban contexts. The empirical findings bear important theoretical implications in terms of the extension of IMC theory to embrace digital media applications in constructing city identity, and practical implications in terms of application through stepwise approaches and a strategic mix of traditional cultural resources with modern digital communication resources for cities to gain sustainable competitive advantages. Analysis of stakeholder alignment, with differential patterns of acceptance between the resident, government, cultural practitioner, and tourist population, demonstrates that the creation of a successful urban identity necessitates creative, adaptive strategies that can meet the local community's needs, while preserving cultural identity, and effective institutional coordination. The academic and practical implications extend beyond traditional place branding research by establishing actionable strategic frameworks for urban cultural brand development practitioners. The research demonstrates three distinct implementation pathways derived from empirical analysis: entry-level digital integration through accessible digital storytelling approaches that enable cities to establish foundational digital cultural brand capabilities, optimal zone strategies incorporating heritage-digital synthesis and dynamic community feedback systems that achieve strong performance while maintaining manageable implementation complexity, and high-impact community-centered approaches utilizing community-centered content creation and interactive cultural experiences that deliver maximum urban identity construction effectiveness. The scholarly contributions advance integrated marketing communication frameworks through computational integration, provide methodological innovation combining AI enhancement with traditional cultural research approaches, and empirically validate community participation models as demonstrated through the superior performance correlations identified in the strategic framework analysis. These findings demonstrate how digital media technologies serve as catalysts for cultural preservation rather than threats to authenticity, thereby enriching urban marketing theory with digital transformation insights that support evidence-based policy development and resource allocation decisions. Future research directions encompass investigating emerging technologies including artificial intelligence and metaverse applications for cultural heritage preservation, conducting longitudinal studies examining sustainable cultural brand development effectiveness over extended implementation periods, and exploring cross-cultural adaptability of creative strategy

frameworks across different institutional and technological contexts. The development of comprehensive digital cultural infrastructure policies that balance technological innovation with community participation requirements represents a critical research priority, particularly as cities worldwide seek to leverage digital technologies for urban identity construction while maintaining authentic cultural narratives that serve both local community needs and global tourism objectives through creative strategies that demonstrate measurable outcomes in cultural preservation, stakeholder engagement, and economic development indicators.

Ethical issue

The authors are aware of and comply with best practices in publication ethics, specifically with regard to authorship (avoidance of guest authorship), dual submission, manipulation of figures, competing interests, and compliance with policies on research ethics. The authors adhere to publication requirements that the submitted work is original and has not been published elsewhere.

Data availability statement

The manuscript contains all the data. However, more data will be available upon request from the authors.

Conflict of interest

The authors declare no potential conflict of interest.

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