

Reimagining Urban Public Spaces Through Digital Art: A Framework For Cultural Engagement And Inclusive City-Making In Hangzhou, China

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Abstract:

Integration of digital technologies in public art installations has a significant potential for the transformation of urban spaces, however many of such initiatives have failed in leaving a lasting impact. Absence of a uniform design framework for connecting the intents of the artist with the technological execution, becomes one of the key challenges. The present study endeavors to fill the identified gap with the introduction to a seven-phase design framework for guiding the execution, public value as well as the sustainability of digital art within public sphere. The study uses the case study method under the qualitative research strategy in Hangzhou, China, to conduct semi-structured interviews with digital artists and representatives from technology enterprises. The research utilizes the NVivo analytical tool for analyzing the interview data, forming the structured framework that includes Requirements Analysis, Design Conceptualization, Technical Implementation, User Experience Testing, Optimization, Implementation and Maintenance, and Post-Installation Evaluation. The framework foregrounds the vitality of interdisciplinary collaboration, technology adaptability and user-centred design. The framework shall provide practical suggestions encouraging cultural engagement, promoting inclusive form of community participation, along with encouraging social innovation and sustainability at the economic level. The findings contribute towards the policy strategies of urban culture of incorporating digital art into urban development, aligning artistic creativity with technological strength. This study offers important insights for policymakers and practitioners with the aim for harnessing digital public art for cultural revitalization and sustainable urban innovation.

Keywords: Digital public art; Urban cultural policy; Design framework; Social innovation; Cultural economy; Community engagement

1. INTRODUCTION

Digital art is transforming our experience of the cities. Art is not limited to galleries or museums only, it now appears on walls of buildings, public plazas, and streets. It has transformed everyday places into creative and interactive spaces. Globally, city planners and cultural leaders are opting for digital public art for it has the capacity to breathe life into urban areas, attract tourism, and deepen the cultural connection. The installation of digital art can symbolize the identity of a city along with providing a blend of innovation as well as expression. However, success is not depended only on the cutting edge technology and creative ideas but it depends on the thoughtful planning that centralizes communities. Digital art projects often fail to live up to their goals as the creative vision, technical realities, do not blends with the needs of local residents. This lack of connection makes it tough for projects to produce real impact. Research studies in urban development and public art showcases the ways in which art can drive renewal of a neighbourhood along with strengthening a sense of place. Culture-driven revitalization often leads artists to rethink shared public spaces, generating social as well as economic benefits (Baek et al., 2021). Digital tools tend to expand the possibilities, making experiences more immersive and accessible widely along with bringing new challenges.

Projects which utilizes augmented or virtual reality, for instance, show the ways in which digital layers can enrich public spaces (Lee et al., 2021; Hurst et al., 2023). However, these efforts succeed only when artists, technologists, and policymakers collaborate together since the beginning of the project. Without a clear collaborative approach, projects get fragmented for example, leaning too much on technology or on aesthetics while missing the balance required for sustainability and public support. There persists a lack of integrated models that brings artistic as well as technical elements together (Bettivia & Stainforth,

2023). Other vital concerns such as ways in which the project is managed, or checking accessibility of the project, and the manner in which it fits into the local culture, are often undermined, hence weakening the long-term value of such projects (Saleh et al., 2022).

The present study responds to the identified gaps by proposing a design framework that shall be tailored for digital public art in urban spaces. The research focuses on Hangzhou, China, a city rich in tradition along with being at the forefront of the digital economy. This setting offers a unique opportunity to explore the ways in which technology and culture can be intertwined in public space. Through conducting conversations with local artists, tech experts, and planners, the research develops a seven-phase framework that interconnects artistic intent with practical delivery. It emphasizes collaboration of different fields, consistent input from communities, and long-term care being crucial for making public digital art to be meaningful and enduring. The framework, by aligning with the urban cultural policy and creative goals for cities, shall provide a working guide for its readers who are involved in shaping public art ranging from artists to urban planners. The aim of the framework is to help artists and planners to co-create spaces that are inclusive vibrant as well as futuristic in its approach. The paper will explore relevant literature along with explaining the undertaken research process. Further, the Hangzhou case study shall be discussed and lastly the paper will reflect on the vitality of the framework for social innovation and city planning.

2. LITERATURE REVIEW

The increased rate of fascination among the public for digital art in public spaces delineates attempts of cities to integrate cultural aspects with technologies. Scholars have been exploring the impact of digital installations on culture of urban cities, community engagement, and the development of shared spaces. Cultural regeneration theories state that art could bring about urban revitalization along with social inclusivity (Baek et al., 2021), and digital art offers new approaches to fulfil these goals. Recent research has indicated that interactive media facades, projection mapping, and AR/VR art change experiences of an individual of urban environments by blending the physical with the virtual realms (Lee et al., 2021; Hurst et al., 2023). These initiatives emphasize the ways in which immersive digital art can improve individual experiences of urban life, promote social ties, along with redefining local identity. However, academic discussions have also revealed substantial challenges in the real world. One of the prominent challenges is the lack of a integrated design framework that addresses the technical and artistic integration in digital public art projects (Bettavia & Stainforth, 2023). While technology-centred projects place a higher priority on prototype, usability, and maintenance, traditional public art techniques frequently concentrate on aesthetic considerations, community dialogue, and site-specific aspects. Bridging these realms is essential for digital public art, yet much current research has examined artistic achievements and technological systems mostly in isolation. For instance, some scholars investigate the unique user experiences created by digital art, while others analyze smart city technologies and infrastructure; few efforts combine these viewpoints. Saleh et al. (2022) emphasize that integrating digital public art into historical urban environments must balance innovation with contextual sensitivity – a challenge that requires a guiding framework.

The literature highlights a clear need to make digital art in public spaces more attracting and easy to engage with—for everyone. That includes people who may not be comfortable with technology or who have different abilities. Studies on digital placemaking stress how crucial it is to involve communities in the design process. When people help shape these projects, the results are more likely to reflect local values and truly meet the needs of the community (Cuomo et al., 2021). Inclusion pertains not just to audiences but also to the active involvement of local artists and stakeholders in the design process. Studies on culture-driven urban development highlight that collaborative approaches – engaging residents, artists, and officials – improve community acceptance and maintain impact (Baek et al., 2021). These findings suggest that a robust framework for digital art in urban environments should integrate community involvement and feedback mechanisms (e.g., user testing phases) as integral components of the process. Furthermore, prior studies have not sufficiently examined the relationship among digital art, local economies, and governmental frameworks. Evidence suggests that dynamic cultural installations can revitalize urban economies by drawing in tourists and boosting the creative sectors (Cuomo et al., 2021;