Doctoral Dissertation
Doctoral Program in Architectural and Landscape Heritage (34th Cycle)

Urban Heritage and ICTs

A Hybrid Research on the Formal and Informal Participatory Management for Cultural Heritage in Chinese Rapid Urbanization Contexts

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Politecnico di Torino
2022

Declaration

I hereby declare that, the contents and organization of this dissertation constitute my own original work and does not compromise in any way the rights of third parties, including those relating to the security of personal data.

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2021

* This dissertation is presented in partial fulfilment of the requirements for **Ph.D. degree** in the Graduate School of Politecnico di Torino (ScuDo).

I would like to dedicate this thesis to my loving family members for their endless love and support.

Acknowledgment

This dissertation, as the final outcome of my PhD study, is completed with the support and assistance of many adorable people.

I would first like to thank my supervisors, Prof. Elena DELLAPIANA and Prof. Cristina COSCIA, who read my numerous revisions. They helped me get through uncountable confusions and difficulties in my research process. Prof. Elena Dellapiana is a really open-minded researcher whose expertise is in history study and industrial design. She inspired me with such a meaningful sentence that a good researcher should play a role as a good collaborator with experts from different fields and be able to build her own academic networks. I did so and finally, I have received fruitful achievements. Instead, Prof. Coscia is more focused on providing me with help in assessment methodologies in the heritage value recognition part.

Also, I would like to acknowledge the external supervisors, Prof. Yu ZHANG from Harbin Institute of Technology and Prof. John MARTIN from Plymouth University, who have hosted me as an exchange student by giving me both academic and technological suggestions on-site and remotely during the difficult pandemic period. I would like also to thank the coordinators of my PhD program, Prof. Emanuele ROMEO, Prof. Annalisa DAMERI, and Prof. Antonia Teresa SPANO ', who offered guidance and patient support.

And finally, thanks to my parents for their wise counsel and sympathetic ear. And I couldn't' have completed this dissertation without the support of numerous friends who endured this long process with me.

Abstract

During the last 20 years, with the development of Information and Communication Technologies (ICTs), an emerging interest has appeared in Digital Community Engagement (DCE) in the process of cultural heritage management. Due to a growing need to involve a broader community in the Historic Urban Landscape approach, social media are considered one of the most important platforms to promote the public participation process of urban heritage conservation in the context of rapid urbanization. Among the growing literature on DCE, which has delivered a general overview of different digital technologies and platforms to enhance heritage conservation, a few articles have been done on taking stock of the utilization of social media in this process. In addition, the broad attention on the World Heritage Property management in Chinese community engagement is mainly clustered in policy, economy and diversity aspects. Little research has been done on systematically reviewing the practices of community participation within Chinese cultural heritage, nor defining the role of digital technology played in it. To fill this gap, the research aims to explore how ICTs can contribute to community engagement and further influence sustainable cultural heritage management.

Community participation plays a core role in sustainable urban development and inclusive cultural heritage management. Based on the evolving definition of community participation from the Historic Urban Landscape approach, this work starts with a review on the conceptualization of community participation with a discussion on the role of the community played in participatory management. Following that, Chapter 2 aims to fill the research gap by providing a more comprehensive picture of the functionalities of social media platforms and their impacts on sustainable urban development through a systematic literature review. Chapter 3 focuses on the illustration of the world-widely applied digital tools concerning community engagement promotion highlighting that social media is one of the vital tools to engage a wider range of audiences in conservation practices.

Taking five World Cultural Heritage Sites as case studies, Chapter 4 contributes a methodology to evaluate online participatory practices in China by analysing the open data obtained from the Chinese social media Weibo. It discovers that, to a great extent, the participatory activities in Chinese urban heritage conservation practices emerge at the relatively primary levels. Moreover, residents have shown particular interest in buildings, facades, and temples in the cultural heritage sites by sharing and posting massive images. Chapter 5 supplemented an online survey and on-site interview to the previous study for understanding the value of community participation to obtain a more sustainable way for integrations about cultural heritage. It focuses on the identification of criteria for the evaluation of DCE and proposes the multivariate evaluation model.

To conclude, online urban heritage practices offer a platform for local citizens, especially grassroots, to collaborate with heritage institutions and professionals. Social media practices may have a wider resonance when they combine broader communication and collaboration methods. Using social media platforms to unveil interplays between digital and physical heritage conservation is feasible and should be widely encouraged.

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For China, which is experiencing rapid economic development and is undergoing rapid urbanization, how to protect cultural heritage more sustainably has been a hot topic in academic world in recent years.



Figure 1 On January 27, 2022, President Xi Jinping waved to the crowd in the ancient city of Pingyao (World Cultural heritage) and wished everyone Happy Chinese New Year. Source: Xinhua News Agency (http://www.news.cn/politics/leaders/2022-01/28/c_1128308340.htm)

Chapter 1

1. Introduction

1.1. A Brief Introduction

Community participation is an inclusive and dynamic process in heritage management, which contributes to sustainable urban development, which is not only ecological, economical but also socially oriented from a long-term view (Bandarin and Oers, 2012; Settis, 2011). Civic engagement tools should be applied as a key approach to educate and communicate with stakeholders from different cultural and educational background, and finally empower them taking part into the decision process: setting planning strategy, define visions, evaluate long-tern benefits of their own heritage area (Oers and Roders, 2013). In line with this, the World Heritage Center is endeavouring to involve a variety of stakeholders in heritage identification, protection, and preservation as a worldwide strategic policy (Jokilehto, 2005).

UNESCO's Recommendation on the Historic Urban Landscape marks a brand-new integrated approach to the conservation of Chinese cultural heritage. It highlighted the importance of community engagement and offered a series of participatory tools at the international level, which required deep civic engagement to identify the key values of concerned heritage objects. Meanwhile, Information and Communication Technologies (ICTs), such as 3D modelling, Virtual Reality, Augment Reality, are widely used in cultural heritage conservation practices to enhance public participation. Social media is deemed as one of the vital tools to engage a wider range of audiences in conservation practices. It can not only promote cultural value at the educational level by rendering heritage and relevant information more accessible, but also involve citizens in further documentation by crowdsourcing.

Storytelling and mapping are the current main research practices of social media to spark a greater awareness of cultural diversity. In terms of the analysis of geospatial information, social media also shows great potential (Boy and Uitermark, 2017). For example, shared geolocation can help to compute the accessibility and connection in an urban area with the Space Syntax method. Online posts document the connection among stakeholders which is crucial to trace the inner relationship (Jong, 2015). Social networks can also help suppress the power relations embedded in the city to maintain the space justice (Rose and Willis, 2018). In addition, Social media plays a core role in inclusive heritage management and contains multi-potential values to structure the inner connection of stakeholders and

express the preferences of users and non-users in urban landscape studies without distinction (Wilkins et al., 2022).

The research topic is inspired by the forced shifting of the public participation method and platforms in global cultural heritage management. Since the beginning of 2020, the pandemic explosion accelerated the transformation process of the collaboration among stakeholders due to the strict restriction preventing on-site activities. Responding to this global emergency issue, China's government has taken a series of effective and efficient internet-based approaches to promote communal participation, such as the geo-location-based green pass system. But understanding stakeholders' engagement level and their preferences through social media have not been well-evaluated and explored in the Chinese context. It may be mainly due to the isolation of the social media web with westerns and the highly centralized state mechanism.

The study contributes to filling this research gap by offering an in-depth study on digital community engagement in Chinese urban heritage sites. The comprehensive collection and analysis of relevant articles both on the most updated digital technologies applied to cultural heritage conservation and tracing the origin of theories in the history of Historic Urban Landscape theory built the foundation of this work. The state of practice part further supports the literature review with a qualitative study on the practices that involve social media to promote public participation worldwide. Following that, the study is carried out from two aspects: passive engagement and active engagement in the decision-making process. In the passive engagement part, the internet cookie that the local community has left on social media is acquired and examined to understand the participatory degrees. In the active engagement phase, an online questionnaire and semi-structured interview aiming to evaluate the impact elements on Willingness to Participate and Willingness to Pay are completed in Kulangsu international settlement (see Figure 25) mainly with the help of Xiamen University and Kulangsu local government.

1.2. Research Questions

The main research question of the study is: How can community participation in cultural heritage management be improved through digital platforms/ICTs within Chinese urbanization contexts? The four sub-questions that are leading to four body chapters are as follows:

1. How could communities (core and broader) be engaged in cultural heritage management in both Chinese and International practices?
2. How can community participation in heritage conservation be enhanced to achieve sustainable urban development in the digital era? (mainly focus on China)
3. How to assess the effectiveness of (digital) community participation within the state of the practice of cultural heritage properties in China?
4. How to address ICTs into the complexity of community participation positioned within the cultural heritage management in China and how to understand the impact/values of ICTs on the state of the practices.

In line with the research questions, this PhD research contributes to both Chinese and global knowledge of (digital) community participation in cultural heritage management towards sustainable urban development. In detail, the objectives of this research are illustrated in bullet points as below:

5. To understand and conceptualize digital community participation in cultural heritage management.
6. To assess the effectiveness of digital community participation within the state of the practice of cultural heritage properties in China.
7. To explore the digital ways community participation and local communities' perceptions, attitudes and values are understood and interpreted within participatory management of cultural heritage in a Chinese case.
8. To reveal the integration of heritage conservation in sustainable urban development through digital community participation.

1.3. Structure of the Dissertation and An Overall Methodology of the Study

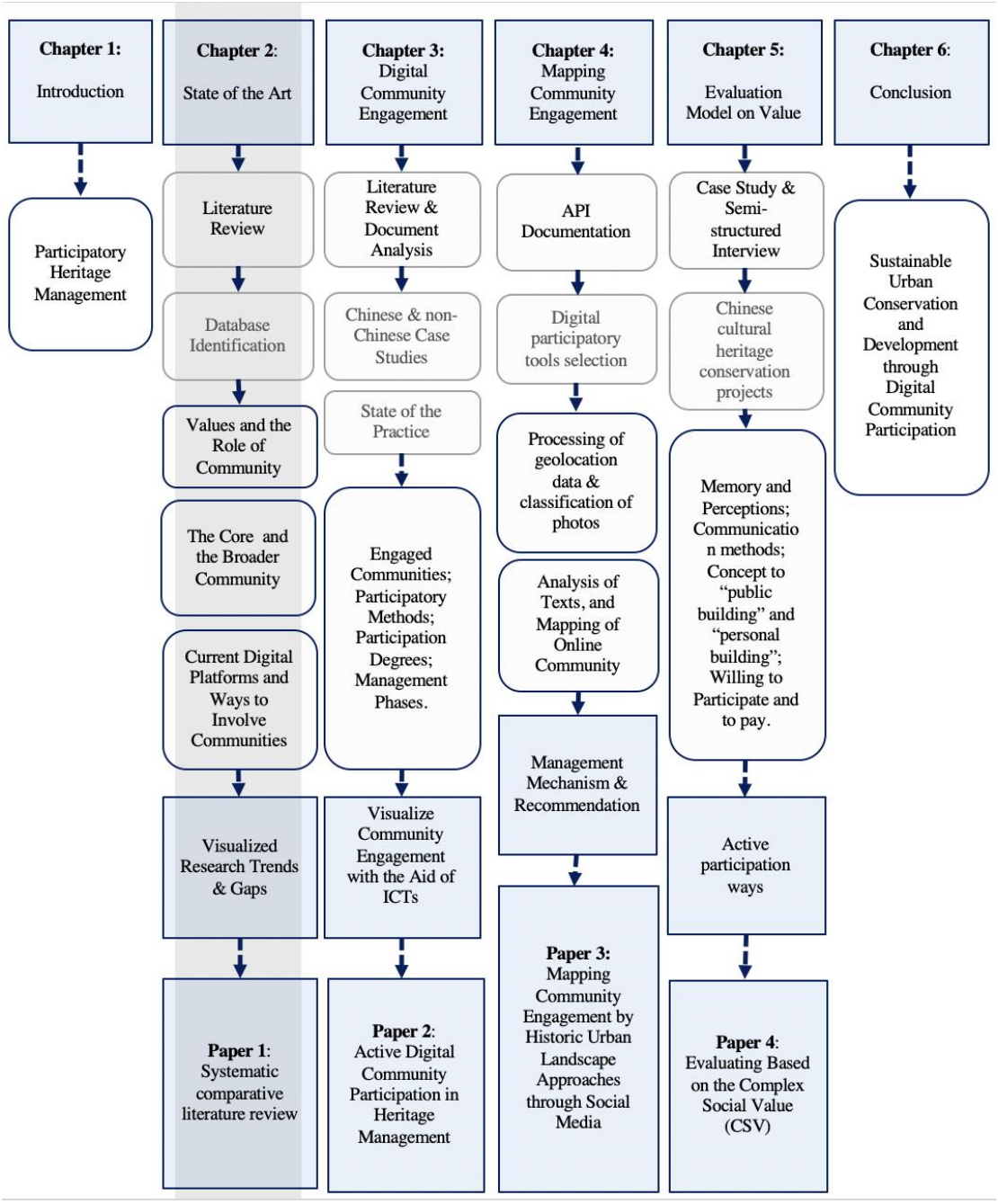


Figure 2 The Structure of the Dissertation

As shown in Figure 2, the dissertation is made for 3 main parts: introduction, main body, and the conclusion. From chapter 2 to chapter 5 are research background, state of practice on digital tools in cultural heritage management worldwide, evaluate community engagement degrees through the social media in the Chinese context, debate and evaluation of the value.

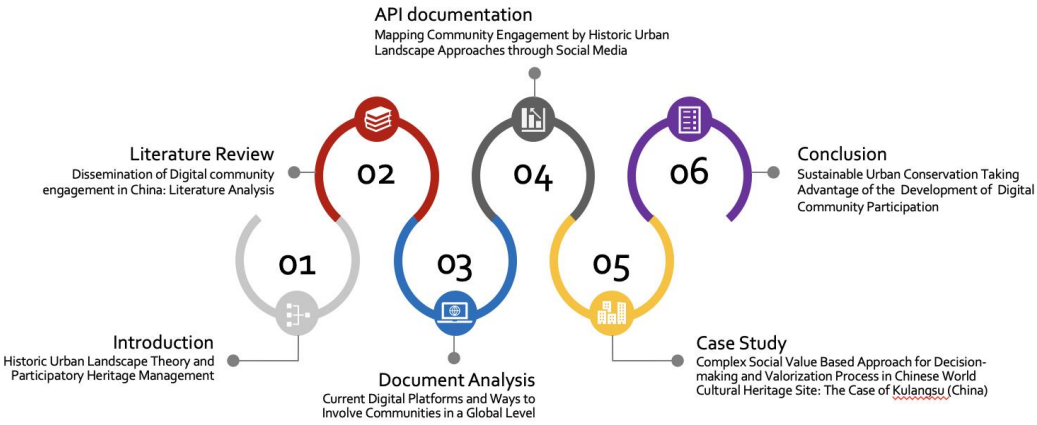


Figure 3 An overall methodology of the study

Chapter 2 is mainly based on the Web of Science database to conduct a systematic summary and combing of the documents involved in digital public participation. The first part states the method of obtaining and selecting the literature, and the delineation of the overall research scope based on the overview of the literature (see Figure 3). The second part is to use Citespace literature analysis software to visualize the research trend of selected literature through quantitative analysis, with the purpose of fully understanding the current research progress. The third part reviews the theory of community public participation and overall cultural heritage protection (Historic Urban Landscape theory) around the world. The fourth part discusses the evaluation framework of public participation and its application in China based on previous studies. The fifth part is mainly concerned with the value of cultural heritage and values under different cultural backgrounds.

Chapter 3 states a comprehensive summarization on currently involved ICTs in heritage management from a global level. In which, the common feathers and impacts of applying digital technologies to involve audiences taking part in cultural heritage conservation are listed. It aims to fill the research gap by providing a more comprehensive picture of the functions of social media platforms and their impacts

on sustainable urban development through a systematic literature review. As a result, 19 out of 248 DCE relevant articles are selected as objects to illustrate the contribution of social media. The study seeks to identify the characteristics of these applied social media tools and explore their roles and influence. The article concludes that social media offers a platform for a wider range of stakeholders to have a voice in the decision-making process of cultural heritage management, and it should be widely applied to encourage citizens from all over the world.

Chapter 4 highlighted the contribution of social media platforms to enhance stakeholders' communication and collaboration. It proposes the crucial debate in this research: the information privacy issue. The ethical concerns are the main challenge for building the research assessment framework: from data acquisition, posts screening and collection to final analysis. Taking Lijiang, Pingyao, Suzhou, Macau, and Kulangsu as case studies, this article proposes an assessment framework to analyze the users' posts' information, such as geo-location, texts, and photos on Weibo. Besides, it offers an insight into the context of the COVID-19 pandemic period. As shown in the result session, the participatory degree, to a great extent, remains in the informing and consulting levels. The chapter concludes that public participation in the inclusive heritage management process is still at a nascent level. More digital tools should be encouraged to apply to the cultural heritage management field.

Chapter 5 offers an innovative approach to understanding the value of community participation to obtain a more sustainable way for integrations about cultural heritage taking Kulangsu as an example. Starting from the reading of the Complex Social Value theory, this chapter continues with the introduction of the Outstanding Universal Value, urban morphological transformation, management system of the defined case of Kulangsu. It focuses on the identification of criteria for the evaluation of Digital Community Engagement (DCE) and proposes the multivariate evaluation model based on the online questionnaires and face to face interviews. The result shows the transparency of the management process and the satisfaction of the resident's needs and interests can strongly influence the Willingness to Participate and Willingness to Pay. Thus, the chapter concludes that the transparency of governance, the correspondence with the needs and interests of the local communities, and the trust in bottom-up communication and collaboration are the most important factors to promote public participation.

Chapter 2

2. Research Background: The State of the Art

There is a rapidly growing array of ICT that aims to enhance people's connections to heritage places through increased access to information, new experiences created at historical sites and new forms of participation. Many commentators and institutions have claimed that ICT offer significant innovations for traditional public participation means, and opportunities to foster citizen engagement in urban planning. Enhancing community engagement in the cultural heritage conservation process is not only ecological, economical but also socially oriented from a long-term view (Coscia and Curto, 2017; Spacca et al., 2018).

2.1. Community Engagement as an Effective Tool of Historic Urban Landscape Approach

Although the internationally accepted principles and system of conservation are in place, such as the 1972 World Heritage Convention (Jokilehto, 2005), urban conservators still need a robust toolkit in the complex environments nowadays. The Historic Urban Landscape approach [1] reflects the development of heritage philosophy "in society, for society and by society" (Roders and Bandarin, 2019). The community engagement tools are listed as one of the expanded conservational instruments by the HUL approach among regulatory systems, technical tools (knowledge and planning tools), and financial tools (Bandarin and Oers, 2012). However, how to apply the western born "doctrinal" approach to worldwide societies and how to define operational principles to ensure urban conservation models that respect the values, traditions, and environments of different cultural contexts still needs further examination in practice.

As Bandarin and Oers noted in the book The Historic Urban Landscape: Managing Heritage in an Urban Century *'...the Historic Urban Landscape approach is not designed to replace existing doctrines or conservation approaches, but rather is envisaged as a tool to integrate policies and practices of conservation of the built environment'* (Bandarin and Oers, 2012). It states clearly that the HUL approach is a holistic notion attempting to fill the gap between the ideal world of conservation principles and the practical reality in the transitional global context. Architectural heritage changes should be minimized to preserve their authenticity, which was confirmed in the 1964 Charter of Venice[2]. The purpose of protection should maintain its authentic material evidence of historical objects and works of art. Unlike the exhibits in museums, architectural heritage has value as a building. To win its own meaning of existence, it must have a positive effect on the present

[1] On 10 November 2011 UNESCO's General Conference adopted the new Recommendation on the Historic Urban Landscape by acclamation, the first such instrument on the historic environment issued by UNESCO in 35 years.

[2] As noted in the Charter of Venice (1964) "It is essential that the principles guiding the preservation and restoration of ancient buildings should be agreed and be laid down on an international basis, with each country being responsible for applying the plan within the framework of its own culture and traditions." Subsequent ICOMOS charters have taken up that mission, establishing professional guidelines for specific conservation challenges and encouraging effective communication about the importance of heritage conservation in every region of the world.

age rather than a negative one. Launching holistic and sustainable approaches encourages multi-stakeholders to collaborate to protect the architectural ontology.

2.1.1. The Concept and Approach of Inclusive Management in the Global Level

> *"In addition to a loss of authenticity, cultural diversity has also fallen victim to large, international corporations with powerful brands that replace local shops and their products - from coffee bars and sandwich shops to restaurants and hotels. Historic inner cities have become more uniform in the range of products and services they offer nowadays, which significantly diminishes the cultural-historic value of the place, and thus the visitor experience" (Bandarin and Oers, 2012).*

Several representative scholars played important roles in promoting the conservation of traditional structures in historic cities. Camillo Sitte insisted on the historic city as an aesthetic model, and his followers are called the pioneers who paved the way for the development of urban conservation practice (Sitte, 1889). Another conservational principle of great significance was established by Italian scholar Gustavo Giovannoni. He pointed out the necessity to conserve the built "environment" of historic monuments regarding the urban fabric that represents the layers of time, which is a clear position against the simple "dismemberment" of buildings (Zucconi, 2014). Considering the globalization trend and relevant influencing factors, Bandarin and Oers redefine contemporary conservation as a new way to manage all the rapid social, economic, cultural, political changes (Bandarin and Oers, 2012). Tracing the intellectual development process of modern urban conservation paradigms, the HUL approach stands out as a "bottom-up" expression of social values and social choice which can better recognize cultural diversity and the dynamic nature of urban heritage in the context of rapid globalization.

In the past three decades, the world heritage management is largely influenced by the western experience and philosophies of the nineteenth century (Roders and Bandarin, 2019). Meanwhile, international organizations are trying to reinforce the contradictions and complexities inherent in the contemporary perspective on urban

conservation. After the 1994 Nara Document[3] on Authenticity cautiously opened the way to a culture-based appreciation of conservation values (Jokilehto, 2005), the Stockholm Intergovernmental Conference on *Cultural Policies for Development*[4] clearly expressed the development dimension of culture (Roders and Bandarin, 2019). Along with the increasing international attention to the diversity of cultural expressions, this key message is also incorporated into the HUL approach to ensure an effective, sustainable link between a society and its heritage. Following the supplement of "community" in the *Global Strategy of World Heritage* [5], a series of conference discussions and declarations started to focus on the role of community in heritage protection. In 2012, the World Heritage Convention's 40th anniversary celebration in Kyoto highlighted the role of local communities in heritage conservation, emphasizing that their benefits should be guaranteed. The UNESCO Report on the *III Habitat Conference*[6] provided an integrated platform for the promotion of cultural policies in the urban sphere, summarized by three terms: People, Places (environment), and Policies. A series of innovative approaches, policies, and tools in urban conservation have emerged at the international level ever since.

One of the fundamental objectives to engage the local community in urban heritage conservation management, amongst others, is to strengthen their cultural identity, which is tightly linked with the recognition of the spirit of place (Genius loci). Another vital target of these engagement enhancing activities is to improve the residents' living quality against the context of rapid urbanization nowadays. Introducing wider community participation can better balance the contradiction between urban development and heritage protection. In 2015, the *UNESCO 39th session of the World Heritage Committee Conference*[7] emphasized that in order for the development of world heritage, local communities must be involved, and their

[3] Known as the Nara Document on Authenticity, 16th meeting of the World Heritage Committee, hold in Nara, Japan, 1994.

[4] The messages emerging from the 1998 Stockholm Conference served as the foundation for the Universal Declaration on Cultural Diversity (2001), and later, for the preparation and adoption of the Convention on the Promotion and Protection of the Diversity of Cultural Expressions (2005). Source: UNESCO website (https://en.unesco.org/creativity/news/celebrating-20-years-unesco-intergovernmental).

[5] It refers to the 26th session of the World Heritage Committee, hold in Budapest, Hungary, 2002, well known for the Budapest Declaration.

[6] It refers to the United Nations Conference on Housing and Sustainable Urban Development, hold in Quito, Ecuador, 2016.

[7] 39th Session of the World Heritage Committee, hold in Bonn, Germany, 2015.

benefits must be taken into account. Since then, the participation of community stakeholders has become a key measure of heritage protection. The core community that creates living heritage and sustains the original function of heritage is seen as an inseparable part of heritage. Experts and professionals have offered the rules to identify stakeholders: residents who live in the heritage context as the core community with priority. While partnering with authorities, experts and economic actors are justified to be the broader community as facilitators (Chitty, 2016; Court and Wijesuriya, 2017; Poulios, 2014; Settis, 2011).

HUL lists “community participation tools” as one of the extended protective methods, with the purpose of educating and empowering various stakeholders to recognize the key value of their cultural heritage and promote sustainable urban development (Bandarin and Oers, 2012). Meanwhile, how to determine the “core communities” that should be given priority to participate in local decision-making and the broader communities corresponding to them, and to seek a more general value identity for the protection of urban cultural heritage, is the common concern of China and the West world. When the public collaborates with government authorities, relevant experts, and third parties, they should carefully consider and define the scope of the "core community” and a series of broader social issues that follow (Court and Wijesuriya, 2017). In addition, the sociologist Poulios further emphasized that the “core community” as mentioned in the “living heritage” approach is a different concept from the “local community” referred to in the heritage management approach based on heritage values (Poulios, 2014). British political scholar Maags showed in detail the role of various stakeholders (individuals, experts and scholars, social groups, non-governmental organizations, enterprises, etc.) in heritage protection (Maags and Svensson, 2018). It also elaborated on the competition between the state apparatus and other participants for the right to speak and other powers in the process of urban renewal in China. It is worth mentioning that in China, the people's community identity is directly related to the administrative division of the household registration system (Verdini et al., 2017).

Besides the identification of the core community and the broader community, a lesson from governance is to evaluate and classify public participation (see Figure 4). Integrated heritage management in sustainable urban development should be implemented through community collaboration and empowerment (Bideau and Yan, 2018; MacRae, 2017; Verdini et al., 2017). The consultative and informing activities are determined as elementary-level public participation. Effective communication, including a certain number of complaints as a kind of feedback, is

a crucial phase in the reinforcement progress. Raising the citizen's awareness by educating, such as giving lectures, workshops and social media broadcasting, and building their capacity to take part in the decision-making process of their local environment will be the final goal and the highest level of community involvement. It is accessible for both short-term and long-term benefit and responsibility-sharing (Borona and Ndiema, 2014; Ferreira, 2018).

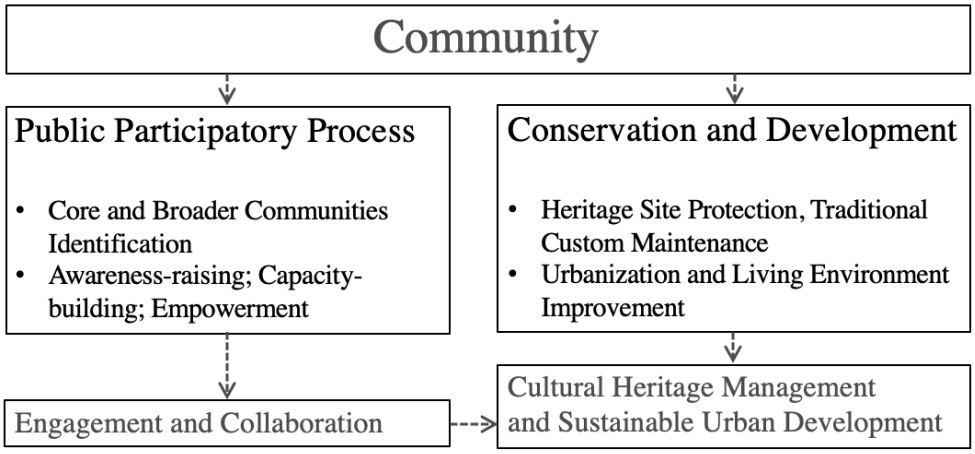


Figure 4 The role of community in holistic management process

Parallel to this shift, the world heritage convention has evolved, with the introduction of new heritage types such as cultural landscapes. Within this convention, a debate on the conservation of urban heritage has led to the *Vienna Memorandum* [8] of 2005 and the later adoption by UNESCO the *HUL Recommendation*[9] in 2011 (Roders and Bandarin, 2019). Moreover, the living heritage approach[10], which clearly challenges the established principles defined by

[8] It refers to the Vienna Memorandum resulted from World Heritage and Contemporary Architecture conference, Vienna, Austria, 2005.

[9] Decision was made during the 35th session of the World Heritage Committee, Paris, France, 19-29 June 2011. On 10 November 2011 UNESCO's General Conference adopted the new Recommendation on the Historic Urban Landscape by acclamation, the first such instrument on the historic environment issued by UNESCO in 35 years.

[10] ICCROM launched the programme on promoting people-centered approaches to conservation as a response to the growing demand to broaden the way in which heritage is perceived by communities, and to explore conservation and management approaches accordingly. With the view of framing future activities (within budgetary constraints), a two-day workshop was held in early November 2013 with 12 participants from ICCROM and several countries. A concept paper was prepared by a consultant and used as the basis for discussion. The first Forum was held in Seoul, Korea on the theme "Asian Buddhist Heritage: Conserving the Sacred", December 2013. Source: Annual Report November 2013 – October 2014, ICCROM Newsletter 40.

both material-based approach and value-based approach, is inextricably linked to the concept of continuity in the heritage's original function, the connection with the local community, and the dynamic process of tangible and intangible heritage in continuously changing circumstances (Poulios, 2014). In 2013, the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) launched some "living heritage" projects in Thailand, Cambodia, Sri Lanka and other Southeast Asian regions. Subsequently, ICCROM issued a guidance document in 2015, discussing the concept of "living heritage" and the "people-oriented" cultural heritage management method. It proposes to protect the city as a whole "living heritage", and the concept of "people-oriented" needs to be incorporated into planning strategies and processes (Court and Wijesuriya, 2017). In the process of heritage protection, attention should be paid to the improvement of the quality of life of community residents. Following that, UNESCO organized an International Congress *Culture: Key to Sustainable Development* in China[11] focusing on the linkages between culture and sustainable development. Along with the increasing attention by international practitioners to the diversity of cultural expressions, this key message also incorporated into the HUL approach to ensure an effective and sustainable link between a society and its heritage.

2.1.2. Cultural Heritage Management and Community Engagement in China

HUL approach has been widely discussed at the regional level during the drafting and approval of the Shanghai Agenda for the HUL implementation in China from 2013 to 2015[12], hosted at WHITRAP, the World Heritage Institute for Training and Research in the Asia-Pacific Region. Later, a series of relevant activities were organized by the WHITRAP on promoting HUL approach after

[11] The International congress *Culture: Key to Sustainable Development* Hangzhou, China, from 15-17 May 2013. It was the first International Congress specifically focusing on the linkages between culture and sustainable development organized by UNESCO since the Stockholm Conference in 1998.

[12] It refers to the discussions that happened a few months before the International Conference in Shanghai on 'Historic Urban Landscape' (12 December 2014) until the approval of the third revision of the 'Shanghai Agenda' in May 2015.

2014[13]. Although the discussion[14] and approval[15] of HUL implementation in Chinese context occurred slightly laggard, it significantly evokes a wide discussion on the regional level and emphasized on a sustainable development of the local community by concerning the priority on the improvement of living conditions and sharing benefits from urban heritage conservation.

At the same time, regulatory systems and policies have been established to loosen the tensions between the two aims of global heritage management: the preservation of local cultural diversity, and the "universalizing" trend imposed by world heritage objects, places, and practices. Harrison pointed out that

> *"The notions of universal heritage value become problematic in countries whose concepts of conservation of heritage differ radically from those that form the Authorized Heritage Discourse (AHD) of UNESCO" (Harrison, 2009).*

Among all the contributions on value's discussion, 'The Modern Cult of Monuments: Its Character and Origin' (1903), written by Alois Riegl, is the milestone for the entire 20th century (Riegl, 1903). It offers a systematic reading of heritage values and then transformed to the fundamental principles of the Venice Charter (1964). Furthermore, the recent discussion on cultural heritage and landscape values, which is different from the valorisation or evaluation in an economic sense, focuses mainly on complex cultural and social values (Ginzarly et al., 2019; Kyvelou and Gourgiotis, 2019). In the heritage valorisation, concentration has been put more on the historical value of monuments than on the economic feasibility and reuse of the interventions (Coscia and Curto, 2017).

[13] Such as Guangzhou Roundtable on Historic Urban Landscape (HUL), Exploring the Role of Public Participation and Public-Private Partnerships in Urban Heritage Management, Guangzhou, 11-12 December 2014; the Expert Meeting The Implementation of UNESCO Historic Urban Landscape Recommendation held at WHITRAP in Shanghai, China, 26-28 March 2018; Consultation on the 2011 Recommendation on Historic Urban landscape (HUL) Implementation, by Member States, in 2015, 2017 and 2019.

[14] It refers to the International Conference in Shanghai on 'Historic Urban Landscape' on 9-10 December 2014, hosted by the World Heritage Institute of Training and Research for the Asia and the Pacific Region under the auspices of UNESCO, WHITRAP Shanghai.

[15] It refers to the 'Shanghai Agenda' for the Implementation of UNESCO Recommendation on Historic Urban Landscape (HUL) In China: First edition on 10 December 2014; revised on 10 January 2015, second revised on 12 April 2015,

Although China is still experiencing a dramatic transformation both in culture and urban construction, an extensive legislative and regulatory system related to urban heritage has been endowed for strengthening the soft power (Whitehand et al., 2011). Luoyang Method is a good illustration and a pioneer of making regulations to protect this historic city. In its regulatory system, cultural heritage authorities and planning authorities are strictly coordinated: land planning authorities could not proceed without the permission of the department of cultural heritage. Thereby, the protection of great sites is incorporated into urban planning and rural construction (Bandarin and Oers, 2012). Furthermore, the *Principles for the Conservation of Heritage Sites in China* (China principles)[16] offers an integrated and methodological approach to the conservation and management of sites focusing on authenticity, integrity and reconstruction.

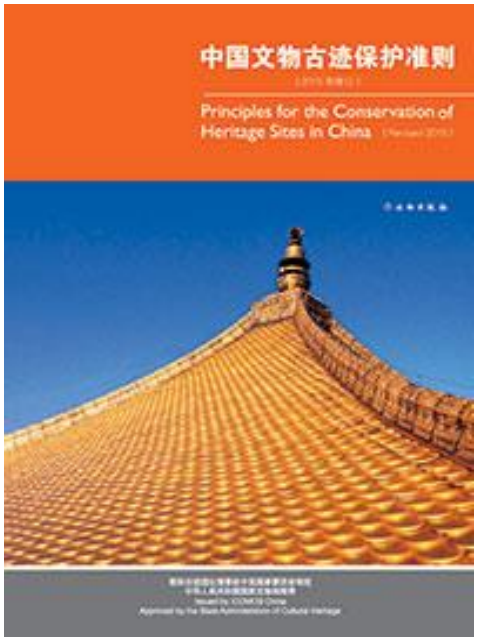


Figure 5 The book: Principles for the Conservation of Heritage Sites in China 中国文物古迹保护准则 (Revised 2015), Issued by ICOMOS China, Approved by the State Administration of Cultural Heritage.

It is worth mentioning that world heritage properties management in China has drawn attention worldwide. The focus of heritage conservation is transiting from

[16] Originally promulgated in 2000 by ICOMOS China with bilingual versions published in 2002 and 2004, the Principles for the Conservation of Heritage Sites in China were the first set of national guidelines for cultural heritage practice in China. Source: The Getty Conservation Institute (https://www.getty.edu/conservation/publications_resources/pdf_publications/China_principles_revised_2015.html)

materiality to sustainable development with more significance attached to the role of local communities and their perception of memory and identity (Chen and Romice, 2009; Verdini et al., 2017). Some heritage sites achieve relatively high community participation, such as the Honghe Hani Rice Terraces, Kulangsu, Mount Wutai, and the old town of Lijiang. Whereas, a majority of other sites demonstrate minimal community participation, such as the Yungang Grottoes and Lushan National Park (Li et al., 2020b; Roders and Bandarin, 2019). The UNESCO historic urban landscape as an approach to enhance civic engagement offers a brand-new angle to observe this process of transformation.

In the past ten years, the role played by local communities in the process of urban renewal in China has gradually changed from a passive subject to an important role (Li et al., 2020a). At the same time, relevant government functional departments have further improved and supplemented the legislative procedures and legal systems related to urban heritage protection and renewal to enhance the country's soft power (Whitehand et al., 2011). Subsequently, the "City and Society" International Forum [17] held at Tongji University in 2015 conducted in-depth discussions on the theme of "community, space, governance", aiming to improve the effectiveness of community participation. Under the influence of this series of measures, the renovation project of Shanghai Tianzifang, as a representative example in China, has received very positive responses at the level of public and community participation (Verdini et al., 2017). In the decision-making process of the project, the local government and developers effectively participated in the activities of the local community and successfully avoided large-scale relocation. However, how to apply this method derived from Western culture in different social forms around the world, and how to determine its operating principles to ensure respect for values, folklore traditions and social environments under different cultural backgrounds still need to be further discussed in practice .

There is no doubt that the local history and cultural identity are inseparable from the local residents. A variety of public participation methods are aimed at enhancing the awareness and capacity building of local communities on heritage protection, and sharing and assuming the benefits and responsibilities of the

[17] 2015 "City and Society" International Forum was held in Tongji University on 10-11 April 2015. It was hosted by Tongji University and Urban Planning Society of China; meanwhile it was organized by WHITRAP Shanghai, Shanghai Tongji Urban Planning and Design Institute (TJUPDI), and City and Society Research Center (CSRC).

heritage protection process (Borona and Ndiema, 2014; Ferreira, 2018). Regarding the protection of the southern part of the old city in the ancient capital of Nanjing, the planner Zhou Lan put forward the "social support theory" in the book "Active Protection and Overall Creation of Historical and Cultural Cities". She called for attention to the impact of public participation on the protection of urban heritage, listening to the voices of multiple subjects, and comprehensive and comprehensive protection of historical and cultural cities (Zhou, 2011). In 2007, citizens of all walks of life in Hong Kong successfully expressed their willingness to retain Queen's Wharf to the local government through "local action", and it was successfully adopted [26]. Since 2010, the public such as Dafo Temple[32] and Enning Road that have emerged in Guangzhou have actively participated in the protection of local historical and cultural heritage (Deng et al., 2015; Wu, 2014). A third party guides the public to participate in decision-making, forcing relevant government departments to respond accordingly. The initiative, to a certain extent, promoted the improvement of the urban cultural heritage protection mechanism in the Pearl River Delta region and even the whole country. In addition, in the process of rural revitalization and ancient village activation, a variety of active public participation methods have also been adopted to better protect cultural heritage. In 2009, 22 sites in southwestern China were selected to participate in the “World Bank Guizhou Cultural and Natural Heritage Protection and Development” project[18]: In He County, the method of cultural maps was used to record and depict the participation of ethnic minority communities; City, with the help of the National Museum of China, encourages local residents to carry out original exhibitions of their ethnic culture (Nitzky, 2013).

[18] Since the 1990s, the World Bank has funded China’s cultural heritage protection projects. Since 2000, the investment method has gradually changed from focusing on the development of traditional tourism to incorporating cultural heritage into local economic development and sustainable tourism.

2.2. General Understanding of the Literatures on Digital Community Engagement Study

During the last decades, the academic interest in public engagement in urban planning has grown noticeably. Since the end of the 1970s, Western scholars started to focus on the topic of public participation. Under the influence of Habermas's "communicative rationality" (Habermas, 1984) and Davidoff's "advocacy planning" (Davidoff, 1965), scholars such as Innes and Patsy Healey developed a series of theories, including communicative planning and collaborative planning (Healey, 1997; Innes and Booher, 1999). Healey emphasizes that the media provides an intermediary for citizens to actively participate in planning and joint decision-making, to improve cooperation between citizen and government facing conflicts and negotiations (Healey, 1997). It should be two-way and reciprocal intercourse, which is something that is equally important for all stakeholders, powerful and less powerful (Innes and Booher, 2004).

Besides the traditional participatory planning discussion, a number of studies have raised the interest in the ICT application in community participate. The internet as a social media is now a key community-based platform for sustainable living heritage conservation (Innes and Booher, 2004). It fosters an open culture wherein anyone who is so motivated can become involved in the development of the underlying infrastructures, and everyone has the potential to be seen and heard, and to contribute to collaborative planning and cultural heritage protection (Kitchin and Dodge, 2011). Although discussions in cyberspace can lead to informational polarization (Wilhelm, 2000), it can contribute to the development of real-time, multiparty interaction and open discussion platforms (Fong, 2011), because of its apparent ability to super-empower individuals and small groups to reach across scales and connect with mass audiences (Kitchin and Dodge, 2011), which is crucial for collaborative planning.

The discussion and exploration about the features of public engagement with emerging ICTs are increasing as well in the latest twenty years. In this digital era, obviously, the power to represent the city is no longer concentrated in the elites controlling popular media but is distributed by common smartphone users (Castells, 2013). Online information seeking and interactive civic messaging - uses of the Web as a resource and a forum - both strongly influence civic engagement, often more so than traditional print and broadcast media and face-to-face communication

do (Shah et al., 2005a). ICT has changed the ways of participating, interacting, and organizing in planning practices and facilitated the engagement of civic organizations in the planning process (Lin et al., 2015).

At the aspect of application approaches, some researchers argue that ICT can foster public to take part in decision-making of urban planning. In particular, to apply social media apps, such as Twitter, Facebook, Instagram on qualitative geography research is just beginning and becoming more and more popular (Boy and Uitermark, 2017; Hawelka et al., 2014; Jong, 2015; Rose and Willis, 2018). Meanwhile, scholars started to discuss on "how intelligent technologies can lead us to rethink the patterns of urban development by making them …efficient and sustainable" (Bencardino and Greco, 2014; Ratti and Claudel, 2016).

Although the potential of ICT to make cultural heritage conservation a far more inclusive process is immense, the challenges are complex and differ for most cultural contexts (Riva Sanseverino et al., 2018). Chinese scholars started fairly late in this area and mainly focused on the introduction of Western theoretical frameworks. They realized that, in the recent ten years, the incipient collaborative planning and public participation through the functions of the internet in China have had an increasingly vital influence (Cheng, 2013). However, some researchers show misgivings that the new media platform has mainly been used for dissemination of information rendering it an elitist rather than a democratic tool (Blumenfield and Silverman, 2013; Cheng et al., 2017).

There are some research blanks and drawbacks that need to be solved in further research. The manners of assessing the impact of ICT tools in Chinese community participation are still in the relatively infancy although some researchers have been involved in this filed. The features and approaches are various in different contexts. Setting the assessment framework is related to both heritage management and communicative-collaborative planning. The existing research achievements are mostly from an urban planning view which makes the results limited in real practice. Another point is how to evaluate the dynamic of community participation. Many researchers tend to focus on demonstrating the current situations in a narrative way. That's not rational enough for supplying the feedback to supplement heritage management strategy. More quantitive studies should be conducted to fulfil the research gap.

2.2.1. The Method to Collect Relevant Publications

This literature review analysis is done based on the Web of Science database. Starting from the assembly of the search string in the Beauloon Code, 384 publications are acquired after this rough screening. A five-step refinement screening was taken to further obtain more accurate literature. Then, Citespace software (5.1 version) is applied to visualize the retained 274 articles, published between 1998-2021, on the cross-cutting research topics of Cultural Heritage Management, ICTs, and Community Engagement. Research hotspots and frontiers, the development path of relevant study, and outstanding authors and their contribution in this research area are presented and qualitatively visualized by analysis on the trend and weight of keywords in selected articles, citation frequency, keyword co-occurrence, co-citation networks, etc. Furthermore, representative articles are listed, systematically summarized, and illustrated in detail, in order to build a solid reference basement and a comprehensive understanding for this study.

To identify relevant publications, a stepwise review approach was employed. The review was based on the database of Web of Science (WoS) and included all articles that discussed and presented social media for cultural and urban heritage conservation. A PIST tool was adapted from the PICOS method in the medical field research to define the keywords of the search preparation (Eriksen and Frandsen, 2018; Methley et al., 2014). PICOS search tool contains 5 criteria initially: (1) Population: communities engaged in the cultural heritage management process; (2) Interventions: social media; (3) Comparison: off-line community engagement; (4) Outcomes: outcomes of participatory governance; (5) Study design: Statistical analysis of participatory methods in case studies. However, as the PICOS tool does not accommodate terms relating to cultural heritage studies, it has been modified into a new “PIST” (population, interventions, settings, timing) tool where the Comparison (C), Out-comes (O), Study design (S) are excluded to meet the needs better. Following that, two criteria are further supplemented to limit the objects to the cultural heritage generally: Setting (S): cultural heritage, and Timing (T): duration or date of publication, which intends to further increase the identification of qualitative articles.

On the basis of the knowledge base (which consists of keywords related to the research topic), knowledge domain (which is related to key research fields of the research topic), and knowledge evolution (which is an evolutionary process reflected by references with citation bursts), a knowledge graph for Community

Engagement is built. A series of keywords and its synonyms are involved, namely public participation, community engagement, civic collaboration/participation, audience collaboration; cultural heritage, urban heritage, historic city, historic district, historic settlement, historic area, historic plan; social media, social network, digital, online. The key features and criteria which lead to corresponding keywords and synonyms as shown in Table 1. In line with it, the search string, which is assembled by Boolean-operators[19], is defined as "Ts=(((public or communit* or civic or audience*) near/3 (participat* or engage* or collaborat*)) and (((cultur* or urban* or tangible or intangible) near/3 (heritage* or landscape* or site* or conserv* or protect* or renew* or regenerat* or preserv*)) or ((historic* near/2 (cit* or district* or settlement* or area* or site*)) or museum)) and ((ICT* or social NEAR/3 (media or network*) or digital or online or mobile)))".

Table 1: PIST tool and its progress

		Concepts	Content	Keywords/Synonyms
Original criteria setting	**P**	Population	Communities engaged in the cultural heritage management process	(Public or communit* or civic or audience*) Near/3 (participat* or engage* or collaborat*)
	I	Intervention	Social media	((ICT* or social NEAR/3 (media or network*) or digital or online or mobile))
	C	Comparison	Off-line community engagement	This part is excluded because this did not add a value to the search
	O	Outcomes	Outcomes of participatory governance	This part is excluded because this did not add a value to the search
	S	Study design	Statistical analysis of participatory methods in case studies	This part is excluded because this did not add a value to the search
Additional criteria setting	**S**	Setting	Urban cultural heritage	((cultur* or urban* or tangible or intangible) near/3 (heritage* or

[19] Boolean Operators are simple words (AND, OR, NOT or AND NOT) used as conjunctions to combine or exclude keywords in a search, resulting in more focused and productive results. Each search engine or database collection uses Boolean operators in a slightly different way.

				landscape* or site* or conserv* or protect* or renew* or regenerat* or preserv*)) or ((historic* near/2 (cit* or district* or settlement* or area* or site*)) or museum))
	T	Timing	Duration or date of publication	1985-present

2.2.2. Screening Process of the Targeted Articles

The screening process is detailed into five steps as shown in Table 2. Web of Science Core Collection (WOSCC)[20] is finally defined as the database of this study because it is broadly considered to contain the most influential journal papers, conference papers, and books in the world.

Firstly, a preliminary search result with 386 documents is calculated on the advanced searching engine by 5th November 2021. Following that, an indicator on distinguishing publication types is applied in the filter process. Articles on journals (including open-access journals), conference proceedings, chapters in books, and books are considered as preferred reference material, instead of editorial reports. In this step, the number of publications is slightly narrowed down to 382. The third step is to restrict all the research contributions to only English writing ones for a better understanding. 364 files are still retained at this stage. During the fourth step, strongly irrelevant research directions are removed, such as Engineering Electrical Electronic, Computer Science Hardware Architecture, Construction Building Technology, Film Radio Television, Ergonomics, Linguistic, Astronomy Astrophysics, Chemistry Analytical, Forestry, Physics Applied, Spectroscopy, Energy Fuels, Entomology. The number of academic papers dropped significantly to 283 in the current process.

The last step is to do a manual check by doing a rough reading of the articles. Nine articles are excluded mainly for the following three reasons: 1. talking about

[20] The Web of Science core collection consists of ten indexes including Science Citation Index Expanded (SCI-Expanded), Conference Proceedings Citation Index-Science (CPCI-S), Book Citation Index- Science (BKCI-S), including journals, books, and conferences reports and other academic publications.

only technological innovation with an ignoration of collaborative local community: digital collection platform building (Hickerson, 1997), graphics programming technology innovation on art exhibition (Affleck and Kvan, 2008), new technology on archaeological achieving management (Benden and Taft, 2019), Biodiversity Heritage Library data aggregators development (Kalfatovic et al., 2019), Deepfake application in art museums (Mihailova, 2021); 2. analysis of community contribution on other topics instead of on cultural heritage: audience feedbacks on comics (Wysocki, 2018), basic and applied science topics, such as climate change, global health and food security challenges (Bakker et al., 2020), 3D scanning and printing applied to the field of palaeontology (Ziegler et al., 2020); 3. irrelevant topics: critical comments and reflections on archaeological exhibitions (Hung, 2021). As the final result, 274 academic contributions are chosen as the base for further literature review study on DCE.

Table 2: Screening process of articles

	Number of publications	**Selection progress**
Step 1	386	The number of articles in total after advance searching on WOSCC
Step 2	382	Document type selection: Editorial reports are excluded
Step 3	364	Language restriction: non-English articles are excluded
Step 4	283	Research area preclusion: Irrelevant fields are excluded
Step 5	274	Manual filtering by reading article abstracts

2.2.3. A Brief Understanding of Publications in This Research Area

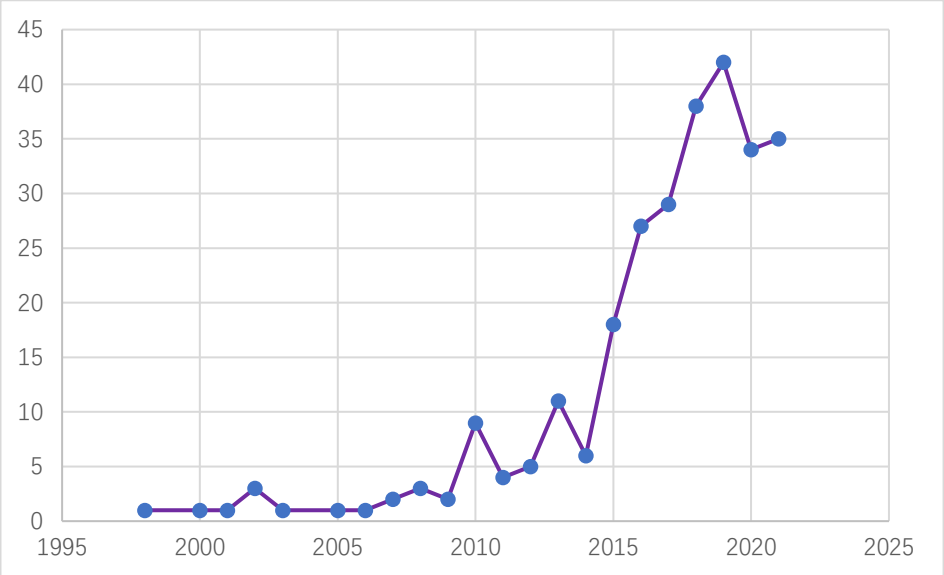


Figure 6 The number of articles published per year

Figure 6 demonstrates the number of DCE concerned documents. Since the first publication in 1998, generally speaking, in 20 years, the number of publications is on a steady rise. In fact, before 2013, although the annual literature volume showed a slow-growth trend, there were few research results per year in this field. From 1998 to 2010, the number of articles published each year was less than five, and by 2013 it reached nine. A steep rise in publication shows in 2014, with an annual fluctuation rate of about 10%-15%. From 2016 to now, the annual number of articles has increased to about 30 or more. Among them, the number in 2019 is particularly prominent, reaching 42.

Also, the content and focus of the articles are slightly changed. Drennan proposes to build a virtual museum by developing a website in his article *The Web as Art Space, Museum and Forum in Tumblong* as a conference proceeding published in 1998. Maloney-Krichmar and the partners have dug the reason for the failure of a website aiming to connecting communities (Maloney-Krichmar et al., 2002). While, recent topics are slightly changed and have been greatly enriched. An online geospatial database is developed supporting by GIS (Geographic Information System) to reframe the database system of heritage museums (Loren-Mendez et al., 2018). Social media is studied to enhance community engagement to protect cultural heritage (Giaccardi, 2012; Liang, 2020). 3D modelling can not

only contribute to digital heritage by building virtual cities and architectures, but it is also valued and protected as part of the heritage (Champion and Rahaman, 2019; Dhonju et al., 2018).

Table 3 Authors ranking according to publications numbers

Authors	Record Count	% of 274
Giglitto D	3	1.095
Liew CL	3	1.095
Bex RT	2	0.73
Cesario V	2	0.73
Ciolfi L	2	0.73
Claisse C	2	0.73
Clini P	2	0.73
Coscia C	2	0.73
Crippen KJ	2	0.73
De Filippi F	2	0.73
Douglass M	2	0.73
Galli A	2	0.73
Kenderdine S	2	0.73
Komossa F	2	0.73
Lazem S	2	0.73
Lundgren L	2	0.73
Manca S	2	0.73
Mikkonen T	2	0.73
Nisi V	2	0.73
Pickering CM	2	0.73
Pierdicca R	2	0.73
Preston A	2	0.73
Quattrini R	2	0.73
Ruming K	2	0.73
Salo K	2	0.73
Verburg PH	2	0.73
Wartmann FM	2	0.73
Williamson W	2	0.73

In the past ten years, more and more scholars have shown interest in this emerging interdisciplinary. Applying digital tools to promote cultural heritage value, improve the communities' communication efficiency, and create digital museums, is attracting researchers of multiple academic backgrounds, such as ICTs engineers, archaeologists, architects, etc. Among them, Giglitto D and Liew CL

rank first in the number of publications (Table 3). Giglitto contributed two conference proceedings and one article introducing the digital documentation that record the unique intangible cultural heritage to local community in Egypt (Giglitto et al., 2019). In his three articles, Liew shows his concern about social media management risks in memory institutions studying cultural heritage (Liew, 2021). In digital cultural heritage protection, institutions need to gain the trust of the indigenous communities. The exchange of information with them should be further encouraged (Tasker and Liew, 2020). Other authors who published two articles that can be indexed, such as Bex, Cesario, Coscia, De Filippi, are also listed in the table. These researchers are pioneers in introducing ICTs into cultural heritage protection research. Their research team collaboration, partners, and co-cited documents should serve as the basis for research in this field.

Figure 7 is mainly to form a clear understanding of the most concentrated research areas shown in the obtained literature. The research field classification is identified according to the discipline label of WoS. An article can be attached to two or more different research fields at the same time. This is very helpful for interpreting the interdisciplinary research among various research disciplines. In the figure, the research fields to which they belong are arranged in descending order of the number of documents. As of October 2021, Computer Science has the highest ranking, with 59 articles. The other two fields, Arts Humanities Other Topics and Environmental Sciences Ecology, ranked the top three with 45 and 33 articles respectively. Next, Information Science Library Science (No.=28), Science Technology Other Topics (No.=26), Social Sciences Other Topics (No.=25), Public Administration (No.=24), Education Educational Research (No.=23), and Archaeology (No.=21) rank in the second echelon and also contain a lot of research contributions. However, the number of articles published in fields such as Urban Studies, Communication, Architecture, History, etc. is not large, which may be due to the fact that the interdisciplinary research of these disciplines is still insufficient.

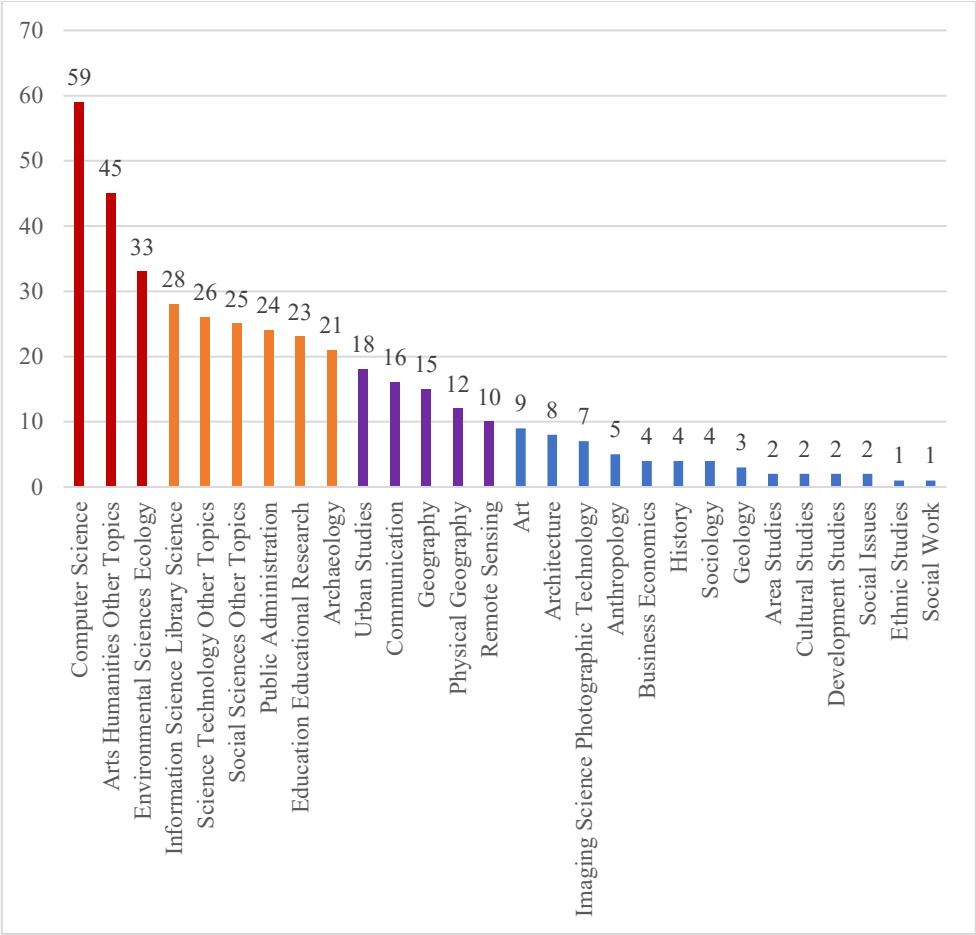


Figure 7 Distribution of obtained documents in different research fields

Statistical data according to the type of article is an important indicator to understand the activeness of the target research field. Conference proceeding papers are usually short in length, and the publication period is relatively short. Even unfinished research can be published to convey new research ideas to people in a timely manner. Therefore, compared with journal articles, the research results are fresher, but the academic impact factor is lower. Articles published in journals often need to go through a longer review period before publishing. It needs to undergo more rigorous peer review, so the academic impact factor is higher, which means it has a higher referential value. The literature review can offer a more comprehensive understanding of the research field by doing an objective and critical summary of the published research. Early access articles are versions that are available for reading on the Internet before the articles are officially published. It has strong timeliness and represents the latest research results in the target research field. Table 4 shows that journal articles account for 71% of the total number of publications

with 196 papers. As of the search date, the number of conference papers reached 74, accounting for 27% of the total. Besides, eight review articles and six early access papers are listed in the table.

Table 4 Number and proportion of document types

Document Types	Record Count	% of 274
Articles	196	71.533
Proceedings Papers	74	27.007
Review Articles	8	2.92
Early Access	6	2.19
Book Chapters	3	1.095

Highly Cited papers[21] are another part that needs to be paid attention to. It refers to the papers that have been published in the past ten years and have received the most attention in the target research field (Clarivate, 2020). The article from De Reu *Towards a Three-Dimensional Cost-Effective Registration of the Archaeological Heritage* published in 2013 with 220 citations and *The Global Museum: Natural History Collections and the Future of Evolutionary Science and Public Education* published by Bakker in 2020 with 34 citations are recognized as highly cited papers in the DCE field.

De Reu suggests that three-dimensional way of recording and archiving should be pursued for *'a better documentation of in-situ structures for future research and a higher public participation and awareness for the archaeological heritage' (De Reu et al., 2013).* The article *Towards a Three-Dimensional Cost-Effective Registration of the Archaeological Heritage* is largely cited in the archaeology field with 103 citations, which takes 50% of 206 (narrowed from 220 according to the Web of Science Core Collection). In the ranking list, Geosciences Multidisciplinary (No.=64, as 31%), Remote Sensing (No.=30, as 14%), Anthropology (No.=26, as 12%), and Imaging Science Photographic Technology (No.=24, as 11%) are the most article-citing areas after Archaeology. Examining the citation timeline, the number of articles citing *Towards a Three-Dimensional Cost-Effective Registration of the Archaeological Heritage* peaked at 40 in 2016, and then declined

[21] Highly cited papers refer to papers that are ranked in the top 1% by the number of citations compared to other papers published in the same field in the same year. (Source: https://clarivate.com/blog/literature-review-definitive-guide/).

continuously to 19 in 2021. This shows that this article has significant authority, but slowly loses its appeal over time.

Bakker noted in this article that digitalization of collections can promote the collaboration among global community museums (Bakker et al., 2020). In detail, *'We focus on mapping and modelling of museum data (including place-based approaches and discovery), and explore the main projects, platforms and databases enabling this growth'*. The involved research areas of this article are mainly Biodiversity Conservation (No.=7, as 20%), Ecology (No.=6, as 17%), Zoology (No.=6, as 17%), Plant Sciences (No.=5, as 14%), and Evolutionary Biology (No.=4, as 11%). This obviously does not show any connection with digital public participation in the protection of cultural heritage, so this document was excluded from the archive. The number of citations is an important indicator for evaluating the academic value and influence of a paper: The higher frequency of citation, the higher academic value of the paper. After a series of detailed analysis, the data on *Towards a Three-Dimensional Cost-Effective Registration of the Archaeological Heritage* can be seen as typical representatives of the hotspots in the research area.

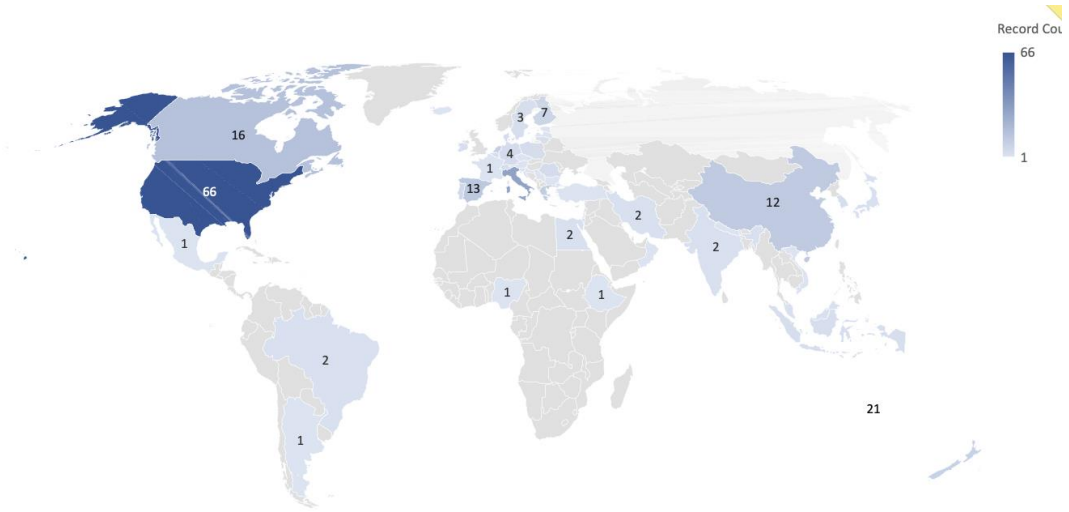


Figure 8 Number of articles published in each country/region

In terms of the number of articles published in each country/region, the United States, the United Kingdom, and Italy ranked the top three with 66, 541, and 30 articles respectively, taking 40% of the total. Australia (No.=21), Canada (No.=16), Spain (No.=13), China (No.=12), Greece (No.=11), Netherlands (No.=10) , and New Zealand (No.=9) , ranked in the top ten and contributed 33% of publications. It can be seen from Figure 8 that Western countries, led by the United States,

occupies a major position in the research field of applying digital tools to cultural heritage protection. However, Asian countries such as China, which has the second-most world heritage sites, performed relatively poorly. More scholars and experts should be called to pay attention to the field of cultural heritage protection in Asian countries.

2.3. Visualization of the Research Trend on Digital Community Engagement on the Citespace

In the previous section, a macro analysis is conducted on the subject classification and the number of documents in the entire research field. In this section, it is mainly to visually express the more complex relationships between the research documents. Citespace (version 5.1) is the main visualization tool used based on the data in the literature library. This analysis has a flaw that lacks the publication time of the pre-print articles, which affects the calculation of contribution measurement and knowledge map. Nevertheless, this does not affect the acquisition of a basic understanding of the research field, so the above-mentioned data errors are not considered.

274 articles from 1998 to 2021 are visualized and analyzed to illustrate the research trend on the DCE topic in a global dimension. The analysis results of citespace can intuitively show the positioning of this research in the overall subject research. First, the emergence and burst of frontier research should be relatively close to the current time (2021). Second, the rise of a hot research topic will get a lot of citations in a short period of time. Third, in the overall disciplinary system, among the emerging research directions, co-cited authors and document networks are relatively underdeveloped

2.3.1. Timeline: The Weight and Trend of Keywords

Figure 9 is arranged by the year of occurrence of keywords to show the evolution of the research topic. Each circle in the figure represents a keyword, which is the year when the keyword first appeared in the analyzed data set[22]. As long as the same keyword appears in different documents, there will be a link between the two. The co-citation relationship of documents will change over time. The development and evolution of a certain discipline can be explored through the timeline of co-cited documents. Chen and Song noted that: *'The legend of the publication time is shown on top of the view…Large-sized nodes or nodes with red treerings are of particular interest because they are either highly cited or have citation bursts or both (Chen and Song, 2017).'*

[22] This keyword appears for the first time in this data set, and not for the first time in all data on this topic.

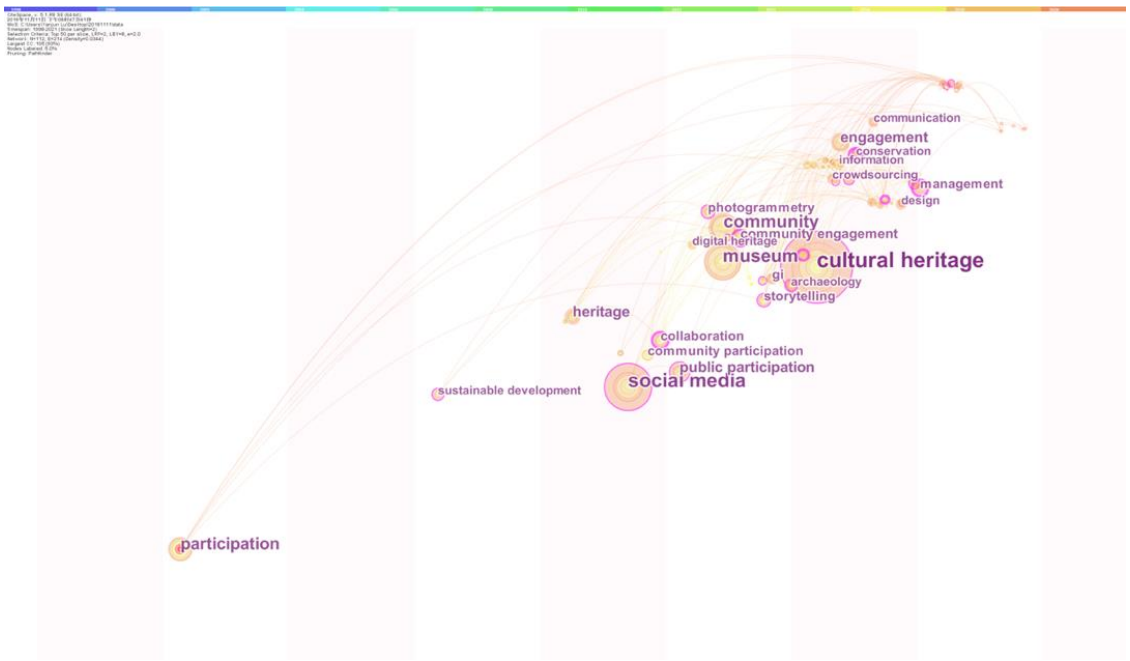


Figure 9 The timeline of the keywords in co-cited documents

The top-ranked item by citation counts is Cultural Heritage (2016) in Cluster#-1, with citation counts of 36. The second one is Social Media (2015) with citation counts of 23. The third is Museum (2016) with citation counts of 20. Other keywords that rank as top 10 are Community (2016, n=16), Participation (2008, n=14), Heritage (2014, n=10), Public Participation (2015, n=10), Engagement (2018, n=10), Community Engagement (2016, n=8), Storytelling (2017, n=7). While, the keyword of the bursts' test[23] is Participation (2008) in Cluster #-1, with a burst of 3.87.

In 1998, Drennan introduced Participation into the field of digital heritage for the first time in his article *The Web as Art Space, Museum and Forum in Tumblong*. The part of public participation in the protection and dissemination of cultural heritage value has officially stepped onto the stage of scientific research. As social media began to be emphasized in articles such as *Assessing the Effectiveness of Online Community Opposition to Precinct Planning* (Williamson and Ruming, 2015) in 2015, key words such as Community Participation, Public Participation, and Collaboration have also received constant attention since then. Amongst others,

[23] "Burst detection is a computational technique that has been used to identify abrupt changes of events and other types of information (Chen, 2017)".

Cultural Heritage has received the most attention in this research field in the past five years. Research topics such as Community, Museum, Digital Heritage, and Communication are introduced immediately afterwards.

In addition, the betweenness centrality of a node[24] in a network is a commonly used structural metric to predict the potentials of research discoveries (Chen, 2017). In this study, the top-ranked keyword by centrality is Conservation (2018) with a centrality of 0.29. The second one is Infrastructure (2019, n=0.27). The third is Management (2019, n=0.24). This shows that in the next few years, Conservation, Infrastructure, and Management, as research topics, will have a great chance to become research hotspots and be discussed in the academic community.

[24] "Studies have shown that nodes with high betweenness centrality values tend to identify boundary spanning potentials that may lead to transformative discoveries (Chen, 2017)."

2.3.2. Co-citation Analysis: The Document Co-citation Network

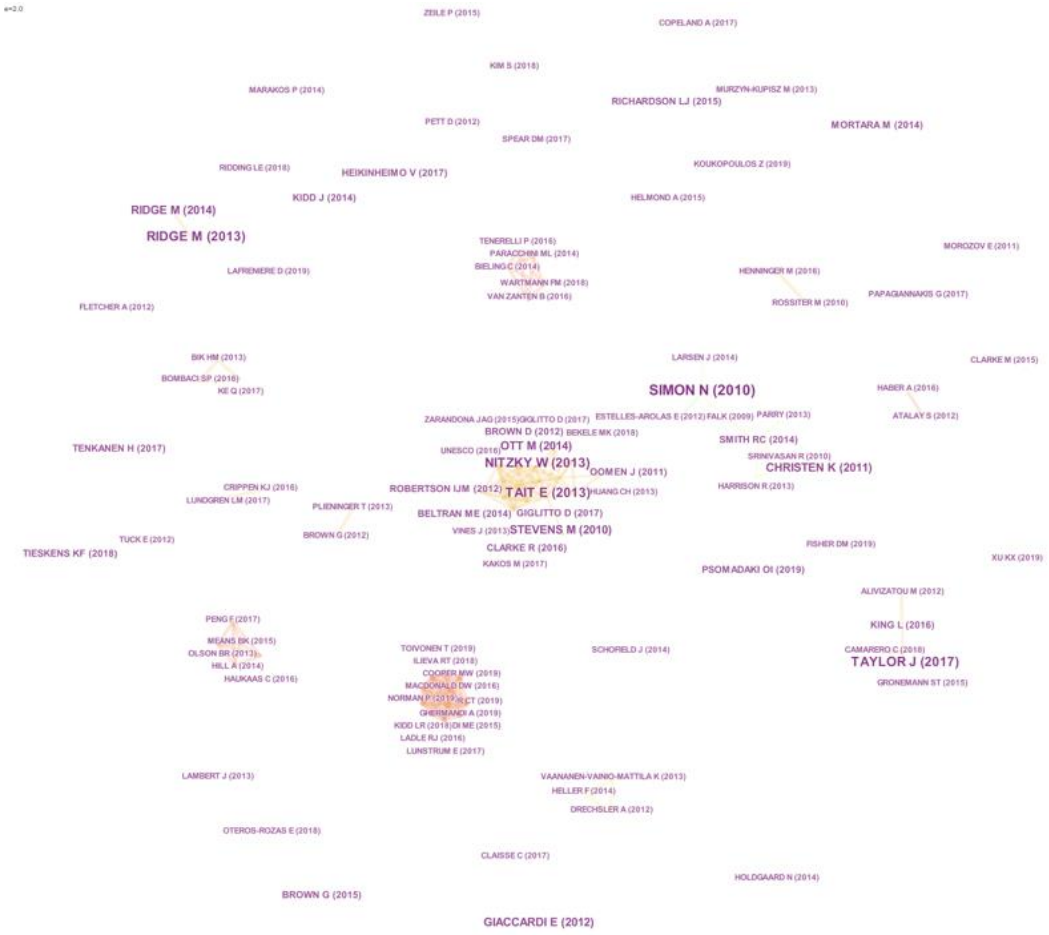


Figure 10 The document co-citation network among selected articles

By using the document co-citation analysis function of CiteSpace, the networks of cited references are consructed. The circle in the analysis diagram represents the frequency, such as the frequency of being cited: the greater the frequency, the larger the circle. Connections between references represent co-citation strengths (Chen, 2017).

Figure 10 shows the co-citation cluster results of scholars and experts on the selected research fields. The top ranked item by citation counts is Giglitto D (2018) in Cluster #-1, with citation counts of 3. The second position is shared by Lundgren L (2018), Lazem S (2018), Bex RT (2018), Komossa F (2020), Pickering CM (2020), Mikkonen T (2016), Nisi V (2017), Cesario V (2017), Galli A (2016), in

Cluster #-1, with citation counts of 2. The most cited document is *In the Eye of the Student: "An Intangible Cultural Heritage Experience, with a Human-Computer Interaction Twist*" , which is a conference proceeding in 2018. Through engaging Egyptian students "with a local yet culturally-distant community to design applications for documenting intangible heritage", Giglitto pointed out that "empathizing with the community" is the key part of the preparation before enhancing the communication (Giglitto et al., 2018).

The articles which ranked high in the co-citation list have also been carefully interpreted and sorted out as follows. A mobile app is designed to gather both amateur and professional palaeontologists into a "more formal community of practice" (Bex et al., 2018). In line with it, Audio Augmented Reality and audio story applications are successfully implemented in the museum to attract the audience (Salo et al., 2016). For making an effective landscape management strategy and landscape monitoring, data from social media is examined to show users preferences (Komossa et al., 2020; Pickering and Norman, 2020). Moreover, Nisi and Cesario proposed to use a mobile game and a mobile story to engage young visitors to the exhibition in the local natural history museum (Cesario et al., 2017). Khromova discussed the potential of using ICTs to enhance communication among users spending time outdoors (Khromova et al., 2016).

Judging from the images of the co-cited network, they are scattered in dots. This shows that the frequency of cross-citing articles in the target research field and the crossover between articles are still very weak at present. It can be concluded from the previous analysis that this is an emerging topic, and related research is in its infancy stage. In general, this research field needs to be explored urgently, more research should be encouraged in the near future.

2.3.3. Co-word Analysis: The Connections of the Research Topics

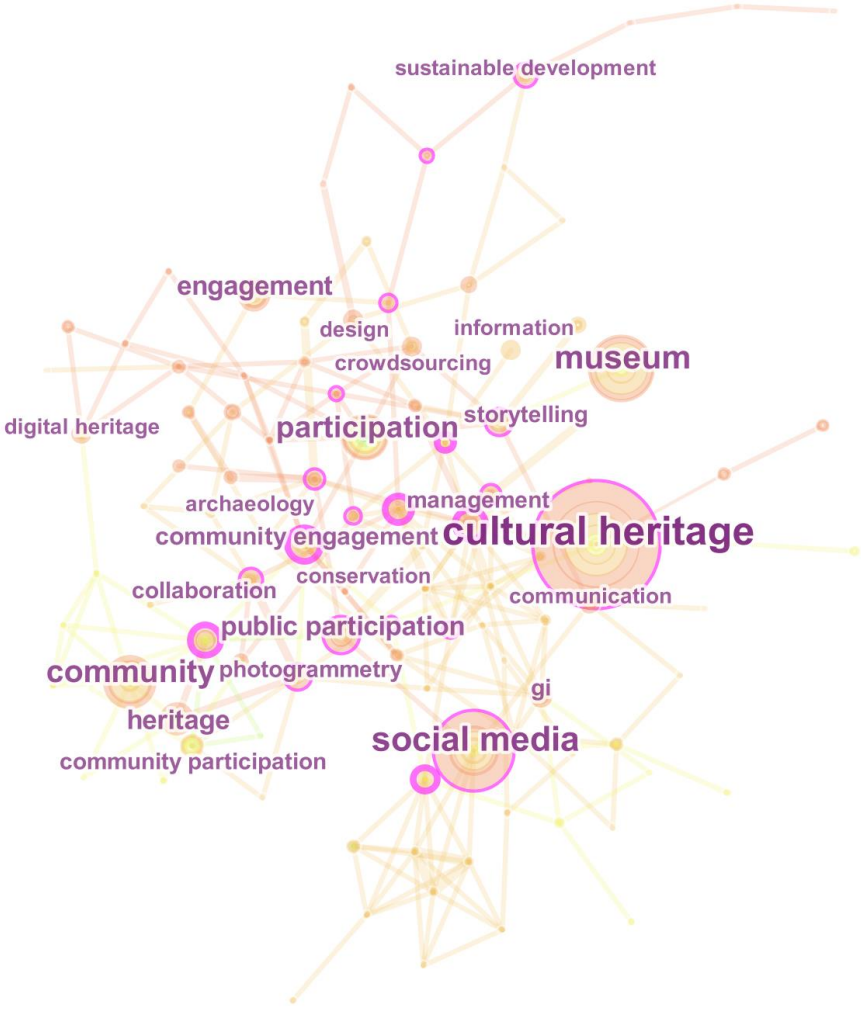


Figure 11 Analysis of co-word across research topics

The co-word analysis diagram is mainly used to determine the relationship between the research topics of the representative disciplines in the literature collection. In the order of citation counts, the top 10 keywords in the list, as shown on the nodes in the co-word network, are Cultural Heritage (n=36), Social Media (n=23) , Museum (n=20), Community (n=16), Participation (n=14), Heritage (n=10), Public Participation (n=10), Engagement (n=10), Community Engagement (n=8), and Storytelling (n=7). Figure 11 shows the mutual reference relationship between keywords. It is a complex reference relationship network with cultural

heritage as the main central node and social media, museum and other keywords as secondary nodes.

2.3.4. Cluster Analysis: The Landscape of Research Domain

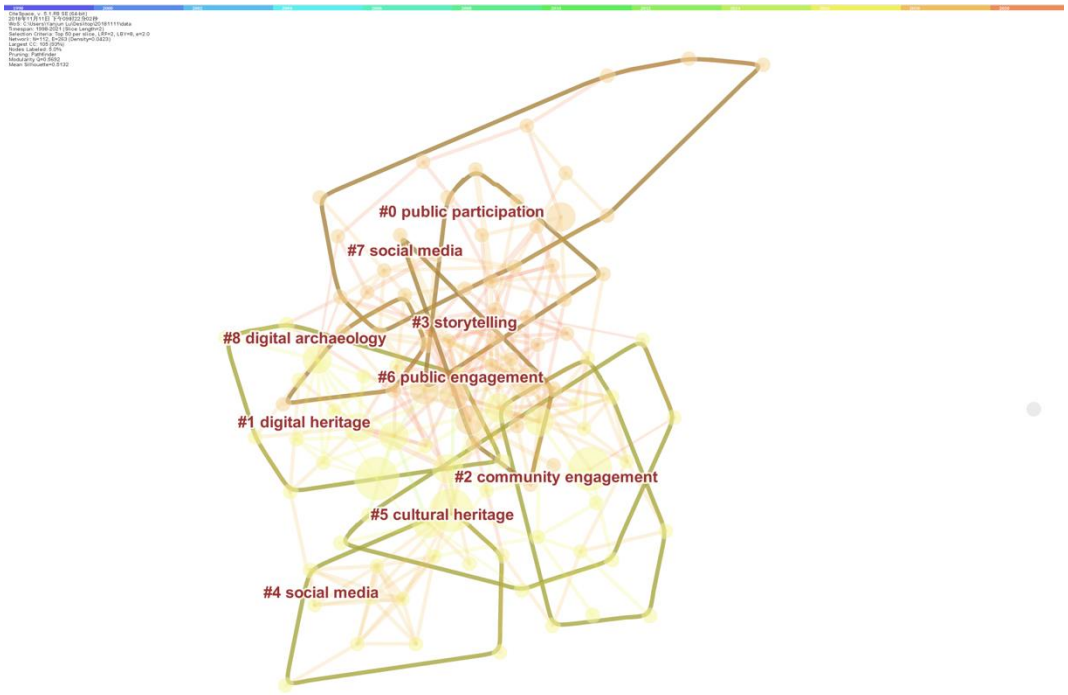


Figure 12 The landscape of Research Domain

The position of the cluster and the correlation between the clusters in Figure 12 shows the intellectual structure of the target research field, allowing readers to have an overall understanding of this field.

Cluster #0 is "Public Participation", in which the key year appeared in 2018, the cluster size is 17, and the cluster efficiency is 0.57. In the extending information, Sustainable Development (11.63, 0.001), Social Inclusion (11.63, 0.001), Smart Communities (11.63, 0.001), Urban Renewal (10.83, 0.005) are recognized as the most important keywords. The nodes of cluster #1 "Digital Heritage" and cluster #2 "Community Engagement" have quite dense connection lines with other related research, showing high cluster centrality. The research network is mainly structured on reseach topic Digital Heritage and Community Engagement. High-frequency keywords in cluster #1 and cluster #2 are Collaboration (23.39, 1.0E-4), Public History (14.59, 0.001), Twitter (14.59, 0.001).

Compared with other research topics, cluster #4 and cluster #8 are relatively new, and the clustering efficiency is higher than 0.8, which is a research hotspot in cultural heritage management. Cluster #4 is "Social Media", the keywords include Digital Storytelling (31.84, 1.0E-4), Local History (31.84, 1.0E-4), Participatory Heritage (25.28, 1.0E-4), Digital Archives (21.04, 1.0E-4). The research topic is related to the application of social media to enhance public participation (Hood and Reid, 2018a; van der Hoeven, 2019). In cluser #8 "Digital Archaeology", Archaeology (8.52, 0.005) and Education (8.52, 0.005) are high-frequency words. Its research is mainly about the application of 3D printing and modeling technology in digital museums and archaeological archives (Champion and Rahaman, 2019). The rest clusters are "Storytelling", "Cultural Heritage", and "Public Engagement".

What is interesting is that "Social Media" as a research topic appears in two clusters: #4 and #7. These two "Social Media" clusters respectively intersect with cluster #0 "Public Participation" and cluster #5 "Cultural Heritage" in a large area, showing that there is a strong academic intersection in these fields. In recent years, social media has contributed greatly to enhancing communication between stakeholders with different cultural backgrounds and interests (Chan, 2019; Rania, 2017). It also provides a reliable database for many cultural heritage studies, from geographic location to image color analysis, narrative analysis, etc (Loren-Mendez et al., 2018; Rose and Willis, 2018). According to the previous data analysis, since 2015, social media has become a hot research direction.

2.4. Digital Tools in Cultural Heritage Management

Heritage sites as cultural assets are intrinsically social as elements that are shared and identified by society. From blogs and online magazines to cultural institutions on Twitter, Facebook and Instagram, social media enables the effective, positive sharing of information that attracts public attention. In this intersection, abundant opportunities emerge. People can talk to others and share their interests exempt from geographical restrictions. They can skim their neighbour's posts or "like" the comments of a celebrity who is at a distance. They can also exchange opinions on a common topic with specialists and give suggestions to related authorities. With these strong functions, social media shows great potential for cultural heritage conservation.

In recent years, more and more attention is paid to the application of digital platforms to engage local communities in the urban renewal process for better protection and promotion of cultural heritage values (De Filippi et al., 2019). Transparency is emphasized as the core in the citizen-participation APP design associated with urban planning information and its comprehensiveness and accessibility (Rabe et al., 2021). Besides, with growing awareness of the challenges urban conservation faces in the coming decades, several studies essentially focus on how community engagement can contribute to rebuilding the relationship for the past, present, and future in the cultural heritage assets and values (Coscia et al., 2018). For one thing, urban landscapes epitomize the nexus between cultural and historic cities, record human interaction with built environments beyond space, time and societies (Jones, 2007; Bandarin and Oers, 2012). For another, digital technologies can improve conservation and preservation techniques, enrich archives with interactive media, and augment participatory experiences (Spacca et al., 2018; Rubino et al., 2015). Both themes can be addressed to the concept of "living heritage" and the sustainability of heritage values. However, how community participation is positioned and evaluated within world heritage management, as well as how community participation and digital heritage application interacts, remains essentially under-explored.

Digital communication technologies have changed the ways of organizing, participating in, and interacting with practices and facilitated the engagement of civic organizations (De Filippi et al., 2019; Lin et al., 2015). In this digital era, the power to represent the city is no longer concentrated solely on the elites controlling popular media but is distributed by common smartphone users (Castells, 2013). The

easy access to online information and civic interaction is influencing community engagement in a way far stronger than traditional printings, broadcast media, and face-to-face communication (Shah et al., 2005b).

By using varied digital products, practitioners can improve public understanding of people-centred heritage and motivate the public to take part in heritage conservation (see Figure 13). Augmented Reality (AR), Virtual Reality (VR), and 3D modelling technologies enable the audience to experience the heritage site more intuitively, so that they can better understand the multi-level value of cultural heritage. This is an important part of a digital museum, and it also makes it easier for residents to participate in the co-design and co-production process and collaborate with professionals. 3D printing technology renders buildings, which are restored based on archaeological drawings, closer to scientific data, thus promoting more precise architectural details and reducing the cost of exhibits significantly. Geographic Information System (GIS) aids to map, archive, and design rural and urban planning, including certain heritage sites, in a big data dimension (Batty et al., 1999; Batty and Doyle, 1998). Location-based mobile apps enhance the interaction between users and cultural heritage. It is more conducive to the quantitative analysis of the surrounding environment of the heritage without needing to access personal information. The Internet, which has become an indispensable part of daily life, promotes the output of cultural heritage values with a very important educational function. With the support of the Internet, social media has greatly enhanced public voice, making communication and collaborative planning easier to achieve.

"Cloud computing, platforms, big data, smart cities, machine learning, artificial intelligence...and so on have been coined to describe recent fashions in computation and communication driving the automation of society ever further (Batty, 2018)." The concept of Computable City is to link together the fiction and reality (Batty, 1997), according to Batty, the early Virtual Bologna website is a representative example (Hudson-Smith et al., 2009). Digital Twin has been added as a way to "*merge social and economic processes with the built environment and to link functional and physical processes to socio-economic representations"*(Batty, 2018).

In the north-eastern historic district of the UK, academic institutes employ multiple social media apps and a dynamic web map to update the informal information gathered from local residents (Cotterill et al., 2016). A double-way information transfer platform is built to realize co-curation activities. In museums,

AR smartphone application is introduced to promote the collaboration between specialists and children (Arrigoni et al., 2019). At the Bishops' House museum, digital augmentation engages visitors in the co-design of architectural heritage (Claisse et al., 2017). In Marmo Platano, the north-western part of the Basilicata Region (Italy), a website which provides the urban planning information to public, a web-based GIS tool, together with a blog is used to obtain feedback from citizens (Murgante et al., 2011).

Location-based mobile games are utilized in Palazzo Madama Museum (Italy) to motivate young visitors to explore museums and facilitate their meaning-making process (Rubino et al., 2015). Kampung Dolanan project is initiated to encourage children to study heritage histories and traditional customs of their living area, which is a valuable historic village in Indonesia, while playing games (Prastyawan and Isbandono, 2018). In Shiroishi (Japan), fans of the video game Sengoku BASARA are motivated to revitalize local tourism. In this case, local residents are clearly proud of their hometown (Yamamura, 2015).

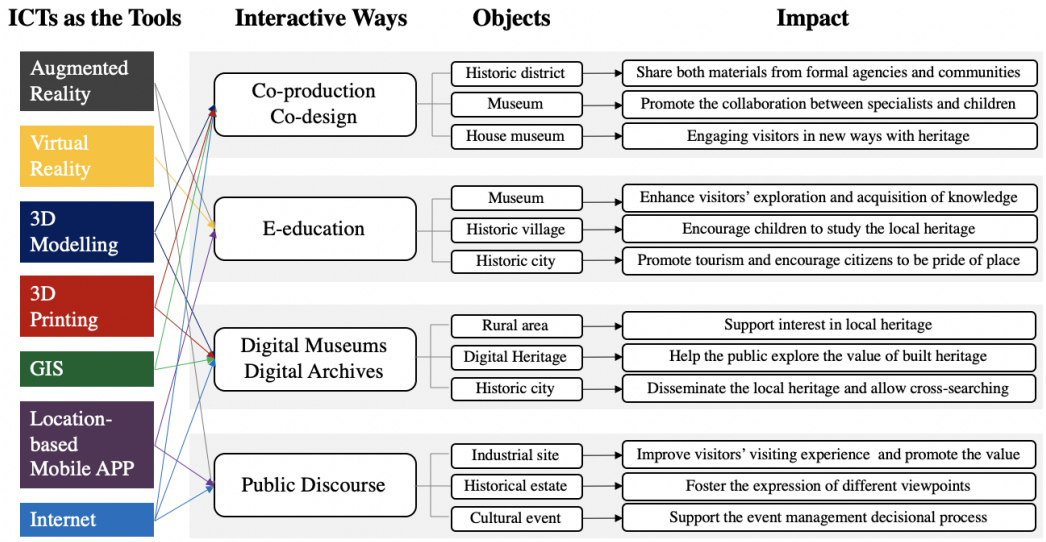


Figure 13 Current digital tools applied on involving community to cultural heritage

With the help of Information and Communication Technologies (ICTs), people are able to customize their digital heritage landscapes, museums, and archives. In the rural Scotland area of the UK, cultural repositories and information systems are employed to archive the residents' accounts of their own place and history (Beel et al., 2017). 3D models as digital cultural artifacts in museums help audience explore the value of built heritage (Champion and Rahaman, 2019). Online platforms (websites) can disseminate the local heritage information and allow cross-searching

on historical and cultural reports (Yeates and Guy, 2006). The promotion of public discourse power is more easily reflected in sites that allow public comments on the Internet. Social media can foster the expression of different viewpoints and support cultural event management in the decision-making process (Aigner, 2016; Corallo et al., 2018).

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The internet could be a key community-based platform for sustainable living heritage conservation (Ginzarly et al., 2019). New online communities have emerged, which are formed with specific cultural practices or centred around affinities based on place and heritage (Giaccardi, 2012; Ginzarly et al., 2019). It fosters an open culture where anyone who is motivated can participate in cultural heritage protection (Kitchin and Dodge, 2011). Although social media cannot represent the opinion of the whole civic society, they offer an open-participatory platform for a broader range of agents to reach across scales and connect with mass audiences (Ginzarly et al., 2019; Kitchin and Dodge, 2011), which is crucial for collaborative planning and conservation. While Harrison argued that the ways to catch up on the corporeal influence of the affective qualities of heritage in the daily practices needed to be further explored (Harrison, 2009), Svensson offered a great answer that social media could enable and strengthen people's effective engagement with heritage (Svensson, 2018).

As shown in Figure 14, social media's role is recognized for building the platform for community collaboration with heritage institutions and professionals

(Hood and Reid, 2018a; Nummi, 2018). Facebook makes collective community memory visible through storytelling practices (van der Hoeven, 2019). Meanwhile, visitor comments on Facebook and Twitter on significant cultural events can enrich the cultural corpus as a way of documentation (Corallo et al., 2018). Beyond the traditional ways to inform and solicit opinions from local residents, social media catalyses communicative and collaborative activities in planning heritage assets. Compared with notifications from friends, agencies, on-site workshops and telephone consultants, information obtained from social media spreads more widely in a very short time. It means social media platform is way more effective to reach massive audience. In conclusion, for users, such data and its analysis aid everyday living and commuting; for policymakers, big data and integrated analysis support more efficient and effective decision-making; for technicians, big data analytics offers the opportunity to communicate between government and citizens.

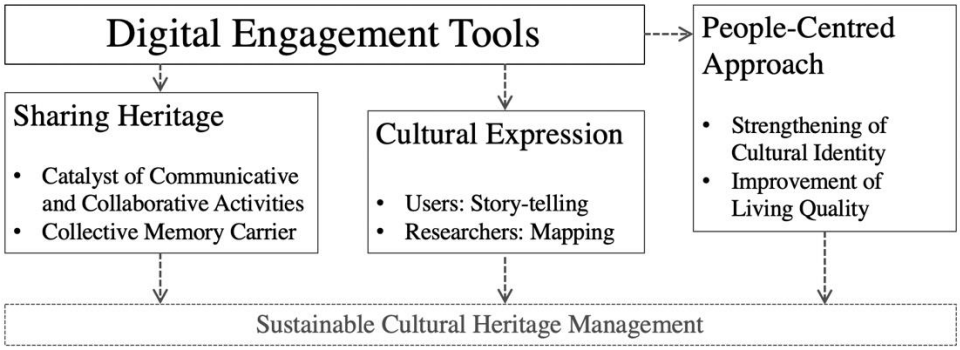


Figure 14 The contribution of social media to sustainable cultural heritage management

Not only do established individuals and organizations make use of the internet and social media, but new online communities also emerge and gather on activities based on cultural heritage (Volland, 2011). The online community is formed based on the above-mentioned attribution of social media. People tend to share news in real-time. They are also glad to communicate with psychologically close people who are involved in the same conversation. Volunteers or geographically close institutes, which are contactable on the internet, could organize both online and on-site activities with a common purpose. People are no longer satisfied with merely seeking and obtaining information on their interested topics, but they would also like to participate directly in the planning of initiatives and attractive practices (Preece, 2009).

Besides enhancing the public's interaction with places, historical events, and cultural practices, social media also strengthens the tie between communities by helping them "remember, experience, and perhaps re-imagine their own heritage" (Svensson, 2018). Due to the large information flow of social media like Twitter, Social scanning can be a considerable tool to encourage groupthink in all fields, especially for futurists (Pang, 2010). Despite that, some researchers are concerned that the new media platform may mainly be used for the dissemination of information rather than as a democratic tool (Cotterill et al., 2016).

However, cultural issues, acceptance, the limitation of communication platforms, the understanding of specific knowledge, etc. can challenge the higher level of citizens' engagement, so as other societal and ethical concerns (Haklay, 2013). Based on the experience from the workshop held in Potenza (Southern Italy), Professor Murgante pointed out that *"even when specific tools (social networks and Volunteered Geographic Information) are implemented to favour the inclusion of citizens in the policy-making processes, traditional participatory and design approaches are still a valuable instrument to synthesise their requirements and effectively support the development of site-specific urban planning tools* (Murgante et al., 2019)*"* .

Chapter 3

3. Digital Community Engagement in Processes of Legacy of the Historical heritage

The core issues of this chapter include the diversity of social networks and how these have changed over time; the indicators and geographies of social-net tags and the factors which shape them; how these bottom-up views reshape urban morphology. The research will explore place of historical dwelling sites as the main area of investigation, but also move beyond this, to think more broadly about the dynamic interactive process among diverse stakeholders in the development of metropolis and numerous heritage sites. In this section, a strategy is built up to have an investigation on Digital Community Engagement (DCE) practices in the world-wide level, trying to do an in-depth study on involved digital tools and objectives. By studying and summarizing the social media platforms introduced in the protection of cultural heritage worldwide, the main purpose of this chapter is to provide practical support for subsequent research.

3.1. The Definition of Digital Community Engagement and the Role of Social Media for the Cultural Heritage Sustainability

3.1.1. The New Form of Community: Online Community

The internet in general is a kind of social media. It can provide a crucial community-based platform for sustainable and holistic heritage conservation (Ginzarly et al., 2019). It fosters an open atmosphere in which all the motivated participants can participate in the protection of cultural heritage easily with access to the internet (Diaz-Andreu, 2017; Kitchin and Dodge, 2011). Furthermore, ICTs offer an open-participatory platform, in which citizens can play an active role, reaching a wider range of stakeholders across scales, classes, races, genders, ages, which is crucial for collaborative planning and conservation (Corallo et al., 2018; Muhammad and Kim, 2018).

With the advent of the Web 2.0 era, online communities, which are formed with specific cultural practices or gathered by a common topic based on heritage sites or other forms of cultural heritage have recently emerged (Garduño Freeman, 2010; Giaccardi, 2012; Ginzarly et al., 2019). Unlike offline community engagement, online community communication is geo-free, and it can promote mutual understandings between people with different cultural backgrounds (Psomadaki et al., 2019). People can share their memories or feelings with those who are geographically close or on the other side of the earth, which may be part of a "sense of place" (Dhonju et al., 2018). Moreover, it creates more opportunities for collaboration between local communities and professionals, breaking down occupational boundaries (Lafreniere et al., 2019; Nummi, 2018; Shaw et al., 2017). Through participation in such online communities, people can not only share their knowledge about any aspect of cultural heritage with specialists in the field (Claisse et al., 2017; Sanders and Stappers, 2008) but also gain more opportunities for educational outreach (Champion and Rahaman, 2019). In addition, communication among online communities showcase a far efficient way to obtain information and get feedback more easily and quickly (Deng et al., 2015). They can also leave a comment or chat in real-time with journalists or concerned authorities involved in this collaboration (Hood and Reid, 2018b).

Over time, frontier scholars have demonstrated their interest in a variety of ways (i.e. co-production, E-education, digital archive, and location-based games) in which ICTs (e.g. AR, 3D modelling, VR, GIS) including social media are able to foster community engagement and collaboration in urban planning and heritage conservation (De Filippi et al., 2018; Kleinhans et al., 2015). Digital interactive applications have been widely employed in cultural heritage sites and have hitherto focused on community engagement, equity of multi voices, as well as community empowerment.

With the progress of technology, the integration of digitised display and crowdsourcing technology in terms of communication and collaboration for cultural heritage has become an inevitable trend (Sroczynska, 2012). Co-production (also known as co-design, co-creation) as a means of collaborative participation has become increasingly popular in multiple activities, including product design for museums, libraries, and heritage planning (Claisse et al., 2017; Sanders and Stappers, 2008). In line with it, open collections can be used in both formal and informal educational contexts (known as E-education) to share findings and exchange perceptions with stakeholders (Cotterill et al., 2016; Yeates and Guy, 2006). Furthermore, citizens who gather as online communities are empowered to create their digital heritage landscapes, museums, and archives through photo sharing, video-audio records, and narratives (Aigner, 2016; Beel et al., 2017; Prictor et al., 2020). In addition, location-based mobile games are utilised to further motivate young visitors to explore museums and facilitate their meaning-making process (Prastyawan and Isbandono, 2018; Rubino et al., 2015; Yamamura, 2015).

Immersive technologies, particularly, the applications based on Augmented Reality (AR) can promote the value of industrial heritage and museums across educational, collaborative, and digital technology sectors (Arrigoni et al., 2019; Spacca et al., 2018). In the historical industrial site of Carpano (Italy), an AR game was designed to improve the visitor experience by offering knowledge of industry, art and history (Spacca et al., 2018). In a museum of children's literature (UK), AR acts as a mediator between targeted audiences (7-11-year-old children) and specialists in collaborative practice (Arrigoni et al., 2019).

3D modelling and printing technologies have become increasingly prevalent in the field of cultural heritage conservation without space and time constraints (Champion and Rahaman, 2019; Jeffrey et al., 2020; Statham, 2019). The physical structure of a site can be documented and deployed by 3D visualisations not only

by heritage professionals but also by broader local community groups (Jeffrey et al., 2020; Statham, 2019). Besides, the application of 3D models in the preservation of intangible heritage was also highlighted by Champion and Rahaman (Champion and Rahaman, 2019).

According to some scholars, the concept of virtual heritage refers to the application of Virtual Reality (VR) technology in cultural heritage assets for the sake of heritage communication (Fernandez et al., 2017; Hurley, 2016). In addition, 3D modelling and animations in a video sequence are also involved in the presentation of a better legible solution (Fernandez et al., 2017). However, Hurley (2016) pointed out that the current VR applications at the heritage site Old North St. Louis are largely a museum display rather than true participatory planning (Hurley, 2016).

Various cultural heritage sites benefit from the concept of crowdsourcing, particularly through web-mapping and the analysis from Geographic Information System (GIS) in mobile (Dhonju et al., 2018; Loren-Mendez et al., 2018; Yang and Yen, 2017). The collection, calculation and visualisation of Volunteered Geographic Information (VGI) Data is based on the Share Our Cultural Heritage (SOCH) web, aiming to document and share cultural heritage worldwide (Dhonju et al., 2018). In addition, the online geospatial heritage database can overcome many of the constraints related to traditional heritage catalogues (Loren-Mendez et al., 2018) in terms of both tangible and intangible cultural heritage (Yang and Yen, 2017).

3.1.2. The Role of Social Media in Sustainable Cultural Heritage Management

Social media apps make significant contributions to collective community memory by means of story-telling practices and cultural expression based on mapping (Psomadaki et al., 2019; van der Hoeven, 2019; Wilson and Desha, 2016). It is worth mentioning that the definition of social media in this work refers to any digital tool that enables users to quickly create and share content with the public, including a wide range of websites and apps: (1) photo-sharing apps such as Instagram and Flickr; (2) video and audio sharing apps such as YouTube; (3) short written massages sharing apps such as Facebook and Twitter; (4) and other apps designed for geo-location sharing with social interaction functions.

People's desire for relevant real-time information and participation in planning has stimulated much potential for involvement both in the use of social media and in addressing them to cultural heritage (Deng et al., 2015). This is exemplified in the work undertaken by Spruce： at the Smithsonian National Museum of African American History and Culture, social media is empoyed to raise the marginalized voice (Spruce and Leaf, 2017). Besides, social media also emphasise the equity of discourses by being accessed easily by all Internet users whereas to publish, communicate, read, or broadcast information inexpensively (Magro, 2012). In terms of time, social media products allow users to publish information and get feedbacks in near-real-time (Tzouganatou, 2018). social media enables and enhances people's effective engagement with heritage (Svensson and Maags, 2018).

Approaches to involving social media in museums, monuments, and urban heritage sites are ongoing, with rapidly growing interest. Some agencies and authorities have made efforts on the program and data extraction, such as information on QR codes, so as to enhance the communication among participants (Corallo et al., 2018; Tzouganatou, 2018; Yeates and Guy, 2006). Storytelling, which is the collection and analysis of narratives, including both short-term comments and blogs, through popular social media apps, such as Facebook, Twitter, and collective memory websites (Hood and Reid, 2018b; Psomadaki et al., 2019; Spruce and Leaf, 2017; van der Hoeven, 2019; Wilson and Desha, 2016).

In parallel, mapping is one of the crucial tools to get an insight into the community mechanism and user expectations (Dhonju et al., 2018; Psomadaki et al., 2019; Sabra et al., 2015; Svensson and Maags, 2018; van der Hoeven, 2019). Moreover, in some cases, online surveys based on selected platforms are disseminated to enhance the rights and capabilities of multiple voices (Deng et al., 2015; Diaz-Andreu, 2017; Kleinhans et al., 2015; Nummi, 2018; Wilson and Desha, 2016) It should be noted that the methods mentioned above are not mutually exclusive, instead, they are utilised as an integrated toolkit a number of times.

Social media offers a platform that involves more stakeholders to participate in the process of cultural heritage conservation, such as grassroots and experts with distance (Liang, 2020). It plays a core role in the digital era, facilitating communication and collaboration among those profit mattered communities. As a new form of community, online community was born under the context of digital landscape heritage. Internet users gather for a specific common goal or topic to

organise their practices, collect opinions, or exchange relevant information (Giaccardi, 2012). Online community differs from the so-called traditional community due to the latitude of time, places, occupations, ages, and other possible barriers. It makes it easier for stakeholders from different groups to discuss and communicate.

The majority of studies on the utilisation of social media in cultural heritage conservation topics is under the western context. The hues and brightness of the tweeted images (pictures posted on Twitter) are illustrated to plot the smart city (Rose and Willis, 2018). The role of Facebook played in the two-way communication between residents and governments is discussed in the urban planning project of Jordan (Rania, 2017). Narrative studies are done with the aid of Facebook by collecting unofficial histories as a kind of digital archive (Purkis, 2017). Geotagged Instagram posts are visualised to reassemble the city of Amsterdam (Boy and Uitermark, 2017). Pictures, tags and real-time geo-location from Flickr are documented to reflect the preferences of locals and tourists as well as the political and religious issues in the historic city of Tripoli, Lebanon (Ginzarly et al., 2019). A new way to collaborate with the Chinese local government to stop the demolition of Dafo temple in Guangzhou is explored by tracing the information flow of a complaint post on Weibo (Deng et al., 2015). There is an urgent need to study social media in terms of cultural heritage under the context of rapid development in China.

3.2. Case Study Based on Current Research: The State of the Practice

The State of the practice part suggests that which is commonly done (practised) in the field of Digital Community Engagement in the last few years. The projects I cited from recent research articles are offering to harness social media as part of the ICTs to public participation and to make it available to further studies. It offers a comprehensive and quantitative understanding of cultural heritage sites and associated social media apps, easy to integrate into the following research section.

3.2.1. The Establishment of the Database

In order to select accurate relevant-topic cases for analysis, a semi-quantitative methodology was designed and used to draw up low-relevance publications and refine the gained documents. The search string is preliminarily defined by PICOS tool as mentioned in Chapter 2 (section 1), then further refined by adding a date range limit (1985-now) and a language setting (English only). In this phase, 248 document results were returned by 26th July 2020. The selection process is detailed into seven steps and two phases related to the accessibility of full paper, language, and content relevance.

The first phase aims to narrow the gained retrieval database by examining the written language and the ability to access it. Firstly, the duplicated articles and chapters by the same author, and with the same abstract and keywords published by different publishers were excluded automatically by the reference management software. Following that, publications produced by the same author on the same case study were excluded after a cautious cross-comparison. Then, 4 non-English publications were removed. Although restricting the retrieval language as English, there are still some non-English articles involved in the retrieval result with only English title and abstract, in which 1 publication was written in Italian and 3 publications in Korean. Meanwhile, the publications with inaccessible full text were excluded due to the lack of detailed case study descriptions. Following this step, the retrieval returned 195 documents.

Aiming to further refine targeted articles, the irrelevant-content publications were eliminated manually. Studies were first judged as available resources from the title as well as the abstract. Then, the full texts were downloaded and filtered further by skimming. Lastly, some complementary publications were added by manual screening, for which one of the four criteria in PIST is not explicitly mentioned but

alternated with metaphors. To be more specific, "I" of PIST was omitted to retrieving those in which the keyword Social Media was replaced by other phrases such as Digital Storytelling, New Media, etc. The retrieved publications were ordered by relevance and selected manually according to research topics. Studies with the title referred to but not included specifically two of the following subjects (social media, cultural heritage, community engagement) are anyway listed in our extended references, such as using Digital Storytelling, and New Media to indicate the keyword Social Media. By now, 19 items were finally retained. The result of each selecting process is shown in Table 5.

Table 5 The result of each selection progress

	Number of publications retrained	**Selection progress**
Step 1	248	Publications that were retrieved from Web of Science searching
Step 2	240	Publications retained after 8 duplicate publications were excluded
Step 3	238	Publications retained after 2 publication that has the same case as another publication was excluded
Step 4	234	Publications retained after 4 non-English publications were excluded
Step 5	195	Publications retained after 39 inaccessible publications were excluded
Step 6	14	Publications retained after 181 irrelevant-topic publications were excluded
Step 7	19	Publications retained after 5 relevant-topic articles that involve linked case studies were supplemented

3.2.2. Setting of the Quantitative Analysing Method

The following criteria were applied to every case study; publication time, case location, the name of cultural heritage object, applied social media, interactive method, direct object, and impact on sustainable cultural heritage management. However, for most publications, there is only one case involved and one cultural heritage object studied so that it is easy to manage the information. However, there are still some works containing multi-practical cases. To follow the same set of data

collection and analysis logic, we compress multiple cultural heritage objects in one item (e.g. 19 museums in the Netherlands from the same article). But later on, those cases are listed individually for further study.

All the social media tools involved in the practice are listed for further quantitative statistics of the usage frequency of each digital way. Main interactive methods are summarized and classified by interactive forms of expression into 7 ways: Official announcement; Exhibition; Communication; Photo sharing; Mapping; Storytelling; Crowdsourcing. By listing interactive methods of every case, we can obtain the applying frequency and identify the characteristics of each interactive method. We marked all the social media that were mentioned in the selected articles and sum the amount (weight =1). Even if there are several different kinds of Apps mentioned in the same article, we just consider it as 1 point. For example, in the case of Thessaloniki, a series of APPs, such as Collective City Memory App, I-Guide App, and website at http://thesswiki.com/ are used to equip Thessaloniki as a Digital City. We marked App (1 point) and Web (1 point) in the first row of Table 4. In addition, we evaluated the function of social media on sustainable cultural heritage management both from direct and indirect perspectives, in that way we can explore the availabilities of social media in future urban development. Three main objects (Collective memory, Heritage interpretation, and Enhance communication) and three aspects of the possible impact on sustainable cultural heritage management (Shared heritage and collective memory, People-cantered approach, Cultural expression) were expected initially with a possibility to be extended.

3.3. Practices and Study Cases Obtained from Literatures

The collation of the collected research cases needs to be considered from different aspects. Beyond the information such as the name and location of the heritage site, the social media platforms used in the projects should be statistically and systematically organized. In addition, the use of this digital tool to interact with residents, that is, the way the audience uses this digital technology to participate in cultural heritage must also be extracted and summarized. At the same time, the purpose of digital public participation should also be classified and emphasized based on research on traditional forms of public participation. Finally, this research ultimately contributes to sustainable cultural heritage management. It is also a very important aspect to understand what impact the introduction of social media public participation has on the overall heritage management.

Based on the research design, a total of 19 articles consistently corresponded to the requirements as shown in Table 6 The publication time ranges from 2006 until the present, and the quantity of published articles shows an upward trend along with the time (2006 n=1, 2010 n=1, 2015 n=2, 2016 n=2, 2017 n=5, 2018 n=4, 2019 n=3). Publications since 2015 take a noticeably high proportion (90 percent) as compared with the ones published before (10 percent), which demonstrates the rising attention from scholars and practitioners on testing social media in cultural heritage set in the recent 5 years.

Table 6 Cases collected from nineteen articles and in detail analysis

No.	Publication Time	Location (Nation)	Cultural Heritage Object	Applied Social Media	Interactive Method	Object	Impact on Sustainable Cultural Heritage Management
1	2019	Greece	Thessaloniki	Website, APP	Storytelling; Mapping; Exhibition; Crowdsourcing	Collective memory	Shared heritage and collective memory
2	2019	Netherlands	19 Dutch heritage projects and organizations (eg. Amsterdam Museum, Museum Rotterdam, etc)	Twitter Facebook Flickr YouTube Pinterest blogs Instagram Linkedin TripAdvisor Website Interactive map	Storytelling; Mapping	Collective memory	Shared heritage and collective memory
3	2019	Lebanon	Tripoli and El-Mina municipal boundaries	Flickr	Mapping	Heritage interpretation	People-centered approach
4	2018	Finland	Nikkilä	Instagram, Twitter, Facebook, Interactive map	Communication; Crowdsourcing	Enhance communication	People-centered approach
5	2018	Italy	Puglia	Facebook, Twitter	Communication; Crowdsourcing	Enhance communication	People-centered approach
6	2018	Nepal	Kathmandu Valley	Website	Mapping	Heritage interpretation	Cultural expression

		UK	Newcastle University Quadrangle Gateway				
7	2018	New Zealand	A Museum	Website	Photo sharing; Crowdsourcing	Maintain community archives	Shared heritage and collective memory
8	2018	United Kingdom	the North East of Scotland	Facebook	Photo sharing; Storytelling	Collective memory	People-centered approach
9	2017	United Kingdom	UCL's Grant Museum	Website, Twitter, APP	Exhibition; Crowdsourcing	Heritage interpretation	Cultural expression
10	2017	Netherlands	Anne Frank House	Facebook (Messen-ger)	Communication	Heritage interpretation	Cultural expression
		Italy	The House Museums of Milan				
		Italy	The National Museum of the 21st Century Arts				
11	2017	United Kingdom	Prehistoric Rock Carvings in Northumberland	Facebook; Website	Exhibition; Storytelling	Enhance communication	People-centered approach
12	2017	United State	Smithsonian National Museum of African American History and Culture	Twitter	Exhibition; Storytelling	Increase access for visitors of color	People-centered approach
13	2017	Jordan	Amman	Facebook	Crowdsourcing; Official announcement	Enhance communication	People-centered approach
14	2016	Australia	Brisbane's built heritage	Facebook, Instagram, Pinterest, Twitter	Storytelling; Crowdsourcing	Heritage interpretation	Cultural expression
15	2016	Vienna	The Vienna Werkbund estate	Website, Facebook,	Photo sharing	Equity of the discourse	People-centered approach

				Pinterest, Flickr			
16	2015	China	Dafo Temple	Weibo	Photo sharing; Communication; Crowdsourcing	Equity of the discourse	People-centered approach
17	2015	Denmark	Contemporary Danish Urban Cemetery	Interactive map	Mapping	Heritage interpretation	Cultural expression
18	2010	Australia	Sydney Opera House	Flickr	Photo sharing	Collective identity representation	Cultural expression
19	2006	UK	South-east of England	Website	Communication; Crowdsourcing; Official announcement	Heritage interpretation	Cultural expression

The table summarized above shows that each article contains a different number of practical cases. Most articles have only one case, and individual articles even contain as many as 19 cases. Therefore, a more detailed analysis and inspection of each case is a necessary step. 39 cases from 12 countries all over the world with the Australia (n = 1), China (n = 1), Denmark (n = 1), Finland (n = 1), Greece(n = 1), Italy (n = 3), Jordan (n = 1), Lebanon(n = 1), Nepal (n = 1), the Netherlands (n = 20), New Zealand (n = 1), the UK (n = 4), the US (n = 1), and Vienna (n = 1) are extracted from those articles as shown in Table 7. The review shows that the highest number of social media engaged heritage sites are located in Europe (30 in total, including Denmark, Finland, Greece, Italy, the Netherlands, and the UK), which represents 75 percent of the total. However, according to the UNESCO World Heritage List (2019), properties located in Europe represent just under half (47 percent) of the list, which indicates that using social media on cultural heritage conservation in other regions is still underexplored. Moreover, China, as one of the countries which own the most inscribed heritages, presents unsatisfactory with only one case. It should be taken into consideration that there could be some statistical bias as the method for retrieve is by no means fully comprehensive, and more suitable cases could be included to expand our current list.

Table 7 The types of applied social media to cultural heritage objects

No.	Location	Cultural Heritage Object	Applied Social Media												
			App	Blg	FB	FK	Ins	Lin	Map	Pin	TA	Twi	WB	Web	YT
1	Greece	Thessaloniki												●	

| | | |

39	Italy	The National Museum of the 21st Century Arts	•

In order to have a clearer understanding of the heritage sites where social media is currently used more widely, the study further categorized all the extracted 39 cultural heritage objects into 4 topics according to their attribution and features as shown in Table 8. We ranked the social media, according to the usage frequency of each social media platform. Building (n=5), City (n=6), Landscape (n=4), Museum (n=24). Seeing Figure 15 it is easy to find out that museums are the pioneers of involving social media tools (62%) and play an important role in managing digital heritage. In opposite, the focuses on involving social media in conserving the building, city, and landscape are relatively little.

Table 8 Analysis and categorization of the extracted cultural heritage objects

Categories	No.	Cultural Heritage Object
Museum	1	A museum
	2	Amsterdam Museum
	3	Belvédère Rotterdam
	4	Bijlmer Museum
	5	Financieel Erfgoed op de Kaart
	6	Geheugen van Oost
	7	Haagse Herinneringen
	8	Hague Imagine IC
	9	Mapping slavery
	10	Muren Transvaal
	11	Museum het Schip
	12	Museum Rotterdam Museum Zonder
	13	Ongekend Bijzonder
	14	Oud Amsterdam
	15	Rotterdam in Kaart
	16	Rotterdam Vertelt
	17	Smithsonian National Museum of African American History and Culture
	18	Stadsarchief Rotterdam
	19	The Historical Museum of The Hague
	20	The House Museums of Milan
	21	The National Museum of the 21st Century Arts
	22	UCL's Grant Museum
	23	Wederopbouw Rotterdam
	24	Zicht op Maastricht
City	1	Thessaloniki

	2	Amman
	3	Nikkilä
	4	Puglia
	5	the North East of Scotland
	6	Tripoli and El-Mina municipal boundaries
Building	1	Anne Frank House
	2	Brisbane's built heritage
	3	Dafo Temple
	4	Sydney Opera House
	5	the Vienna Werkbund estate
Landscape	1	Contemporary Danish Urban Cemetery
	2	Kathmandu Valley
	3	Newcastle University Quadrangle Gateway
	4	Prehistoric Rock Carvings in Northumberland

We suggest that museums are seen as core facilitators of cultural heritage for the general public. As museums usually play a role in daily life as the carriers of the exhibition, cultural events, archive, collection of cultural relics, etc. Such activities are often associated with budgets for public engagement, which allows social media tools to be developed and promoted. Whereas at a wider scale, citizens are not always aware that historic buildings, cities, or landscapes that they use or live within should be part of the need-to-be-conserved heritage. This is often due to a lack of engagement at a city or landscape scale. Therefore, it is important that local governments, planners, developers raise the awareness of this issue with the general public so that there is a good understanding of the broader definition of cultural heritage and its importance. This requires the need for citizen participation in the planning and development process of both urban and rural landscapes. This requires investment and capacity-building-type activities that equip citizens with knowledge and skills to offer helpful feedback, suggestions, and practices. Social media tools provide an ideal platform for this approach.

Regarding participatory social media tools, Figure 16 demonstrates that Facebook ranks first place (30 percent), followed by Twitter (19 percent), and customized websites (12 percent), indicating that text-based platforms are the most popular ones among the global audience. Furthermore, photo and video sharing apps, YouTube (10 percent), Flickr (7 percent), Instagram (5 percent), Pinterest (3 percent), and GIS-based interactive map (5 percent) have also been applied. Besides, other digital platforms listed as Blog, Pinterest, interactive apps, LinkedIn, TripAdvisor, Weibo took only a small part of this field. Some researchers and developers admitted that popularity is the main decisive factor to target their

choices [50]. Thus, it is not a surprise that Facebook becomes their favourite testing field because it is currently the most popular platform with 2.3 billion users.

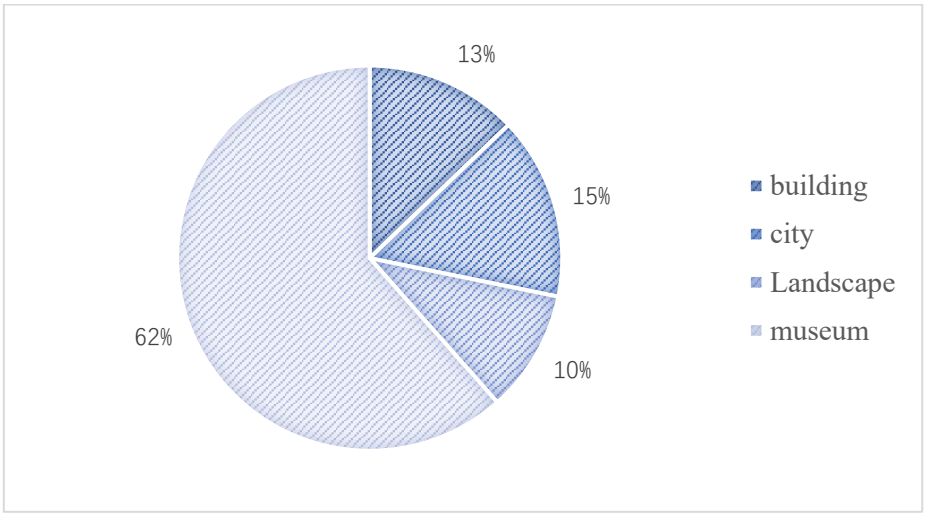


Figure 15 The proportion of the four identified aspects of the selected cases

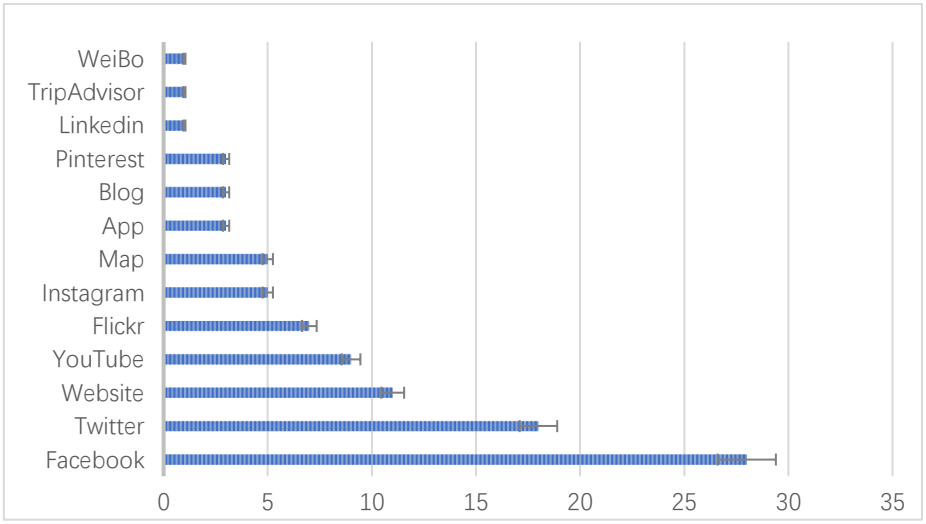


Figure 16 The usage frequency of each social media tool

The result of the interactive method analysis as shown in Figure 17 presents a relatively equal frequency of involving each way. Data analysis by crowdsourcing or other computing means ended with the highest score (n=9), while Communication (n=5); Photo sharing (n=5); Mapping (n=5); Storytelling (n=5); Exhibition (n=3); Official announcement (n=2) are noticeably lower. It reveals that there is no almost bias concerning the operation process, which means researchers

and experts exam and explore various aspects and directions leading by social media.

The objects are briefly categorized as five: Heritage interpretation (n=8), Enhance communication (n=5), Collective memory (n=4), Equity of the discourse (n=2), and Maintain community archives (n=1). Meanwhile, within the column Impact on Sustainable Cultural Heritage Management, the People-centered approach (n=9) and Cultural expression (n=9) are the most popular rungs achieved within global heritage management. While the aspect of Shared heritage and collective memory (n=3) received less attention. Although Cultural expression and heritage interpretation are absolutely the main streams, the efforts of scholars on the Enhance community communication in the People-centered approach are not ignorable.

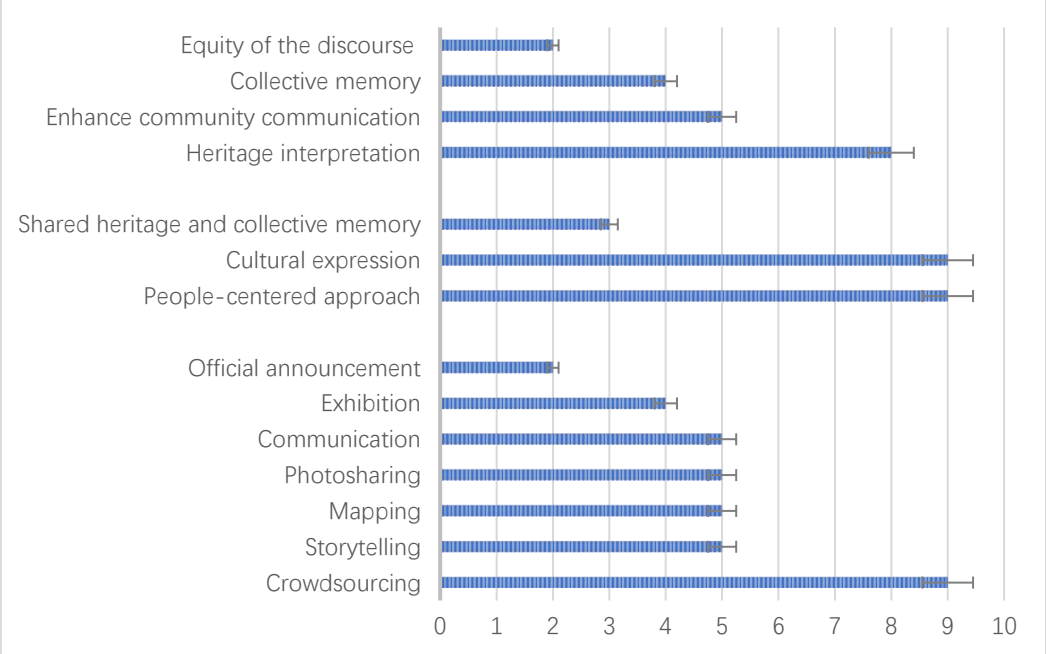


Figure 17 The quantitative result of the interactive method

Using digital tools to engage the local community in protecting and promoting the values of cultural heritage is gaining more and more attention (Affleck and Kvan, 2008; Jeffrey et al., 2020). Digital technologies can improve conservation and preservation techniques, enrich archives with interactive media, mapping heritage with Geographic Information System, augment participatory experiences, promoting communication among stakeholders, and deepening the understanding of cultural attachment (Miles et al., 2016; Popple, 2015). Social media is considered

as one of the most important facilitators to promote the double side collaboration of authorities and citizens (Falco and Kleinhans, 2018).

This section aimed to offer a comprehensive global review of the availability and functionalities of social media and to identify tools and platforms that are applied currently to the current cultural heritage management process. The approach of the systematic review was structured with a PIST tool. 19 articles were eventually selected, from which 39 cases were extracted, identified, and analysed. The review indicates that almost three-quarters of the identified practices are mainly concentrated in Europe. However, taking into account the development of digital technology and the economy, further efforts to digital-enabled heritage conservation could be undertaken by other governments, agencies, NGOs, and communities around the world.

Overall, social media tools are generally applied to museums instead of urban heritage, buildings (monuments), and landscapes. The 39 cases have been analysed with regard to applied social media tools, interactive methods to the heritage, objects, and the impact on sustainable cultural heritage management. Facebook is considered as the most popular social media out of 13, while the assessment of interactive ways of social media and heritage management is shown a relatively average score. Meanwhile, heritage interpretation is regarded as the most being involved purpose as compared with enhancing communication, collective memory, equity of the discourse, and Maintain community archives. The application of social media tools also shows a greater impact on both the two aspects of the sustainability of heritage conservation: a people-centred approach and cultural expression.

The people-centred approaches, such as the equity of discourses across cultural diversity, nation, religion, gender, etc. should be supported and highlighted widely on the social media platform. Despite UNESCO emphasizing community communication and collaboration in heritage management as a key priority, the global application of social media currently still tends to broadcast the heritage value instead of strengthening the collaboration among stakeholders. However, some countries with centralized governance and regulatory systems, such as China, recommend a localized and contextualized bottom-up approaches by social media in order to encourage local residents to better engage in both decision-making and benefit-sharing process.

Based on the extensive literature inventory, the study has not only contributed to a comprehensive picture of the current research in this area but also detailed a series of practical cases and defined the involved approaches, objects, and main significance. However, further studies and cases are required to explore how the sector can make the most out of the current social media platforms in diverse cultural backgrounds, within the context of rapid urbanization context.

Chapter 4

4. Approaches and the Particularity of the Community Engagement and Heritage Management in China

With the emergence of social network sites (SNSs) in China, new media has growing importance on the traditional urban planning system and have facilitated the development of new types of planning (Zuo et al., 2018). In the recent ten years, the Chinese government have tried several times to employ the use of ICT tools for provoking more citizen engagement in heritage conservation with the aim of creating a positive impact. For instance, experts and civic groups utilized Weibo to criticize ''the regeneration projects of Beijing's bell and drum tower neighborhood'' proposed by the local government (Bideau and Yan, 2018). The ICT has gradually become an important method of public consultation and supervision during the construction phase of renewal planning in China (Fu and Bu, 2016). However, there is a lot of wishful thinking, but little quantitively validated knowledge in this emerging field of study. Thus, the main research question addressed whether social media and mobile technologies have measurable impacts on citizens' engagement beyond traditional mobilization and participation approach. In details, what then are the characteristics of the new types of public participation? In the process of the inclusive and sustainable urban context, how can digital technology empower ordinary citizen to manage his own heritage? What are challenges in the application of open source ICTs for citizen engagement in heritage conservation and possible coping strategies.

4.1. Cultural Heritage Management in Chinese Cities: The Need of Involving Social Media

The development of the Authorized Heritage Discourse in China is accompanied by new global aspirations (Svensson, 2018). Urban heritage conservation in China has received severe critical comments on the over-commercialization, inner-city over-gentrification or fake reconstruction in the past several decades (Verdini et al., 2017). Some western scholars sharply pointed out that it is mainly due to the difference in East-West public discourses and the institutional fragmentation (Bideau and Yan, 2018; Roders and Bandarin, 2019). However, the conservation paradigm is gradually shifting from materiality to a greater sustainable way with arising awareness on the importance of engaging local communities. The Chinese government, professionals, spontaneous civil organizations are making effort to retain the residents' cultural identity, the sense of place, the value of the heritage and the human environment (Liang et al., 2021). Under the circumstance，introducing the HUL approach to China is appreciated as a “bottom-up” expression of social values and social choice.

It has to be admitted that China has taken some detours on the road of cultural heritage protection. Dating back to 1997, the first inscribed Chinese historic cities in the World Heritage List (WHL), such as Lijiang and Pingyao, have involved prodigious economic and political profit due to the accompanying development of tourism (Roders and Bandarin, 2019). Since then, seeking short-term interests has become a prevalent practice among Chinese local governments. This leads to a wide-spread exclusive approach in a long time by maintaining only the outlooking and structure of several selected monuments, while intentionally overlooking the diminution in urban infrastructure and outflow of the local population. Obviously, having experienced such dramatic social and economic transition, this cost is hardly to be unavoidable. According to successful conservation cases, such as Angkor Wat, introducing other methods and approaches to enhance public participation will be an effective method.

The judgements and comments on the community engagement practices in the urban heritage renewal projects in China are easy to be found. In the Gulou renewal project (Beijing) in 2012, the action of forced relocating of more than 100 families is considered as a negative sample in the urban heritage conservation field (Bideau and Yan, 2018). Nevertheless, since 2014, a series of relevant activities have been

organized by the World Heritage Institute for Training and Research in the Asia-Pacific Region (WHITRAP) on promoting the HUL approach. Since then, many good government-civilian cooperation cases have continued to emerge. The on-site workshops in the renewal process of Shuangwan village, Jiangsu are seen as a media to make an effort on the right of discourses from a bottom-up way (Verdini et al., 2017). Another community-government collaboration paradigm is the restoration project of Tianzifang, Shanghai, the living environment is significantly improved (Yung et al., 2014).

What is worth to mention is, during this COVID-19 epidemic period, China set a paradigm in the worldwide level to face this sudden global crisis. Some effective and efficient approaches even have been taken by the Chinese government to enhance public participation in the urban renewal process taking advantage of this quarantine period. However, researches on evaluating and illustrating the participatory governance are still limited, and effective online tools to involve residents in decision-making have yet to be explored adequately. To fill this gap, social media applications deserves to be introduced into the research field. Because it contains multi-potential values by analyzing geospatial dynamic, which is a way to structure the inner connection of stakeholders: mapping the accessibility of buildings at neighborhood or city level; visualizing the urban inequalities; characterization of metropolitan 'blank' urban morphology planning; development of more accurate benchmark models; evaluation of the effect obtained through retrofit measures, etc.

4.1.1. The Enlightenment from the Epidemic: Gathering Activities from Offline to Online

The epidemic of the COVID-19 virus that began in 2020 has brought various crises to the development of the city, leading to a downturn in the construction, engineering and construction industries. However, the situation in the field of urban heritage protection is relatively optimistic, which provides an opportunity for architects and planners to formulate more comprehensive and reasonable urban heritage protection strategies.

The epidemic has significantly changed the way people gather. On-site interactive activities have been strictly prohibited, and even the scope of action has been more or less restricted according to the lockdown policies of various regions. As a result, most residents have to use online platforms more frequently in life,

work, and study, such as online shopping, food delivery services, social media, and online meetings. Inevitably, such demands have also given birth to the development and application of a series of digital platforms, such as short video apps and other entertainment tools, community committee service websites and other public government affairs platforms. Among them, the construction of a few online platforms is led by the government, and the majority are spontaneous business activities. This provides a good opportunity and hardware foundation for transferring a series of community participation activities, such as community consultation and participation, public gatherings, collaborative design meetings and design expert seminars, to the digital platform. In China, the use of health green codes with automatic positioning and tracking functions developed to control the spread of the epidemic has spread nationwide. This makes it easier to mark the trajectory of COVID positive patients for a more effective epidemic control. This phenomenon has caused scholars from various academic fields to rethink community and public participation (Ginzarly and Jordan Srour, 2021; Kużelewska and Tomaszuk, 2020). In the fourth chapter of this study, the author also tried to clarify the method and significance of public participation during the COVID epidemic.

In fact, the human crisis brought about by the pandemic has become a catalyst for the transformation of tools for collecting residents' opinions and suggestions. Residents' opinions collection, analysis, evaluation, and adoption have always been the basis of collaborative planning and design. However, before the outbreak of the new corona virus, the protection of cultural heritage has mainly relied on traditional methods of community participation, such as government announcements, visits and follow-ups, telephone interviews, etc. These methods obviously have inherent shortcomings such as time-consuming, strong subjectivity, consuming more labor, and geographical restrictions. As a supplement, the use of digitization and other tools to expand the space and time range of dialogue, and to enable local people to obtain updated project information in a timely manner, will make the process of public participation fairer and more reasonable.

Although the research and practice of DCE is still in its infancy, the exploration process has begun to produce some novel results. Studio Zewde from the New York city explored the possibility of using Instagram to promote thorough community

engagement of the artists and city dwellers in its Graffiti Pier project [25] in Philadelphia. Many companies have also turned to Zoom to conduct community surveys and workshops. Other firms are also exploring how to use potential platforms such as WhatsApp groups and even podcasts to expand restricted community participation in the design and planning process. Greenwald noted another on-going American project as a successful project on applying digital tools to engage local residents in her report namely *After COVID-19, What's Next for Landscape Architecture?*

> *"For its ongoing work designing public spaces across the rural Coachella Valley of California[26], KDI has developed online programming aimed at extending the social interaction afforded by parks and public plazas into the digital realm. That effort has resulted in an informative, weekly Facebook Live variety show and a mariachi car parade organized for towns in the firm's region, including North Shore, Mecca, and Oasis (Greenwald, 2020)."*

4.1.2. The Choosing of the Current Chinese Social Media

In fact, there has been a lot of prior research done on the adaptation of influence and evolution of trends in Western online social networks (Asur et al., 2011; Cici et al., 2015; De Nadai et al., 2016). According to the current research, a set of services with a markedly higher geographic diversity of usage (WhatsApp, Instagram, iCloud, et al), which could aim to the optimal distribution that weights services, attracted more and more attention of architects and urban planners. In

[25] Graffiti Pier is a landmark in the street art scene, attracting graf writers and artists from clear across the eastern seaboard, proudly exhibiting why Philadelphia is a hotspot of cultural production. It's also a place reflective of the culture of industry and the working-class roots of Port Richmond and many Philadelphians. At the same moment, the site is a safe haven for those in need of refuge. It's a place of many stories, first dates, first kisses, and, as Philadelphia's most Instagrammed location, a place of many, many selfies. Source: Studio Zewde website (https://studio-zewde.com/graffiti-pier)

[26] After five years of building Productive Public Spaces in Kenya, the Kounkuey Design Initiative (KDI) began exploring the potential to apply this model in California. The result is a growing network of community parks and programs that are improving economic opportunity, social cohesion and environmental resilience in the disadvantaged communities of the Eastern Coachella Valley. The participatory process used for the KPSP network is replicated here, with residents co-designing the spaces and developing accompanying programs through workshops, meetings, and other engagements. Source: Kounkuey Design Initiative website, The ECV Public Space Network (https://www.kounkuey.org/projects/eastern_coachella_valley_pps_network)

particular, applying social media apps, such as Twitter, Facebook, Instagram on qualitative geography research is just beginning and becoming more and more popular (Boy and Uitermark, 2017; Hawelka et al., 2014; Jong, 2015; Rose and Willis, 2018). Even if some researchers pointed out that social media apps have a lower penetration and a potential bias toward younger populations (Gesenhues, 2013). Some government still made the decision and taking into action to develop social media as an important way to reach citizens. The New York Digital City program complements the NYC.GOV portal with social media venues (Harmon et al., 2015). Prof. Noveck at Northeastern University created the first social networking system in the United States, Peer-to-Patent, to break the obstacle and time-assuming communicative mode between "expertise of the many to the power of the few" (Noveck, 2010). Moreover, some studies have mentioned the application of Chinese social platform in cultural heritage protection research, indicating that it is feasible to introduce social media to promote public participation in Chinese context (Deng et al., 2015). But engaging local residents to cultural heritage sites through social media has not been well-evaluated and explored.

In China, online social networks have become a major platform for the younger generation to share, disseminate, and receive information from others and meet like-minded individuals. As of June 2021, instant messaging users in China reached 983 million up 97.3% of all Internet users (CNNIC, 2021). Parallel to well-known western online social networks, such as Facebook and Twitter, there are a series of popular social media apps in China as well. In which, WeChat is undoubtedly China's largest social media platform, with more than 1.2 billion monthly active users. Following that, Douyin is the social software with the second largest number of users in China. It is a short video platform and one of the fastest-growing applications in China recently. While Xiaohongshu is called the Chinese version of Pinterest and Instagram. What is worth highlighting is the social media Sina Weibo, which is one of the most popular platforms in China. Weibo is a Chinese word that means microblogging. It is an online social network platform, developed and operated by Sina Corporation since 2009, which is comparable with Twitter. The majority of the users are located in China and post in the Chinese language. According to the number of active users published by Sina Corporation, it reached at least 400 million by February 2019.

This article mainly shows the interest in using Weibo for this research, mainly for the following two reasons. On one hand, Weibo is a relatively open real-time

information network platform. Most of the time, users can get information shared by other bloggers without being online friends. This means that ordinary users can be reached through a simple search, allowing us to collect more extensive information. On the other hand, Weibo users are allowed to post small essays of more than 140 words with pictures and videos. Therefore, compared with other social platforms, using Weibo can help us judge the views and experiences of the posters more comprehensively. Above all, using Weibo to study and unveil interplays between the digital and physical worlds, which are strongly relevant to urban development or planning, is the best choice.

4.2. The Main Ethical Challenges: A Bottom-up Positioning and Reflexive

Since the diversity in mobile service usage is primarily driven by urbanization, ethical issues occurred in almost every value evolution process in the stakeholders' network (Okic et al., 2019). As Steve Jobs said, “Why join the navy if you can be a pirate?”, ethical integration linked with urban designers and information controlling institutions becomes the core of this open challenge in this research. From a global perspective, metropolises are gradually being “armed” by various sensors which are monitored by pervasive and ubiquitous computing to record almost every single movement of citizens by tracking their digital footprints (e.g. smartphone, credit card, et al) (Kitchin, 2014). Will this lead to a cleaner, more efficient and safer future? Or will it be a predator of personal information privacy, leading us to George Orwell's 1984?

Smartphones have become an integral part of modern society (Athukorala et al., 2014). The development of crowdsensing-based technologies has allowed for the use of smartphones in large-scale data collection for different scopes of applications (Costa et al., 2019). Urban management can benefit from private information using both aggregated data and real-time data collection, processing, integration and sharing through inter- operable services deployed in a cloud environment (Khan et al., 2015). This kind of aggregated data is effectively anonymized, which means they cannot be used to track individual information. Aggregated data has been applied to improve the potential public transport usage in the urban area of London by visualizing the public bike availability (Noland and Ishaque, 2006); to ease pressure on open space and increase highway capacity and safety in Boston (Krueger and Gibbs, 2008; Varaiya, 1993); to support smart water, smart lighting, and smart energy management with sensors deployed throughout the city of Barcelona (Harmon et al., 2015). However, the initiatives on gathering real-time data, which focus on individuals, is in still dispute. In London, for example, a trial was asked to halt by the government, in which sensors installed in recycling bins to track the passing phones to target potential advertisements promoting.

In general, the ethical issue in using real-time data mainly addressed on the asymmetry of the information: data-obtained companies and institutions could sell personal information for advertising and marketing or allow hackers to gain access. Hacking, undoubtedly, is a huge threat to private security. Meanwhile, there are

enormous jurisdictional and administrative problems to stop it (Goodman, 2015). In fact, although 61.4% of Chinese netizens stated that they have not encountered network security problems during the online process in the past six months. As of June 2021, the proportion of Internet users who have experienced personal information leakage ranks the highest among network security issues, at 22.8% (CNNIC, 2021). There are concerns, therefore, that data the government collects could be used against political dissidents or even produce transnational cyber-crime. Such prodigious and complex data could particularly put individuals at risk if it got into the hands of hackers. Greg Conti, Tom Cross, and David Raymond questioned at the 2015 Black Hat computer security conference that: How would you take down a city? How would you prepare for and defend against such an attack? (Conti et al., 2015). Both private companies and public institutions might need to be better coordinated in their security efforts. Some places are already initiating such contracts, for example the General Data Protection Regulation (GDPR) required that all businesses within the European Union share what kind of data they collect from residents and gain individuals' consent for its use (though interestingly, it does not address data collection by governments). The law also allows EU citizens to opt out and be "forgotten," or to have personal data, everything from your mobile device ID to your genetic sequence, emmoved from any database if they no longer feel there is a compelling reason to keep it.

In this digital era, obviously, the power to represent the city is no longer concentrated in the elites. But is distributed by common users, instead of those who are controlling popular media (Castells, 2013). Social media apps should be used to illustrate the geographic, demographic, and cultural factors of the urban territory from another bottom-up perspective: the view of the city dwellers (Peltonen et al., 2018). While geospatial research provides a rich real-life data of social media app usage, it also imposes a variety of ethical challenges related to the extraction of private information from real-time data. Which means, this kind of research whilst potentially solving a diverse set of urban problems, the creation of code and programming in public management leaves cities vulnerable to other issues. In particular, it has the potential to create buggy, brittle and exposed city services and spaces that are prone to viruses, glitches, crashes, and security hacks that can cause havoc (Kitchin and Dodge, 2011; Townsend, 2013). As such, without regulated oversight and enforcement concerning abuses of data, then there is likely significant resistance and push- back against real-time analytics by citizens. If this hypothesis

works well, it would inevitably produce a more democratic, egalitarian society and safer, more liveable and more efficient cities.

However, ethicists have their own concerns: How can we limit modern technology to match our best sense of who we are and the kind of world we would like to build (Winner, 2001)? Who will pay for it? Since there exist the computer system and algorithm bias (Friedman and Nissenbaum, 1996; Julia Angwin, 2016; Lum and Isaac, 2016), can machines be better than humans? Does it really maximize happiness for the largest amount of people? Since there are only a few companies and public institutions monopoly the information about us, is everything transparent and safe? In addition, when personal data becomes a public resource that can be accessed easily, how would residents protect their privacy?

Moreover, in countries like China, with authoritarian top-down planning and state-owned media, the mass media's image of the city hardly represents the majority of citizens' everyday urban experiences or perceptions. This misrepresentation of urban conditions in media on one side creates processes of visibility and invisibility for the city, and on the other, effects and facilitates marginalization, as well as socio-spatial injustices and the exclusion of vulnerable groups from services and infrastructure. In other words, what role can daily used social media play in facilitating spatial justice for vulnerable groups in the society within the constraints of an authoritarian system needs to be understood better.

Since Europe is characterized by a more polycentric and less concentrated urban structure, even if the same city model commonly adopted both in developed (Europe and US firstly) and fast emerging countries (China, et al.), does not share the same connotations (Riva Sanseverino et al., 2018). Seldom, however, are such matters the subject of critical reflection. Thus, the feasibility of authorizing social media apps needs more investigation while applying to cultural heritage management in China. Although social media could offer an unprecedented perspective to observe the interaction between human social behaviour and space in China. How the proliferation of social media apps and those online representations feedback into the urban morphology has almost never applied in China.

4.3. Alternative Scenario: Open data acquisition and analysis for policy recommendations

The epidemic has significantly changed the way people gather. Offline meetings are forced to cancel, and people's lives and work rely more on online platforms. It has also given birth to the development and application of a series of digital tools. Some of which are government-led, while others are more spontaneous commercial activities. These online platforms provide a foundation for online community consultation activities, solicitation of opinions, organization and remote participation in collaborative design and planning, and joining of academic seminars on urban renovation strategy. This crisis has accelerated the transformation of communication platforms between the government, experts, architects, and residents. For a long time, the methods used by the Chinese government to collect residents' opinions, such as government announcements, follow-up visits, telephone interviews, etc., have inherent deviations. As a supplement, the use of digital tools to expand the scope of dialogue and engage with local people will make the process of public participation more transparent, fair and reasonable. In addition, the Weibo platform is more optimal for this research than purely friends-based social media due to its timely and rapid diffusion of information.

Based on the influence and adoption of Weibo in China, the brief roadmap of this research can be demonstrated from the following four main steps. First of all, targeted cultural heritage objects are collected from the most updated World Heritage List (WHL) in 2020. In total, five Chinese heritage sites located in the city area are extracted from the world tangible cultural heritage section. Following that, a search code is built upon identifying the topics, assembled by the city-level location of selected sites, synonymous with urban heritage in Chinese, to ensure that it can provide the social data coverage needed for research. We access the Application Programming Interface (API) of Weibo to obtain the needed content. Afterwards, an examination process is carried out both on computing and manually to weed out the duplicated posts, and an active purification is supplemented to acquire a sufficient database. Last, we analyze the characteristics in each of these corresponding tweets by identifying text and image content information and its geo-location information.

4.3.1. Case Determination

In terms of the reason why the research scope is framed on urban heritage rather than general landscape heritage or rural heritage is as follows. Firstly, compared with rural areas, the proportion of Internet users in Chinese cities is higher[27]. This means that selecting research objects in cities can reach a wider range of people. Secondly, the construction and development in cities are faster, and the threat to heritage protection is greater. The land for newly built residential areas in China continues to expand every year[28], this makes urban heritage land continuous Eroded, the protection of cultural heritage has become more prominent and needs to be resolved urgently. Thirdly, because the economy of urban areas is usually more developed, there is more sufficient funds to manage and maintain the urban landscape. At the same time, relevant cultural heritage protection laws and regulations are more complete than those in relatively underdeveloped rural areas, and urban renewal strategies have been formulated more in-depth. This is more conducive to obtaining research data on heritage protection and provides a good basic condition for the advancement of this research. In summary, starting with urban heritage is the best choice for this research, and the results of the research could hopefully continue to be promoted and applied in rural areas.

The study is designed and further developed within the world cultural heritage sites in China. Up to 2021, China ranked the first place (paralleled with Italy) in the WHL by owning 56 inscribed world heritage properties. In which, 38 are cultural heritage, along with 14 natural heritage and 4 mixed properties. With a metropolitan heritage as the point of focus, a filter was implemented to identify urban areas with a population of more than 500,000 residents (by January 2021) to make certain the data was sufficient, and the samples were diverse. After screening, cases that meet

[27] According to the CNNIC's Statistical Survey on China's Internet Development, as of June 2021, the size of urban Internet users was 714 million making up 70.6% of the total. Up to June 2021, the Internet penetration in China's urban areas was 78.3%, while that in rural areas was 59.2%, up 3.3 percentage points over December 2020. Data source: The 48th Statistical Report on China's Internet Development by China Internet Network Information Center (CNNIC), August 2021. (https://www.cnnic.com.cn/IDR/ReportDownloads/)

[28] The 2021 statistical report of the National Bureau of Statistics of China shows that from January to August 2021, the floor space of houses completed nationwide is 467.39 million square meters, an increase of 26% year-on-year. Data source: Chinese National Bureau of Statistics Website - National Real Estate Development Investment Report from January to August 2021 (http://www.stats.gov.cn/tjsj/zxfb/202109/t20210915_1822084.html).

the requirements are listed as the Old Town of Lijiang[29], Yunnan (1997), the Ancient City of Pingyao[30], Shanxi (1997), the Classical Gardens of Suzhou[31], Jiangsu (1997, 2000), the Historic Centre of Macau[32] (2005), and the Kulangsu Historic International Settlement[33], Fujian (2017).

[29] Lijiang's old town (including the Dayan old town, Basha housing cluster and Shuhe housing cluster), is located on the Lijiang plain at an elevation of 2,400 meters in southwest Yunnan, China, where a series of strategic passes give access through the surrounding mountains. The Old Town of Lijiang, which is perfectly adapted to the uneven topography of this key commercial and strategic site, has retained a historic townscape of high quality and authenticity. Its architecture is noteworthy for the blending of elements from several cultures that have come together over many centuries. Lijiang also possesses an ancient water-supply system of great complexity and ingenuity that still functions effectively today. Source: UNESCO World Heritage Center (https://whc.unesco.org/en/list/811/)

[30] The Ancient City of Ping Yao is a well-preserved ancient county-level city in China, located in Ping Yao County, central Shanxi Province. The Ancient City of Ping Yao well retains the historic form of the county-level cities of the Han people in Central China from the 14th to 20th century. Its urban fabric shows the evolution of architectural styles and town planning in Imperial China over five centuries. Source: UNESCO World Heritage Center (https://whc.unesco.org/en/list/812/)

[31] The classical gardens of Suzhou, Jiangsu Province, China date back to the 6th century BCE when the city was founded as the capital of the Wu Kingdom. Classical Chinese garden design, which seeks to recreate natural landscapes in miniature, is nowhere better illustrated than in the nine gardens in the historic city of Suzhou. They are generally acknowledged to be masterpieces of the genre. Dating from the 11th-19th century, the gardens reflect the profound metaphysical importance of natural beauty in Chinese culture in their meticulous design. Source: UNESCO World Heritage Center (https://whc.unesco.org/en/list/813/)

[32] Macao, a lucrative port of strategic importance in the development of international trade, was under Portuguese administration from the mid-16th century until 1999, when it came under Chinese sovereignty. With its historic street, residential, religious and public Portuguese and Chinese buildings, the historic center of Macao provides a unique testimony to the meeting of aesthetic, cultural, architectural and technological influences from East and West. Source: UNESCO World Heritage Center (https://whc.unesco.org/en/list/1110/)

[33] Kulangsu Island is located in Xiamen (Fujian), with an area of only 1.88 square kilometers. With the opening of a commercial port at Xiamen in 1843, and the establishment of the island as an international settlement in 1903, this island off the southern coast of the Chinese empire suddenly became an important window for Sino-foreign exchanges. Kulangsu is an exceptional example of the cultural fusion that emerged from these exchanges, which remain legible in its urban fabric. There is a mixture of different architectural styles including Traditional Southern Fujian Style, Western Classical Revival Style and Veranda Colonial Style. The most exceptional testimony of the fusion of various stylistic influences is a new architectura1 movement, the Amoy Deco Style, which is a synthesis of the Modernist style of the early 20th century and Art Deco. Source: UNESCO World Heritage Center (https://whc.unesco.org/en/list/1541/)

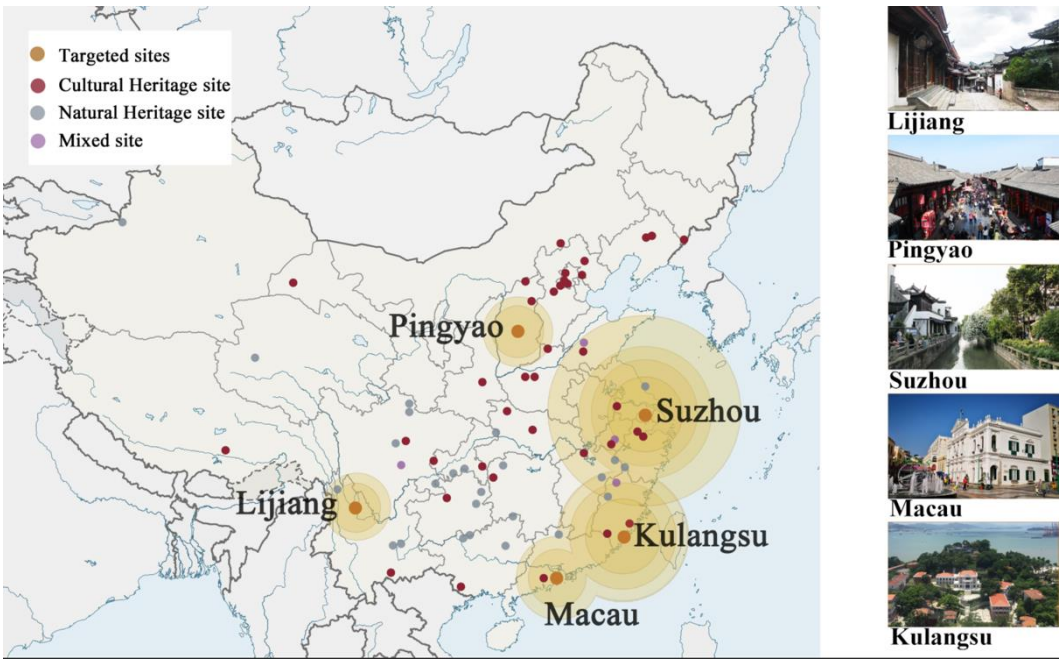


Figure 18 Geographical distribution of China's urban heritage and other world heritage sites. (The author draws according to the UNESCO World Heritage List 2021)

4.3.2. Data Acquisition

Unlike most of the social media platforms, Weibo composes of three original websites: Weibo.cn; Weibo.com; m.Weibo.com. Among those, Weibo.cn is considered with a broader threshold of posts' documentation and users' statistics. Thus, it is selected as the accessing point for data acquisition of this study.

The searching process is first defined by a series of keywords which should contain both the geographical information and the urban heritage attribution. Proximity Operators is applied to show the relationships with all the individual words. The draft of searching string is written in Boolean code as following: (Lijiang or Pingyao or Suzhou or Macau or Kulangsu) and (((Urban or Architectural) and Heritage) or (Historic and (City or District or Building)) or (Urban and (Renewal or Regeneration)) or (Traditional and (Architecture or District)) or (Historical Relic Protection) or (Heritage Sites Conservation) or (Old and (City or District or Building or Houses)))(Liang et al., 2022) . Based on this string of search codes, we get the unprocessed database with a time restriction from 20th January 2020 to 20th January 2021. It must be mentioned that our data

acquisition is based solely on extensive searches. Due to Weibo's restrictions on data access, the data we obtained is not reproducible.

We access REST API to obtain posts, comments, and other official analysis data within the operation of authorized access to Weibo. The data fields obtained include user ID, publisher nickname, gender, region, number of follower and followee, posts' text and pictures, releasing time, number of likes, reposts, and comments, geo-location, etc. The study tests and obtains the API interface and associated interface parameters from the chrome browser, using python as the programming language and using cookies to simulate browser access. Requests are sent via the python requests library. The data was initially cleaned: missing values, duplicate fields, empty strings, and garbled data were deleted. More than 9000 posts with data source information under urban heritage topics are acquired to build the database. The returned data is further parsed by the python libraries LXML, Beautifulsoup, Regular Expression, etc.

4.3.3. Data Selection

Firstly, 1204 duplicated posts with identical content from the same user are excluded automatically by programming. After this step, other four steps are needed to purify the acquired posts both by programming and by manual filtering. As the first step of data cleaning in this research, the Xlwings library is installed as programming environment and the code was written based on the Python language. By judging whether the content of the current line and the content of the comparison line are equal, the obtained microblogs whose text part is completely repeated are marked. However, the drawback of this method is that it cannot deal with text similarity issues, so the database must be manually checked as a supplement.

The framework of stakeholders in the urban heritage management process involve a broad range of elements: management and organization, technology, governance, policy context, people and communities, economy, infrastructure, and the natural environment, but in this research, local residents are selected as key players. Thus, the aim of the third step is local residents' recognition. According to the attribution of the posters, 1977 posts are recognized as from local users and finally picked out. In this step, the users who are registered in the same province with the targeted heritage sites are considered as local citizens.

In order to obtain cleaner data, posts that are not exactly the same but have a content overlap rate of more than 90% (possibly from different users) are also manually screened out. Following this step, the retained posts are normalized manually based on the contents which are classified into 17 categories according to their purpose. Posts are only included when they are sufficiently relative to heritage preservation or holistic cultural heritage management. Thus, the record of daily life, simple report on restoration construction, emotional expression and memory, commercial advertisement, and other irrelevant topic posts are excluded at this phase of screening. By now, 119 posts remain because they are considered to have a strong association with creating dialogues among stakeholders and could be used for further analysis. Table 9 gives a summary of the data selection process.

Table 9 The process of selection and purification of the relevant Weibo posts

No.	Cultural Heritage Site Location	Listed Year as WHL	Step 1	Step 2	Step 3	Step 4	Step 5
1	Old Town of Lijiang	1997	1264	1101	130	84	65
2	Ancient City of Pingyao	1997	1068	869	153	87	80
3	Classical Gardens of Suzhou	1997; 2000	4722	4123	1078	903	538
4	Historic Centre of Macau	2005	664	553	55	49	31
5	Kulangsu: A Historic International Settlement	2017	1725	1593	561	458	191
	SUM		9443	8239	1977	1581	905

4.3.4. Data Analysis

The data is analyzed from three aspects: users' general profile, texts, and images. They are recounted from the monthly number of posts, genders proportion of users, the provenance of users, and posts by celebrities. The user's basic information is automatically obtained through computer operations, while the microblog content and image recognition are mainly through manual screening.

Concerning the identification of texts information, we manually tagged and divided them according to the aim of the posting and content. 14 groups are listed as follows: heritage value sharing, lectures, exhibitions, official announcement, archive, complaint, feedback on questioning, suggestions, workshops, collaborative planning, feelings expressing and collective memory, the record of daily activities, advertisement, and report on restoration projects. In which, feelings expressing and collective memory, the record of daily activities, advertisement, and report on restoration projects are considered to have no contribution to the participatory and communication activities. The remaining ten areas are further fitted to a framework structured with five degrees of public participation: inform, consult, involve, collaborate, and empower (Ross et al., 2016). This grade was taken from the IAP2 Spectrum of Public Participation, aiming to give a systematic description and evaluation of public participation on social networks.

After manually and programmed to remove duplicates, more than 6000 images are labelled by accessing the Google Vision API. The code to access API for label detection is shown in Figure 19. In order to verify the accuracy of the machine's image recognition, about 10% of the images and their labels were spot-checked and manually identified. The labels are sorted into two groups: spatial and morphological catalogue, and other scenarios. The spatial and morphological catalogue contains a series of architectural spaces corresponding to urban scale: city, natural landscape, public place, neighbourhood, building, façade, interior design, building material landmarks, and rural landscape. By mapping the posted pictures, we aim to cognize the local users' interests and concerns on the selected heritage sites. It also means knowing the most attractive aspects to residents of cultural heritage.

```
// How many pics
TbMacauPicExample tbMacauPicExample1 = new TbMacauPicExample();
tbMacauPicExample1.createCriteria().andIdIsNotNull();
long count = tbMacauPicMapper.countByExample(tbMacauPicExample1);

for (int i = 1; i < count + 1; i++) {
    long startTime = System.currentTimeMillis();
    // Get the pic
    TbMacauPicExample tbMacauPicExample = new TbMacauPicExample();
    tbMacauPicExample.createCriteria().andProcessedEqualTo((byte) 0).andIdEqualTo((long) i);
    List<TbMacauPic> tbMacauPics = tbMacauPicMapper.selectByExample(tbMacauPicExample);
    if (CollectionUtils.isEmpty(tbMacauPics)) {
        continue;
    }
    TbMacauPic tbMacauPic = tbMacauPics.get(0);

    // Assemble path
    String picName = tbMacauPic.getPicName();
    String fileName = basePath + picName;

    // Go Go Go
    try (ImageAnnotatorClient vision = ImageAnnotatorClient.create()) {

        // Reads the image file into memory
        Path path = Paths.get(fileName);
        byte[] data = Files.readAllBytes(path);
        ByteString imgBytes = ByteString.copyFrom(data);

        // Builds the image annotation request
        List<AnnotateImageRequest> requests = new ArrayList<>();
        Image img = Image.newBuilder().setContent(imgBytes).build();
        Feature feat = Feature.newBuilder().setType(Type.LABEL_DETECTION).build();
        AnnotateImageRequest request =
                AnnotateImageRequest.newBuilder().addFeatures(feat).setImage(img).build();
        requests.add(request);

        // Performs label detection on the image file
        BatchAnnotateImagesResponse response = vision.batchAnnotateImages(requests);
        List<AnnotateImageResponse> responses = response.getResponsesList();

        for (AnnotateImageResponse res : responses) {
            if (res.hasError()) {
                System.out.format("Error: %s%n", res.getError().getMessage());
                continue;
            }

            ArrayList<TbMacauResult> tbMacauResults = new ArrayList<>();

            for (EntityAnnotation annotation : res.getLabelAnnotationsList()) {
                annotation
                        .getAllFields()
                        .forEach((k, v) -> tbMacauResults.add(TbMacauResult.builder().picName(picName).res
            }

            tbMacauResultMapper.batchInsert(tbMacauResults);
            TbMacauPic build = TbMacauPic.builder().id((long) i).processed((byte) 1).build();
            tbMacauPicMapper.updateByPrimaryKeySelective(build);
            long endTime = System.currentTimeMillis();
            long l = endTime - startTime;
            System.out.println("Macau第" + i + "张处理完成，耗时：" + l + "毫秒");
        }
    } catch (IOException e) {
        e.printStackTrace();
    }


}
```

Figure 19 The code to access Google Vision API for Weibo Image Analysis

4.4. Adjustment of Assessment Framework for Online Participation as the Result

The following result analysis roadmap is designed according to the characteristics of Weibo and user data that can be openly obtained and inquired. Classified statistics based on the public data released by Weibo users constitutes the database of this study. The users' profile page of Sina Weibo display the nickname with a short description, the number of fans or followers, the number of accounts followed, and the total number of posts the user had made (Yu et al., 2011). As shown in Figure 20, Sina Weibo users can post text messages with embedded pictures or videos. When reposting Weibo, users can add their opinions on the reposted content without changing the original structure and content. Thus, the reposted pictures support representing the user's preferences and interests in some certain aspects of cultural heritage. In response to this feature, duplicate images are not excluded when processing image information and statistical data. The result mainly visualized the relevant number of posts of the intended heritage sites; examined the content and amount of selected posts and further categorized into five participatory levels; sorted the main objects of the selected pictures into 16 sub-categories belonging to two domains.



Figure 20 A reposted Weibo post about Suzhou Gardens with pictures. Source：Weibo.com (https://weibo.com/suzhouyuanlinlvhua)

4.4.1. The general state of Weibo Posts and Posters

Table 10 shows that the garden of Suzhou attracts the most attention of the Weibo users and ranks first place with 4722 searching results. Lijiang, Pingyao, Kulangsu are in the middle position with 1264, 1068, and 1725 posts respectively but is far behind Suzhou with almost 50% fewer posts. Unexpectedly, the content about Macau is the least, probably because Chinese citizens need to obtain visa permission to go to Macau which creates difficulty to travel around.

In terms of total amount, the search results obtained by the keyword Historical City are the most with the number of 2057. Next, Historical Buildings, Cultural Relics Protection, and the Old City are considered the second echelon with 1379 posts, 1116 posts, and 1033 posts respectively, but they are not much different from the first place in terms of quantity. This shows that the protection of cultural relics, and the protection of the old city are closely related in the user's impression and have received widespread attention. In contrast, the keyword Heritage Site Conservation has received the least attention from users, with 59 posts in the last position.

Table 10 The unprocessed database with a time restriction from 1st January 2020 to 31 December 2020 from Weibo

Keywords	Lijiang	Pingyao	Suzhou	Macau	Kulangsu	SUM
Urban Heritage	138	97	90	66	26	417
Architectural Heritage	56	41	123	73	59	352
Historic City	722	515	586	77	157	2057
Historic District	6	12	575	27	35	655
Historical Buildings	105	119	705	163	287	1379
Urban Regeneration	11	1	110	20	251	393
Traditional Architecture	49	54	607	5	134	849
Traditional District	1	0	25	37	15	78
Cultural Relic Protection	105	93	768	5	145	1116
Heritage Sites Conservation	7	1	24	12	15	59
Old District	4	0	108	16	74	202
Old City	11	5	522	149	346	1033
Old House	35	83	336	12	162	628
Old Building	14	47	143	2	19	225

SUM	1264	1068	4722	664	1725	9443

The posters who shared their opinions online concerning the selected urban heritage sites comprise a specific online community. The result shows in the bar chart Figure 21 and illustrates the proportion and number of both genders, the number of local citizens and tourists, and the number of defined celebrities and KOLs. Specifically, among the obtained 8239 users, male users are 4738 people, accounting for 58%; female users are 3901 people, accounting for 42%. The gender ratio of the total users is 135% (the ratio of males to females). Compared with the data in the 2021 China Seventh National Census Bulletin 105%[34], the proportion of men is significantly higher. In addition, according to the collected region information from the users' profile, only one fourth of users are considered local users, which means tourists from another region are the main posters. Meanwhile, nearly a third of participants are celebrities[35], which is far more than the overall registration proportion (around 3‰). It needs to be mentioned in particular that, due to the limitations of the web crawler tool used in the research, the first priority is to obtain the account information of well-known individuals who have been authenticated by Weibo. In other words, in the complete Weibo data set, the proportion of online celebrities will be much lower.

According to some recent research, the Key Opinion Leader (KOL) is an important promoter of network information dissemination in specific groups, and has an important influence on the reposting and commenting behavior of other users (Chen et al., 2018). The leadership of KOL is 'significantly and positively associated with online civic participation, and ordinary users are very susceptible to the influence of opinion leaders (Park and Kaye, 2017; Weeks et al., 2017). It has an unignorable social influence on guiding the public opinion, and it plays an important role in issues involving the interests of the audiences (Wang Xiwei, 2020). It can be seen that to have a definition of KOLs through the number of likes, the number of reposts, and the number of comments[36] is an important part of this

[34] Communiqué of the Seventh National Population Census (No. 4) —Sex Composition. National Bureau of Statistics of China, Office of the Leading Group of the State Council for the Seventh National Population Census, May 11, 2021. Data source: National Bureau of Statistics of China (http://www.stats.gov.cn/english/PressRelease/202105/t20210510_1817189.html).

[35] The study defines that Weibo users who own more than 20,000 followers are celebrities.

[36] When a Weibo user comments, it is not rebroadcasted to the user's followers. Instead, it can only be accessed under the original message from the creater.

research. KOL is an important part of the information dissemination of social networks. However, according to Huang, identifying KOL requires a complex recognition model (Huang et al., 2017). The indicator we use to determine KOLs is that they should be one of the celebrities with at least 50 reposts, 100 likes, and 100 comments in the selected post. In the end, a total of 10 KOLs were screened out, accounting for 0.1% of all acquired users. This chapter only makes simple judgments based on the number of reposts, likes and comments, which has certain flaws. In the further work, discussions about the KOLs' influence and the assessment to identify KOLs are encouraged.

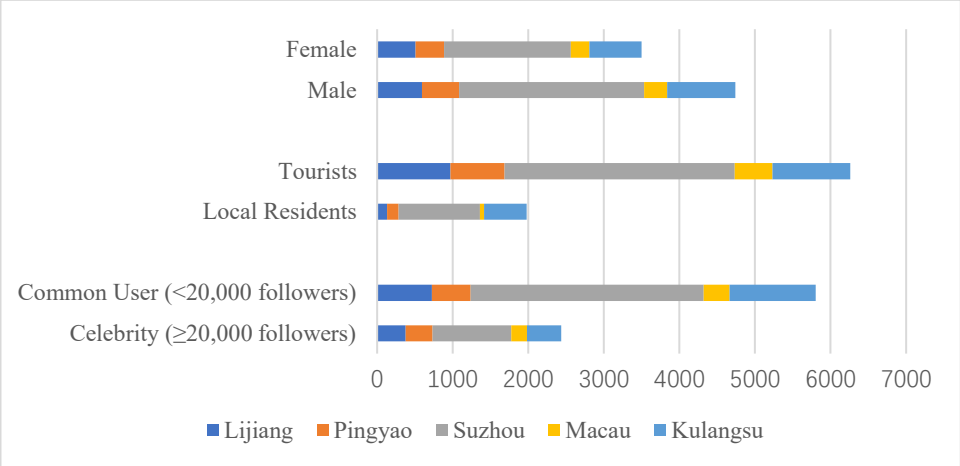


Figure 21 Components of Weibo users under the urban heritage conservation topic.

Figure 22 shows a clear upward trend in the number of Weibo posts over the past twelve months. Due to the strict lockdown policy facing the pandemic of COVID-19, the data keeps at a low level in the first half of the year. Starting from 405 in January, the overall number of microblogs has been showing a clear upward trend. It is corresponding with the short relaxing period with the loosening restrictions of intra-urban traffic movement. The number increases dramatically in the following period along with the opening of regional boundaries. The total number of posts in July was 922 twice that of January. After gradually entering the winter, the epidemic has experienced a second wave of repetitions, and the epidemic control at the national level has gradually become stricter. Therefore, following the peak in July and August, the total amount of Weibo showed a gentle downward trend. By the end of December, the number of posts shanked to 80% of July as 781. Up to December 2020, people still are allowed to commute freely between different destinations with the personal health code. However, due to the

impact of the epidemic, in January 2021, the state once again implemented a fairly strict lockdown policy. For example, all students on university campuses must return to their hometowns, and staff are not allowed to return to work unless necessary.

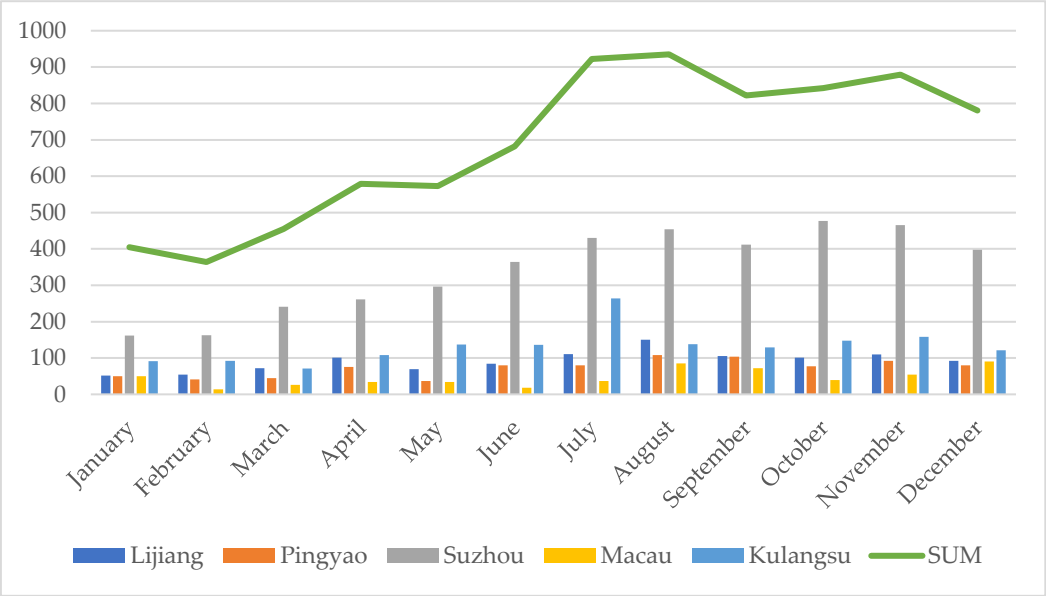


Figure 22 Monthly Weibo posts during the pandemic period in China (01/01/2020-01/01/2021).

4.4.2. Evaluating Participatory Degrees according to the Texts

The texts are examined manually by content analyzing and categorized into the five participatory levels. It is cheerful to have some findings in the involving and collaborating level which is the relative advanced phase of participation. Generally speaking, posting activities focus more on sharing heritage values to broader audiences and passively receiving the official announcement from the government-controlled ID and the education-oriented information from other celebrities.

In Table 11, exhibition, heritage value sharing, lectures, and the official announcement are considered as consult participatory level. In which, the exhibition refers to museum exhibits, performances, photo exhibitions, etc. related to cultural heritage. Heritage value sharing refers to the introduction and detailed description of the cultural heritage itself, the purpose is to promote the value of the heritage. Lectures refer to related education and publicity activities such as conferences, seminars, and symposiums, etc. Official announcement refers to a top-

down notification from the government or authority, usually about a certain policy or verified important event.

Archives, complaints, feedback on questioning, and interviews are categized to the consult level. In which, archives refer to records of interviews and visits by authorities, community activities, or other activities that are not easily classified. Complaints refer to bottom-up way to present suggestions or feedbacks from residents who are dissatisfied with a certain problem. Feedback on questioning refers to the response and explanation of the government or authoritative organization to the residents' suggestions or complaints. Interviews refer to activities where authorities or experts collect opinions from the masses through questionnaire surveys and interviews. Suggestions refer to a bottom-up way of expressing opinions, mainly refers to proposals from residents on urban planning or renovation projects.

At the involve level, workshops refer to interactive methods organized by third parties or professionals for the purpose of promoting heritage values and heritage protection methods. At the collaborate level, collaborative planning refers to the co-design activities and events intending to involve multi-stakeholders taking part in heritage protection. At the Empower level, agencies provide the public with the opportunity to make decisions for themselves[37]. The most common activities at this level are public voting or ballots, but there are other techniques available as well.

Table 11 The classification and samples of the participatory levels

No	Participatory Level	Sample of Weibo Post		
		Time	Poster	Content of Post
1	Exhibition	3:54:00 PM 5/6/2020	Suzhou Museum	#Cultural and Natural Heirtage Day# Qiu Zhongwei spent 3 years creating a 36-meter-long scroll to mark the entire Shantang Street. He said: "I rearranged the scenic spots and shops on both sides of the street, just like the montage technique used in film editing, switching the'camera' and'time and space' to make the whole work harmonious and coherent.
2	Heritage Value Sharing	8:02:00 AM 22/8/2020	Publishe	#Looking for the most beautiful scenery in Jiangsu# Suzhou Lishu was named after Fan Li lived here in the late Spring and Autumn Period. Lishu Old

[37] Source: Public Participation Guide from the U.S. Environmental Protection Agency (https://www.epa.gov/international-cooperation/public-participation-guide-selecting-right-level-public-participation).

			d in Suzhou	Street is a typical Jiangnan water town style with strong local charm (Photo attachment).
3	Lectures	2:41:00 PM 4/11/2020	Sansand eju V	On November 4th, the academic seminar of the Heritage and Cultural Protection Branch of China Tourism Scenic Area Association kicked off in Suzhou Lingering Garden. More than 70 people including experts, scholars and representatives from various cultural relics and heritage protection institutes and cultural and museum circles across the country participated in this event (Photo attachment).
4	Official Announcement	9:24:00 AM 26/11/2020	Suzhou News	#Accelerating the protection of ancient cities, the Standing Committee of the Municipal People's Congress inspects the protection of historical and cultural cities# Yesterday (25th), Chen Zhenyi, director of the Standing Committee of the Municipal People's Congress, led a team to Gusu District to conduct inspections on the protection of historical and cultural cities. (Video attachment).
5	Archives	7:53:00 PM 26/11/2020	Xinhua Daily	#Suzhou, the old dilapidated old community, turned into a beautiful and livable neighborhood# In the Zhonghua Garden Community in Kunshan, Suzhou, the old buildings looked dilapidated. After renovation, the community environment has improved, and the surrounding living facilities have also changed drastically.
6	Complaints	5:15:00 AM 7/7/2020	Xinshan glianhua A8	An old house in Wuzhong District, due to its early completion and aging roof, caused serious rain leakage during the rainy season. Can the government department help solve the problem? (picture attachment)
7	Feedback on Questioning	11:34:00 AM 17/10/2020	Xiamen Real Estate Headline s	Recently, some netizens asked why Xiamen's demolition is so intense and will it destroy the real estate market? The answer is: it has a certain impact on the real estate market! First, the demolition is to improve the living environment on a large scale. Second, the demolished households received different levels of economic compensation, which promoted the development of the housing market to a certain level (picture attachment).
8	Interviews	9:03:00 PM 31/07/2020	LanAnril	Dear friends from Jiangsu, please fill in the form. It is a questionnaire survey on the current status and

				protection of the intangible cultural heritage of the Jiangsu section of the Grand Canal.
9	Suggestions	8:22:00 PM 20/11/2020	He Xiaohah aha	I would like to make a few suggestions for the transformation of Shanxi's cultural heritage: 1. The traditional blocks of the Great Wall, the Yellow River, and Taihang Mountain can be turned into cultural commercial streets, and some creative cultural activities will be held based on the cultural heritage. 2. Make a high-quality variety show and invite celebrities to be spokespersons to attract the interest of the public 3. It is necessary to vigorously develop transportation facilities (picture attachment).
10	Workshops	1:43:00 PM 21/08/2020	Suzhou Cultural Relics Conserv ation Manage ment Office	On the afternoon of August 20th, Suzhou Cultural Relics Conservation Management Office launched a training on the monitoring and protection of the Grand Canal heritage. This training is mainly for the staff, aiming to improve the ancient city protection and engineering management practice ability of the staff of Gusu District. With the continuous deepening of the protection of cultural relics in Suzhou, the Suzhou Cultural Relics Conservation Management Office took the initiative to promote the protection of immovable cultural relics and the Grand Canal heritage, with the purpose of encouraging more people to participate in the protection of cultural relics (Picture attachment).
11	Collaborative Planning	10:27:00 PM 11/09/2020	Suzhou Gusu issued	#The Focus of Today# In order to enhance the public's awareness of ancient city protection, from September 11th to October 31st, 2020, Gusu Ancient City is soliciting ideas for the logo design of ancient city protection objects from all over the country. This event was hosted by the Ancient City Protection Committee of Gusu District, Suzhou City (Photo attachment).
12	Empowerment			

Eight out of ten users remain in the one-way communicative level, which is the most fundamental degrees of this assessment framework (Table 12). From the perspective of inform, what users do the most is to share the value of cultural heritage, such as historical allusions, poems, local folk customs, and architectural features of the heritage site. Many people also attended lectures and exhibitions related to cultural heritage and felt the charm of intangible cultural heritage,

architectural heritage, and urban landscape heritage. Moreover, the number of posts reaching the consultation level is 132, reaching 14.6% of the total 904, including bottom-up feedback, complaint (n=36), and responses to residents' complaints from the authority, feedback on questioning (n=4), etc. Among them, the records of on-site investigation activities by representatives of authorities and experts are the main part. It can also be seen that the public actively complained and responded to the problems in the architectural heritage renewal project. Although the proportion of involving and collaborating takes only 2% of the total, it has a significant meaning as a double-way communication. It is a pity that after such a long searching and checking procedure, no post has been found to represent the empowering level of participation. The reasons could be the remained reliance on paper documents; the exclusive operation environment to older people; and a still top-down process of engagement.

Table 12 Participatory degrees assessment on Weibo in the cultural heritage management process in China.

Keywords	**Lijiang**	**Pingyao**	**Suzhou**	**Macau**	**Kulangsu**	**Participatory Level**	**SUM**
Exhibition	2	3	20	2	6	Inform	754
Heritage value sharing	47	52	370	18	110		
Lectures	2	3	24	3	7		
Official announcement	7	10	41	7	20		
Archive	4	8	32	1	24	Consult	132
Complaints	0	0	24	0	12		
Feedback on questioning	1	1	1	0	1		
Interviews	0	0	4	0	7		
Suggestions	0	2	9	0	1		
Workshops	1	1	7	0	1	Involve	10
Collaborative planning	0	0	6	0	2	Collaborate	8
Empower	0	0	0	0	0	Empower	0
SUM	64	80	538	31	191	0	904

4.4.3. Reading of the pictures

Based on Weibo's tag and hot topic list mechanism, Weibo with more popular tags tends to attract more users' attention. Some users will add more popular tags to their posts based on this feature, even if these tags are not related to their posts, so that they can spread more widely and receive more attention. However, in the process of obtaining data, the keywords contained in the tag content were retrieved and identified, so they were included in the research database during the initial data collection stage. This means that the acquired microblogs with pictures need to be filtered out manually.

In the database acquired in Table 9, around 18% microblogs are embedded with pictures. Table 13 shows the screening process of images starting from the obtained raw data. The first step of image analysis is to manually read the associated text in the obtained Weibo data with images, and roughly filter out the strongly irrelevant data, such as, the content of the image is a historical site in Wuhan (not a research object), etc. In the second step, we use the Visipics image recognition tool to further check and sort the image data. It is mainly to identify pictures with duplicate or similar content based on the size of the picture. What needs to be mentioned here is that pictures with similar content, but different watermarks are also identified and removed. In the third step, we use Google Vision to tag the image classification.

Table 13 The process of screening obtained images

Heritage Site	Step 1	Step 2	Step 3
Lijiang	600	557	451
Pingyao	408	406	367
Suzhou	3876	3709	3495
Macau	223	212	198
Xiamen	2197	2074	1931
SUM	7304	6958	6442

By accessing the Google Vision API, this research has carried out label detection on the obtained pictures as shown in Figure 23. We chose to use the default label set for detection because the number of images obtained is less than 7,000, which is not enough for Google Vision to perform machine learning based on the division of spatial categories. In response to the issue of machine errors, after obtaining a data set containing label descriptions, we manually selected about 700

pictures by picking random samples for a second verification. The number of labels assigned to each picture is different, fluctuating from a few to even more than thirty. Eventually, 64285 labels are detected and obtained on 6442 annotated images that make up the dataset. On average, each picture is accompanied by 9.98 labels. After the data set is processed by the pivot table and count function, it is further classified into 1530 tags, such as Building, Plant, Sky, Tree, Window, etc.

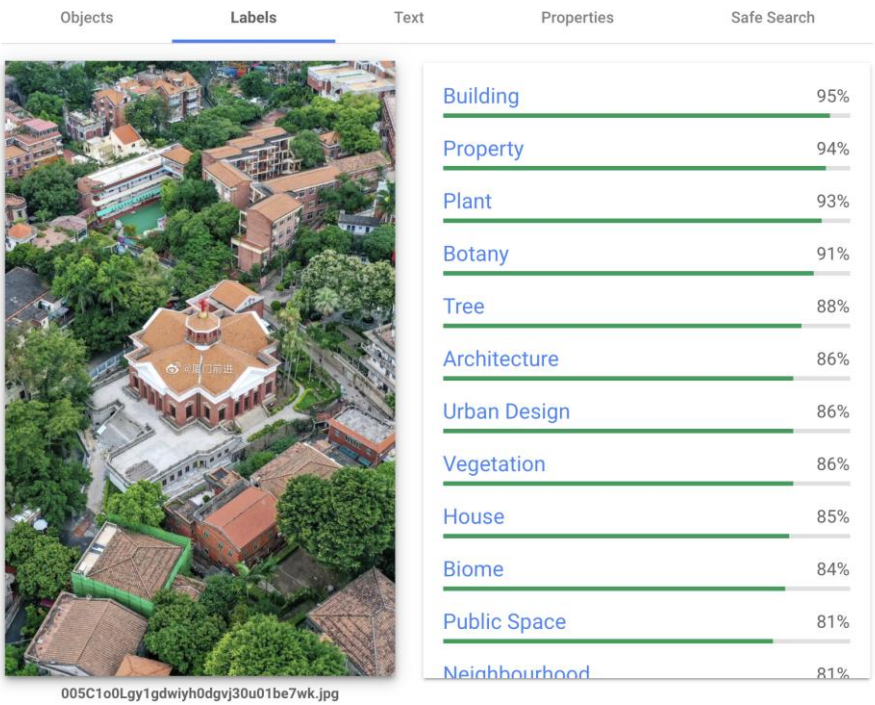


Figure 23 An example of using Google Vision to label images using a picture of the bird's-eye view of the Kulangsu Historic Settlement obtained from Weibo.

Due to the complexity of the labelling algorithm and the multi-label attribute of the image, we did not further classify or merge the 1530 label types, but extracted 20 labels related to the morphological space, as presented in Table 14. In order to more accurately profile the user's preferences on heritage sites, other tags such as Wood, Leisure, Water, etc. are considered irrelevant to the description of the urban architectural space and are excluded. The abstracted information from images reflects the public's focus and interests in the urban heritage set. It is apparent from this table that local participants are most interested in different types of architectures, such as temples, pagodas. The specific components of the building façade such as doors, windows, and bricks are among the often-photographed

objects. The focus on the city and the street precedes the natural landscape, but there is still a big gap compared with the building. The number of pictures under the city and urban design label is only half of the building ones. The other spatial elements are almost in the same range of concern, while the commercial building received the least attention as the design element that appeared the least frequently among the five sites. From the perspective of spatial scale, it seems that physical spaces and elements close to the human body in scale are more popular. From the perspective of building types, the audience prefers buildings with traditional Chinese architectural elements and characteristics. From the perspective of architectural function, residential areas and traditional settlements are obviously more attractive to these blogers than noisy and bustling commercial districts. It can also be seen from reading the list that landmarks and rural landscapes are also topics of great concern to social media users.

Table 14 Top 20 labels related to the morphological space

No.	Labels	Amount
1	Building	2950
2	Facade	962
3	Temple	959
4	City	819
5	Urban design	747
6	House	675
7	Natural landscape	605
8	Architecture	597
9	Chinese architecture	582
10	Landscape	557
11	Interior design	463
12	Neighbourhood	376
13	Residential area	215
14	Public space	198
15	Landmark	190
16	Pagoda	158
17	Room	115
18	Building material	75
19	Rural area	55
20	Commercial building	51

4.5. Findings and Discussion

Although the public participation towards inclusive heritage management in China is still in the early stage, the status quo still reflects a bright future to improve due to the popularization of social media and smartphones. The chapter offers a new way to evaluate and present the public participation level through social media in China. The result conducted that the number of participants may largely associate with the financial situation of the city. Urban heritage sites which are located in the more developed area have attracted noticeably more attention. Besides, the general trend of posting activities is tightly linked with the regulations made against the COVID-19 pandemic.

Beyond the identification of core and the broader community, a lesson from governance is to evaluate and classify the level of public participation. The consultative and in-forming activities are determined as a relatively elementary level in public participation. Effective communication, including a certain amount of complaint as a kind of feedback, is determined as a crucial phase in the reinforcement progress. Raising the citizen's awareness by educating, such as giving lectures, workshops, social media broadcasting, and building their capacity to take part in the decision-making process of their local environment, will be the final goal and the highest level of community involvement. It is accessible for both short-term and long-term benefit and responsibility-sharing (Borona and Ndiema, 2014; Ferreira, 2018). Community collaboration and empowerment is recognized as the highest level of government-community cooperation in the integrated heritage management (Bideau and Yan, 2018; MacRae, 2017; Verdini et al., 2017).Knowing from the result part of this research, the participatory level in the World Cultural Heritage site in China is near informing and consulting.

Generally speaking, the extent of Chinese citizens' participation in heritage protection practices is relatively weak. Some scholars pointed out that this may be mainly due to the government's excessive emphasis on economic interests, the inadequate implementation of planning regulations and rules, and the weak public awareness of the public (Wu, 2014). The Chinese government was aware of this problem for a long time. In 2008, the "People's Republic of China Urban and Rural Planning Law" stipulated that public participation should be included in the process of planning. The Chinese government's insistence on the holistic cultural heritage protection can also be found in the laws and regulations promulgated in the last month. In the official notice issued in November 2021, the Central Government of

China pointed out that in the overall planning of urban and rural areas, it is necessary to protect and continue the urban context with cultural relic resources as the carrier, and to combine the protection of cultural relics with the protection of old cities and urban renewal[38]. In fact, although there are laws to follow, community participation is facing many difficulties at the actual operational level and has not been fully promoted (Qi et al., 2021). In addition, Wu pointed out that the protection of urban heritage in my China has been facing the dilemma of diversified property rights (Wu, 2014). In Li's opinion, coordinating the property rights of buildings requires more clarification of the legislative details (Li, 2018).

The user's preference profile identified through the pictures can show that the residents pay more attention to traditional Chinese buildings compared with cities and streets. The focuses of the citizens are mainly on the human-friendly elements, such as the details of the built environment and architectural materials. Modern commercial buildings did not become the focus of the audience, ranking behind the residential areas by a clear gap. Generally speaking, social media users pay much more attention to outdoor elements in urban heritage, such as natural landscapes and building facades, than interior design, while rural landscapes have received very little attention. Therefore, in the transformation and renewal of urban heritage, the protection of the exterior of the building and the preservation of traditional features should be listed first. The interior design of the building has little effect on the overall urban landscape and can be handled more personally. The features and structures of heritage sites and historic buildings should be conserved while taking into account the restoration of the interior living space.

Therefore, a feasible strategy is to carry out the functional transformation of the indoor space while preserving the appearance of the building as much as possible, which is of great benefit to both the improvement of the local residents' living quality and the conservation of cultural heritage. Furthermore, lecture, exhibition and other public events could be an effective tool to promote heritage protection due to the great attention from the online community. The virtual exhibition could also gain a great number of audience and should be encouraged to be held. Digital tools should be encouraged to apply to offer frequent access to the establishment of

[38] Source: "The 14th Five-Year Plan for Cultural Relics Protection and Technological Innovation", issued by the General Office of the State Council of China, November 2021. The article emphasizes: We must adhere to the overall protection of the system and improve the cultural relics protection mechanism（http://www.gov.cn/zhengce/content/2021-11/08/content_5649764.html）.

a systematic heritage preservation mechanism. The outcome of this research leads a new perspective to heritage professionals and researchers to further understand the cultural diversity and public participation in the decision-making process of the heritage management process.

4.6. Conclusion

Due to different cultural backgrounds, different social systems, different economic models, and different levels of social development, the Western theories mentioned above need to be selectively localized and applied in China. It is not only necessary to carry out extensive discussions at the theoretical level, but also to conduct small-scale tests and experiments on it. This chapter has conducted a test of applying Chinese social media platforms to community participation by obtaining big data. The main purpose is to explore a way to evaluate the degree of community participation through a digital platform. The final result is based on a series of purification and interpretation based on the posting data of Weibo users during the 2020 epidemic. Based on the data obtained from the research, the status quo of community participation in China is described, and some feasible suggestions in future practice are listed as follow.

China's cultural heritage protection has gone through a complicated process. In part of the second half of the 20th century, the emphasis on economic and urban expansion led to considerable pressure when protecting certain historical monuments. However, the overall trend of Chinese cultural heritage management is gradually becoming more sustainable and showing diversified development. At the government level, multiple stakeholders should be encouraged to participate in the heritage protection decision-making process in order to better balance the interests of all parties. ICTs, such as social media could be applied to enrich the construction of third-party platforms that promote the communication between citizens and the government. In addition to legislation, decision-makers should also provide an open digital platform for community communication and encourage citizens to use it. Concerning the urban renewal strategy, in the process of cultural heritage management, the fundamental interests and choices of residents should be widely considered. According to examination of this study, mapping the user’s profile and preference can be one of the most effective tools to involve broader community. All in all, digital platforms should be vigorously promoted to enhance the voice of the people and actively promote the formation of diversified participation

Chapter 5

5. Complex Social Value Based Approach for Decision-making and Valorisation Process in Chinese World Cultural Heritage Site: The Case of Kulangsu (China)

The chapter offers an innovative approach to understanding the value of community participation to obtain a more sustainable way for integrations about cultural heritage. It offers a supplement to the computer-based online community assessment mentioned in the previous chapter. It focuses on the identification of criteria for the evaluation of Digital Community Engagement and proposes the multivariate evaluation model based on the online questionnaires and face to face interviews.

5.1. Participatory Management for Cultural Heritage: Digital Tools and Chinese Urban Landscape

Along with the launching of the HUL approach, the World Heritage Center is endeavouring to involve a variety of stakeholders in heritage identification, protection, and preservation as a worldwide strategic policy (Bandarin and Oers, 2012; Bideau and Yan, 2018). Community engagement is identified as a bond which can contribute to rebuilding the relationship for the past, present, and future in the cultural heritage assets and socio-economic values (Court and Wijesuriya, 2017).

Different regions have their own localized concepts of heritage conservation which are not supposed to be aligned with the globalized notion (Harrison, 2009). It is worth mentioning that the focus of heritage conservation in China during the last decades is gradually transiting from the materiality to sustainable development with significance attached to community participation (Svensson, 2018; Verdini et al., 2017). China is undertaking effective actions adhering to wider international standards with better consideration of the notion of authenticity, collective memory, identity and the sense of belonging (Cheng, 2013; Deng et al., 2015). Besides the traditional participatory management discussions, scholars are also interested in finding out how the ICTs encourage and enable new forms of engagement with heritage in different cultural contexts (Giaccardi, 2012; Ginzarly et al., 2019; Kitchin and Dodge, 2011).

5.1.1. Conceptualization of Community Participation in China

Although the discussion about[39] and approval[40] of HUL implementation in China lags behind the western world, it significantly evokes wide discussions at the regional level and emphasizes the sustainable development of the local community by concerning the priority of improving living conditions and sharing benefits from

[39] It refers to the International Conference in Shanghai on 'Historic Urban Landscape' on 9-10 December 2014, hosted by the World Heritage Institute of Training and Research for the Asia and the Pacific Region under the auspices of UNESCO, WHITRAP Shanghai.

[40] It refers to the 'Shanghai Agenda' for the Implementation of UNESCO Recommendation on Historic Urban Landscape (HUL) In China: First edition on 10 December 2014; revised on 10 January 2015.

urban heritage conservation (Verdini et al., 2017). Moreover, China has received severe criticism for over-commercialization, inner-city over-gentrification and fake reconstruction in the past several decades. Some western scholars sharply pointed out that it was mainly due to the difference in East-West discourses and the institutional fragmentation, although this cost seems unavoidable given such dramatic social and economic transition (Bideau and Yan, 2018; Roders and Bandarin, 2019).

Dating back to 1997, the first inscribed Chinese historic cities in the World Heritage List (WHL), such as Lijiang and Pingyao, involved prodigious economic and political profits from tourism (Roders and Bandarin, 2019). Since then, seeking short-term interests has become a prevalent practice among Chinese local governments. This led to a widespread exclusive approach in a long time by maintaining only the outlooking and structure of several selected monuments, while intentionally overlooking the diminution in urban infrastructure and outflow of the local population.

Chinese government sees the harm of single-minded pursuit of maximum profit and takes active actions to change. Amongst others, "community engagement tools" are listed as one of the expanded conservational instruments by the HUL approach, in an attempt to educate and empower diverse stakeholders to identify the key values of their cultural heritage and promote sustainable urban development (Oers and Roders, 2013). Aline with it, the role local community plays in urban regeneration in China is gradually shifting from a passive agent to an important character in obtaining alternative solutions (Li et al., 2020a). Meanwhile, an extensive legislative and regulatory system related to urban heritage has been endowed for strengthening the soft power (Whitehand et al., 2011). A successful example is the restoration of Tianzifang in Shanghai (Verdini et al., 2017). The local government and developers effectively involved the local community in the decision-making process and successfully avoided the massive relocation. As an extension, the 2015 international forum *City and Society*[41] organized by UNESCO discussed such themes concerning "Community, Space, and Governance", aiming to enhance the effectiveness of community engagement (WHITRAP, 2015).

[41] The conference was hosted by Tongji University, organized by World Heritage Institute of Training and Research for the Asia and the Pacific Region under the auspices of UNESCO, WHITRAP Shanghai.

More and more modern approaches to urban conservation and heritage planning are promoting heritage as living, to be integrated into the planning process and contribute to the quality of life of their communities (Court and Wijesuriya, 2017). In 2012, the conference *World Heritage and Sustainable Development: The Role of Local Communities* highlighted the significance to guarantee local communities' benefits. In 2015, the *Policy on the Integration of a Sustainable Development Perspective into the Processes of the World Heritage Convention*, known as *Kyoto Vision*, further emphasized that the sustainable development of world heritage had to involve local communities and take their benefits into consideration. Since then, the participation of community stakeholders has become one of the core measures of heritage protection.

At the same time, the top-down process has given rise to a range of new actors and stakeholders in heritage-making and negotiating the AHD in China. "Citizens and communities are experiencing, performing, and documenting heritage" in a more bottom-up way (Svensson, 2018).

5.1.2. Emerging Trend of Social Network on Chinese Community Engagement

Undoubtedly, citizens are attached to local history and cultural identity. Thus, various active participatory methods are conducted aiming to raise public awareness and enable local communities to share both the benefits and responsibilities in the heritage conservation process (Borona and Ndiema, 2014; Ferreira, 2018). Meanwhile, the "popular action" as a roman model has been introduced to China. Beyond this, multiple active participatory methods are utilized in this cultural revitalization so as to facilitate cultural heritage protection (Nitzky, 2013). In 2009, 22 sites in southwest China were included in the World Bank Guizhou Cultural and Natural Heritage Protection and Development Project[42]. Cultural mapping was used in River County to involve ethnic minority communities. In the time-honoured city of Gate Tower, an eco-museum approach encouraged residents to create an exhibition of their ethnic culture with the help of the Chinese National Ethnology Museum (Nitzky, 2013).

[42] World Bank began to assist in cultural heritage conservation in China since the 1990s. The investing approach shifted in 2000 from developing tourism to integrate cultural heritage in local economic development and sustainable tourism.

Identifying the core community which should be involved in local decision-making with first priority is a common concern of China and the western world (Court and Wijesuriya, 2017; Poulios, 2014). This should be considered or defined precisely while partnering with authorities, experts and economic actors, as well as the question of the broader communities as facilitators (Court and Wijesuriya, 2017). Furthermore, Poulios highlighted that the "core community" in the living heritage approach is a different concept from the "local community" of the value-based approach (Poulios, 2014). In China, community identification is directly linked with the institutional division which is known as the Hukou system[43] (Verdini et al., 2017). In identifying actors as well as their relationships within the stakeholders' map in heritage protection, Maags demonstrates in detail the competition among participants, including both the state and non-state ones, for the voices and power in China (Maags, 2018).

Integrating heritage conservation into sustainable urban development through community collaboration and empowerment is essential (Bideau and Yan, 2018; MacRae, 2017; Verdini et al., 2017). As an inclusive and holistic approach, HUL is highly relevant to the awareness of civic engagement and its wide applicability in international practice (Roders and Bandarin, 2019). However, a significant challenge to address in China is the indistinction between private and the public, which is greatly different from the western state-civil society relationships (Verdini et al., 2017). This means that the notion of civic engagement still needs to be well distinguished in the Chinese context.

Making cultural heritage conservation more inclusive requires immense work. The challenges are complex and far different in most cultural contexts (Riva Sanseverino et al., 2018). In the past ten years, the incipient collaborative planning and public participation through the internet in China have shown an increasingly vital influence (Cheng, 2013; Deng et al., 2015). On one hand, Chinese government has tried to employ ICTs to motivate citizen engagement with the aim of creating a positive impact on cultural heritage conservation. Digital application and online communication have gradually become an important method of public consultation and supervision during the Dashilar renewal project (Fu and Bu, 2016). On the other hand, experts and civic groups utilized social media spontaneously to criticize the

[43] China's Hukou system is a family registration program that serves as a domestic passport, in which the migrants are gully involved in both local decisions and welfare benefits

large-scale relocation in the government-led regeneration of Beijing's bell and drum tower neighbourhood (Bideau and Yan, 2018). By using social media, these groups of activists are able to contest official propositions for the area and, based on scientific arguments, suggest better ways to care for everyday life and alternative forms of memories that matter to its inhabitants (Bideau and Yan, 2018; Deng et al., 2015).

In the Chinese context, online urban heritage practices are believed to have more impact considering the speed of broadcast and quantity of involvement. The wider utilization of social media in the decision-making process of Chinese heritage conservation can potentially contribute to a more effective on-line community engagement. What is worth mentioning is that, during the COVID-19 epidemic period, China set a paradigm at the worldwide level to face this sudden global crisis. Some effective and efficient approaches were taken by the Chinese government to enhance public participation in the urban renewal process taking advantage of this quarantine period. However, research on evaluating and illustrating participatory governance is still limited, and effective online tools to involve residents in decision-making have yet to be explored adequately. To fill this gap, social media applications deserve to be widely introduced into the research field after a comprehensive discussion.

5.2. The Complex Social Value (CSV) Theory and the Intrinsic Value Component

The value of urban heritage is usually considered a social construct, arising from the cultural contexts in response to social, economic, and political processes (Ginzarly et al., 2019). Comprehended as social-ecological systems, landscapes, particularly cultural landscapes, integrate environmental, economic and social elements (Kyvelou and Gourgiotis, 2019). Coscia and the partner pointed out that under the interaction of both cultural and economic factors, the valuation in cultural heritage projects is seen as a specific and complex issue (Coscia and Curto, 2017).

To understand the value of an urban and cultural landscape, it is critical to perceive the nature of both the valued "object" (or aspect of landscape) and the expressed values for that object. It is one of the most essential parts of the heritage management, even in the preliminary and briefing projecting phases (Brigato et al., 2014; Coscia et al., 2015). These values can be expressed by those who are in the cultural context and can be read and identified by those to observe and understand (Yang et al., 2021). In other words, people who live within and outside the heritage site is not only holding certain values but also expressing and sharing values with others. In addition, the evaluation of redevelopment scenarios should include the stakeholders' different preferences as well as the non-monetary values (both current values and foreseen values) (Coscia et al., 2018).

To maximize the contribution of a landscape to culture, the decision-makers are required to know the value of that place and understand how the values benefit the cultural diversity and identity (Stephenson, 2008). When making planning and management decisions, the context of the landscape's cultural dynamics need to be considered, and such values should be reinforced in the design of any new development (Veldpaus and Pereira Roders, 2013). To support this, it is critical that the decision-makers fully understand the value's range and nature in a given landscape, what is their spatial distribution, and how they interact with each other (Cerreta and Poli, 2013). However, considering discipline-specific value typologies are emphasized in the traditional landscape assessment methods, the overlapping, diverse and irregularly spread values held by insiders may not be appreciated (Cerreta et al., 2014). In urban heritage conservation areas, non-monetary values of landscape and dynamic process are still ignored to a large extent. This indicates that

more attention should be paid to sustaining the landscape's contribution to cultural diversity and identity.

In addition to the physical landscape, the collective memories, identities and meanings held by the landscape also involve the new transformations of landscape (Coscia and Curto, 2017). Therefore, communities need to be included when defining the important and distinctive factors of their landscapes. Emerges as a new concept to identify the complexity of landscape, cultural and environmental heritage with various interpretive approaches, the Complex Social Value (CSV) theory is a result of the integration of economic values and cultural values, such as symbolical values, historical values, aesthetical values, social values. It no longer considers territory a physical- geographical reality that serves economic growth (Coscia et al., 2018; Da Silva and Roders, 2012; Throsby, 2012).

The CSV in the sustainability framework seems to be particularly suitable for its coherent expression of different value components. This means that intrinsic values are expressed through weights and indexes instead of monetary terms (Bottero et al., 2017). Focusing on the management in the landscape's cultural transformation processes in the dynamic context, CSV can be deduced from the certain cultural, institutional or social context in which the cultural heritage site is addressed (Bottero et al., 2014). It is also a multidimensional methodological framework oriented to the evaluation of landscape cultural values as Forte and Girard noted in their article:

> *"The evaluation of the complex value of beauty that characterizes some new architectural assets, integrating tangible and intangible aspects, helps in revitalization of urban spaces projects, promoting also creative capacity" (Forte and Fusco Girard, 2009)*

It is widely recognised that cultural and social values refer to values shared by a community or group, and their legitimacy is obtained through a way of assigning values that are socially accepted (Fusco Girard et al., 2019). This means that landscapes can be valued in several ways: values attributed by disciplinary experts and those shared by members in an associated group (Sairinen and Kumpulainen, 2006; Yang et al., 2021). Meanwhile, the perception by "insiders" and "outsiders" are generally different: outsiders include the majority of developers, experts, and policy-makers in the area they work, as well as those who do not belong to the same

socio-economic group, the local community or share the same training and education background (Cerreta et al., 2014). Through the filter of their social and cultural background, the landscape is perceived, understood and created by the insiders and outsiders.

Facing the conflicts in cultural heritage management, the community's values are usually different from the experts' values due to different educational backgrounds and opinions about sustainable conservation practices (Sarvarzadeh and Abidin, 2012). In the case of Qing Mu Chuan, a historic village in China, the local residents showed much stronger preferences and preservation willingness towards historic landscapes with cultural elements than the professionals (Yang et al., 2021). Table 15 shows the revised version (2017) of the value evaluation framework for historic cities in China, which is evidence of the values of the outsiders: professionals and policymakers. It is an updated version modified based on the Evaluation Index System of Famous Historical and Cultural Villages in China (2004) and the Shenzhen localized version (2011). Not surprisingly, like the previous versions, the framework received some sharp and critical comments from Chinese practitioners, scholars, cultural heritage lovers and the locals, which leads to additional revision works. Thus, it is necessary to understand the values of various stakeholders that come from different interest groups, and then study and discuss them deeply.

Table 15 The value evaluation framework for historic cities in China (Shenzhen revised version in 2017)

Value Evaluation Framework for Historical Cities in China (Revised)

Material	**1**	Grade and quantity of cultural relics protection institutes	**1.1**	Number of cultural relic protection institutes	Quantitative
			1.2	The highest level of cultural relic protection institutes	
	2	Number of registered immovable cultural relics	**2**	Number of registered immovable cultural relics	
	3	Number of historical buildings	**3**	Number of historic buildings announced by the government	
	4	Overall scale of historical block/scale of historical building	**4.1**	Land area of historical urban area	
			4.2	Land area for cultural relics protection institutes, immovable cultural relics and historical buildings in the historic city	
	5	Characteristic environmental landscape elements	**5**	The number of historical elements (ancient city walls, ancient towers, ancient bridges, etc.) that reflect local characteristics and typical characteristics are preserved	

	6	The Scale of historic corridors, street and lane	**6.1**	The number of historical streets with complete forms and continuous relics	
			6.2	The total length of historical streets with complete forms and continuous relics	
Immaterial	**7**	Intangible cultural heritage	**7**	Traditional festivals, traditional craftsmanship and characteristic types of traditional customs, as well as the number of poems, legends, operas, and songs that originate from the local area and are widely circulated	
Material	**8**	Completeness, authenticity, and representativeness of historical features	**8.1**	The preservation situation of historical buildings	Qualitative
			8.2	Proportion of historical buildings	
			8.3	Treasure, pioneering and representative of historical relics	
	9	Space value	**9.1**	Build design level	
			9.2	Harmony with the natural environment	
			9.3	Spatial layout and functional characteristics	
	10	Historical events, or celebrities	**10**	Unique status, importance of social function and social influence	
			10	Transformation of urban morphology, or reflects the lifestyle and social customs of a certain historical period	

5.3. The Defined Case: Kulangsu, Xiamen, China

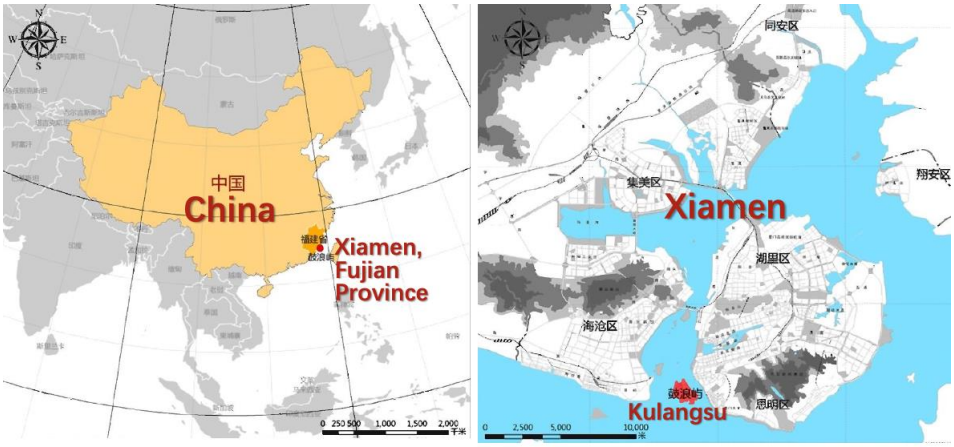


Figure 24 The geographical location of the historical settlement of Kulangsu island

In 2017, Kulangsu was recommended as the final candidate to be included on the World Cultural Heritage List[44]. Located in Fujian Province on the southeast coast of China, Kulangsu is a small island with an area of approximately 1.88 square kilometres[45] (see Figure 24), facing Xiamen across the 600-metre-wide Lujiang Strait (see Figure 25). As one of the most famous touristic places, Kulangsu faces continued growth in tourists in the following years, which will inevitably lead to lower living quality of local people. As released by Xiamen Municipal Bureau of Culture and Tourism, Xiamen received 52,957,900 domestic and foreign tourists from January to June 2021[46]. The number of permanent residents on Kulangsu in 2020, according to the Seventh National Census Bulletin of Siming District issued by the Statistics Bureau of Siming District of Xiamen Municipal Government in May 2021, was just 1,073,315[47], which reached just 2% of the amount of tourists.

[44] It refers to the 41st session of the World Heritage Committee, held in Krakow, Poland. 21 new sites have been newly inscribed to UNESCO's World Heritage List (https://en.unesco.org/41whc).

[45] Kulangsu is listed as a world cultural heritage area in two parts, one is the heritage area, and the other is the buffer zone. The heritage area refers to the entire land area of Kulangsu and the sea area defined by the surrounding reefs, with a total area of 316.2 hectares. The buffer zone refers to the surrounding area that has a direct impact on the heritage area, covering an area of 886 hectares. Source: Kulangsu World Cultural Heritage Website (http://www.glysyw.com/).

[46] Source: Xiamen Municipal Bureau of Culture and Tourism (http://wlj.xm.gov.cn/zfxxgk/fdzdgknr/tjxx/202109/t20210907_2581196.htm)

[47] Source: People's Government of Siming District, Xiamen City (http://www.siming.gov.cn/zfxxgkzl/gbmxxgk/tjj/zfxxgkml/tjxx/202105/t20210524_782498.htm)

ICOMOS noted that tourists were the key threat to the tangible Kulangsu heritage site and its environment. Beyond the sharp conflict between the local people and the tourists, more attention should be paid as to how to interpret and emphasize the value of heritage.



Figure 25 The bird view of Kulangsu island and the modern urban area of Xiamen. Source: Xiamen Kulangsu-Wanshishan Scenic Area Management Committee & Kulangsu World Cultural Heritage Monitoring and Management Center

This study focus on this historic settlement is concerned with rethinking how to improve the extremely complicated and unbalanced situation between the dramatic urbanization and the stagnant, even obsolescent, local community environment. The aim is to evaluate the Complex Social Value (CSV) of involving social media as a digital tool to contribute to improving the efficiency of communication among different stakeholders.

5.3.1. The Glory and Predicament of Kulangsu to be a National and World Listed Heritage Site

Listed as a national-level scenic spot in 1988, Kulangsu was a pioneer that initiated modern methods for architectural survey and protection in the urban area in China. At that time, 391 historical buildings were assessed and recognized, and a heritage protection management system was established in the local area. Afterward, Kulangsu was recognized as National 5A Tourist Attraction in 2007 and National Historic and Cultural Urban Area in 2015. On July 8, 2017, the Kulangsu Historical International Settlement was listed as a World Heritage Site at the 41st

World Heritage Conference, making China's 36th World Cultural Heritage and 52nd World Heritage Site. In the nine-year process of applying to become a World Heritage Site, Kulangsu witnessed the collision of global multiculturalism and the mutual understanding of different values between China and the western world, providing a powerful reference for the integration and development of different cultures against the accelerating globalization.

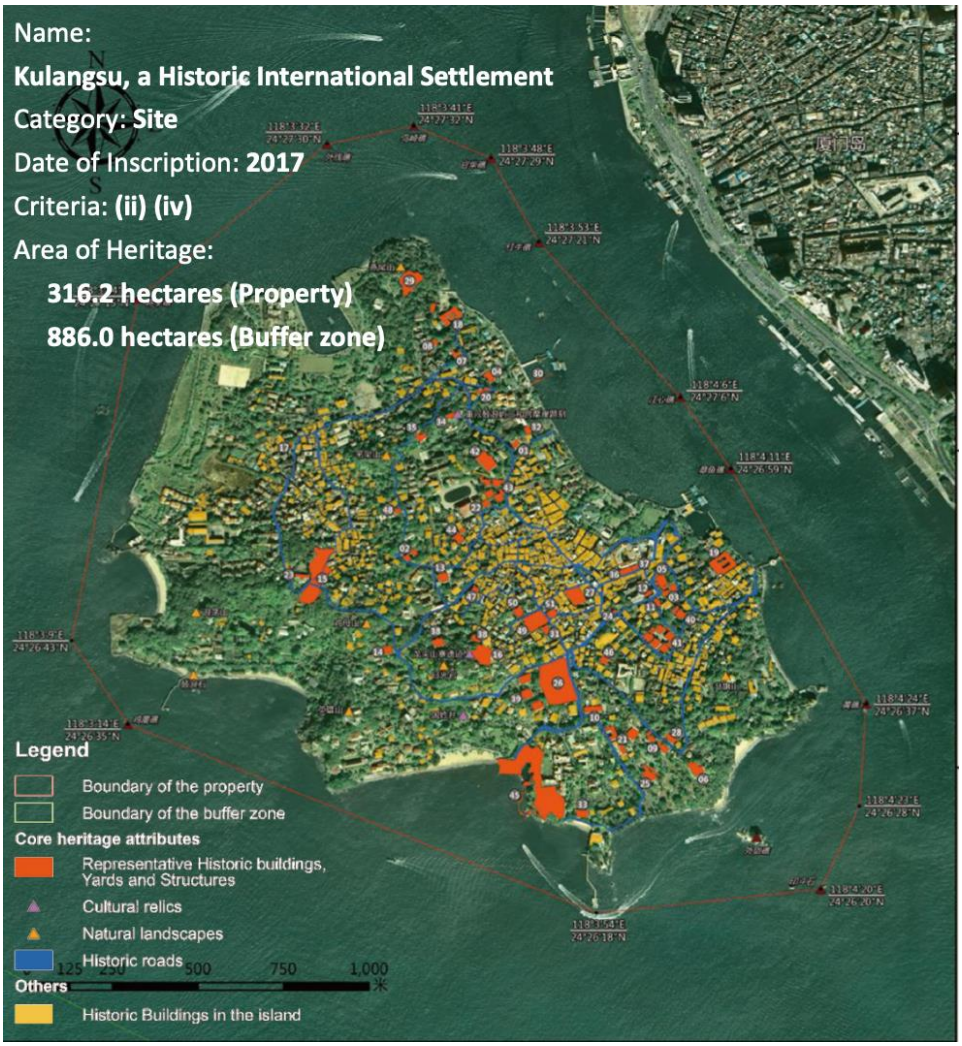


Figure 26 The legend and core heritage attributes of the Kulangsu heritage site. Source: Xiamen Kulangsu-Wanshishan Scenic Area Management Committee & Kulangsu World Cultural Heritage Monitoring and Management Center

After the Opium War in the 1840s, the historical international settlement of Kulangsu gradually took shape in the context of cultural fusion. As of 2021,

Kulangsu is reported to boast 931 historical buildings and gardens, natural and organic historical road networks, and rich natural landscapes, which reflect the integration of modern human settlement concepts and local traditional culture, forming a distinctive regional architectural feature (see Figure 26). The people of Kulangsu are mainly composed of local residents, overseas Chinese, and nationals of other countries stationed on the island. This historical city not only reflects the cultural influence brought by the settlers from other countries and regions, but also mixes with the local south-eastern Chinese architecture to form what is called the Amoy Deco style[48]. In addition, Kulangsu, witnessing China's modernization of urban construction in the early stages of globalization, shows significant cultural diversity.

However, the long-term "colonial concession" has also made Kulangsu in the public and even the local community's cognition more of a historical testimony of the military invasion of China by the Nazis. Therefore, the early-stage protection of Kulangsu was focused mainly on natural landscapes, architectural styles, and musical and artistic performances, with bare attention paid to the cultural values. At the same time, the tourism boom, which focuses on sightseeing, has posed severe pressure and negative effects on the living environment of the community. In addition, the function of the community is gradually becoming single, mainly serving the tourism industry. Community public services and welfare, such as education and medical care, have been cut. Moreover, the local community groups closely related to the history of Kulangsu have gradually moved away. As a result, the idyllic and artistic residence and unique community cultural traditions are difficult to inherit and continue.

5.3.2. The History and Urban Forming Process of Kulangsu Settlement

Located in the subtropical region, Kulangsu boasts superior geographical, climatic and scenic advantages that make it an ideal place for human habitation. As shown in Figure 27, the urban morphology of Kulangsu is transforming as overlapping historic layers along the local history. Xie and her partners demonstrate the morphological evolution process of Kulangsu settlement by retracing the historical maps and cartographic records (Xie et al., 2017).

[48] This style is named after Amoy, which is the name of Xiamen in the local Minnan dialect. It is an eclectic form of traditional local architectural features and early western architectural styles.

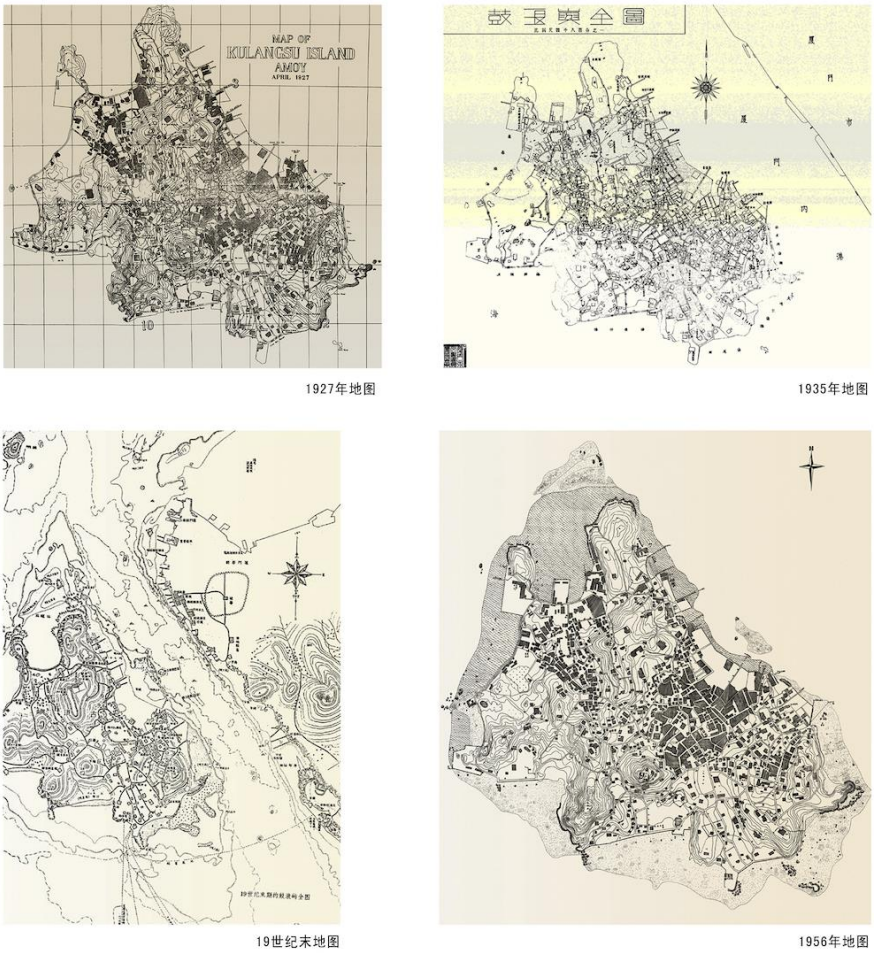


Figure 27 The morphological transformation of Kulangsu. source: Xiamen City Planning and Design Institute

Before the Opium War in 1840, Kulangsu was sparsely populated, and its economy relied half on fishing and half on agriculture. Most of the original houses were very simple and crude, and the main form was the "red brick house" of primitive dwellings in southern Fujian. The residential courtyard with "red brick house"[49] as the architectural feature can still be traced on Kulangsu. After the Opium War, Xiamen was forced to open as a trading port, and Westerners occupied Kulangsu as a place of residence to carry out missionary and business activities. In

[49] "Red brick house" is Hong Zhuan Cuo in Southern Fujian dialect. The round carvings, reliefs and openwork of the exterior walls and windows of the "red brick house" are made of red bricks, and even red tiles are used to cover the roof.

1903, Kulangsu officially became a lease land[50] similar to a colony. A great number of churches, consulates, mansions, villas and other residential buildings were built by Westerners. Plenty of wealthy domestic businessmen and overseas Chinese elites were also attracted to move here and build many gorgeous palaces.

The construction projects on Kulangsu peaked in the early 20th century. During this period, in addition to foreigners and overseas Chinese, local residents also began to build houses imitating surrounding buildings. Under the interweaving of multiple cultures, Kulangsu has established the best education and medical system in southern Fujian in modern China, and has built a large number of modern schools, banks and other construction facilities. In this process, the traditional "red brick house", and various architectural styles from Europe, such as Neo-Renaissance, Victorian Gothic, etc., coexisted and merged, forming the unique eclectic architectural style. During the Anti-Japanese War and the Liberation War, a small number of buildings on Kulangsu were destroyed to different degrees. However, the unique social, political and spatial environment of Kulangsu made it less affected by the turmoil of the Chinese political situation, and most of the buildings were fortunately well-preserved. After the founding of the People's Republic of China in 1949, Xiamen Municipal People's Government and the Kulangsu District Government took over the management of buildings and neighbourhoods. Some former residences and palaces were transformed into public buildings. For example, the White House-style "Bagua Building" was transformed into the Kulangsu Organ Museum.

5.3.3. The Amoy-deco architectural decoration style that witnesses cultural integration

The eclectic architecture in China is actually the splicing and blending of Western and Chinese styles, which means the conflict between the imperial institution and national or metropolitan status is hardly the motivation of the Chinese architecture eclecticism. The Amoy-deco style is a representative work and a valuable example of the eclectic architecture, which is independently formed by the folks and local community.

Eclectic architecture first appeared across European countries such as France (Beaux-Arts architecture), England (Victorian architecture) and Germany (Gründerzeit) (Howard, 1996). Eclecticism, as John Summerson maintains, refused

[50] Source: Wikipedia (https://en.wikipedia.org/wiki/Kulangsu_International_Settlement)

to romanticize the past or future, and instead attempts to address the values of the present (Gelernter, 1995; Johnson, 1994). Gropius pointed out that in the new architecture, the old dividing line between monumental and decorative elements will have disappeared forever (Gropius, 1965). However, eclecticism appeared to a lesser extent across Asia. Chinese architects started fairly late compared to their counterparts. The majority of them are the ones who had been trained at American Beaux-Arts influenced schools, such as Liang Sicheng, who is recognized as the "Father of Modern Chinese Architecture". In China, the approach to balance tradition and modernity, essence and application, was the so-called adaptive approach which was proposed by the American architect Henry K. Murphy (1877), and supported by a group of Chinese architects such as Lu Yanzhi (1894-1929), Dong Dayou, Lin Keming (1900-1999), etc.

Admittedly, western architectural eclecticism has greatly influenced Chinese architecture in the early 20th century. However, in China, it generated different outcomes compared to the west. First of all, the form of religious architecture that reflects theocracy, such as temples, is not incompatible to the residential one. For example, the ancestral temples are often used by the folks as schools. Meanwhile, residents also donate their houses to asset temples with a strong motivation quite often. Secondly, as a "palace building" that reflects the supremacy of the imperial power, the courtyard layout corresponds with those of large vernacular houses. In Chinese architecture, only by increasing the number of intercolumniation and their dimensions were it possible to enhance the meaning of a building (SEMPER et al., 1989).

The buildings on Kulangsu are mainly influenced by the architectural style of the Victorian period. Many buildings have continuous arches on the facades with distinct Neo-Renaissance style. Qian Yi, a scholar who participated in Kulangsu's application for heritage, believes that local wealthy businessmen chose this Western style when building houses and courtyards, which is related to their identification of Western culture. At that time, the elite believed that Western architecture symbolized nobility and leisure. However, a lot of local craftsmanship is also used in the construction of houses. For example, some residential houses adopt a mixed structure of queen post truss and traditional Chinese roof trusses. On the facade of the same building, a Corinthian variant originated in Greece and a bat decoration that symbolizes good luck in traditional Chinese culture coexisted (see Figure 28).



Figure 28 The street view of Kulangsu settlement along with buildings in Amoy-deco style. Source: picture taken by the author

From the urban planning perspective, the modern urban system of Kulangsu is planned under the multi-national condominium model, forming a habitable space with island features. From the architectural view, the unique residential concept combining western and Chinese elements is outstanding and impressive for both domestic citizens and foreigners. The fusion of multiple architectural style elements is assembled by elite Chinese and craftsman groups, generating the mixed Amoy-deco Style. The unbelievable coexistence and integration of diverse cultures is distinctively reflected in the value exchange in built environments.

5.3.4. The Management System of Kulangsu: Ownership, Policy, Legislation and Framework

The property of Kulangyu is jointly managed by two administrative institutes: Xiamen Kulangsu-Wanshishan Scenic Area Management Committee (the Management Committee) and the Kulangsu Sub-District Office of the Siming District. The management committee was established on October 18, 2003. It is also known as the Kulangsu World Cultural Heritage Monitoring and Management Centre. As the dispatched agency of Xiamen Municipal Government, it is mainly responsible for the planning, protection, construction and management of the Scenic Area. Comprehensive law enforcement agencies include municipal departments of city appearance and environment, cultural relics protection, market supervision, tourism supervision, etc., which comply with the direction of the Management Committee. The Kulangsu Sub-District Office is mainly in charge of

other settlement-related aspects and plays an important role in promoting neighbourhood interaction and delivering government notices. In addition, experts, professionals and scholars from Xiamen University are invited as external supporting consultants for heritage conservation and management.

Different from Western capitalist countries, the ownership of heritage property in China currently complies with the rules of the socialist economic system, i.e. public ownership. According to the Kulangsu survey report of ICOMOS, the land parcels of the entire island belong to the state. Moreover, the built structures fall under four management categories, which include state-managed public structures, houses administrated by management communities, houses entrusted by their owners to state management and maintenance, and private properties. Mostly, the designated heritage structures on Kulangsu belong to the first category and are exclusively managed by the government.

Concerning the policy and regulatory system, a series of regulations are adopted and officially put into force by the government, including the Regulations on the Protection of Historic Buildings on Kulangsu Island (2000), the Conservation and Management Plan for Kulangsu Cultural Heritage (2011), the Guidelines on Control of Commercial Activities on Kulangsu (2014), and the Regulations on the Conservation of the Cultural Heritage of Kulangsu (2019). The Regulations on the Conservation in 2019 is an upgraded and revised version of the one in 2012. It is also a special legislation made by the Xiamen Municipal Government to strengthen the protection of the cultural heritage of Kulangsu, which contains six chapters and 47 articles, with the purpose of promoting the optimization and integration of the management system. As shown in Table 16, in addition to the fundamental rules and legal restrictions, guaranteeing local residents' welfare and rights is highlighted in the fourth chapter of the revised version of the 2019 Regulation on the Conservation.

Table 16 Main contents of the Regulations on the Conservation of the Cultural Heritage of Kulangsu, revised in 2019.

1 General Principles
• Clarify the definition and content of cultural heritage conservation • Demarcate the heritage area and buffer zone • Explicitly put cultural heritage conservation and management into the city's national economic and social development plan • Establish management system for the unified coordination and management

2	Planning and Management
	• Establish and give legal force to a multi-level planning system, and prioritize Heritage Management Plan • Enhance management: establish prohibitive regulations and detailed requirements • Clarify the protection responsibility of the owners of various heritage elements, and provide necessary subsidies and support
3	Cultural Inheritance and Appropriate Use
	• Put forward general requirements to prioritize conservation and supporting activities and projects that are conducive to the inheritance of cultural heritage
4	Shared Heritage and Safeguard Measures
	• Guarantee residents' welfare and rights • Establish a credit management system • Establish and improve the participation mechanism of community residents
5	Legal Liability
	• Clarify legal liabilities and illegal activities

Source: The peoples' congress of Xiamen (https://www.xmrd.gov.cn/fgk/201907/t20190704_5291186.htm)

Based on the identification of Outstanding Universal Value (see sector 5.4) a protection framework of different scales has been established. At the macro city level, the urban morphological transformation of the settlements is monitored, and the surrounding environment quality is well controlled. At the micro building level, detailed value assessment and the development of a list of historical building features is conducted under the supervision of the urban planning bureau (see Figure 29).

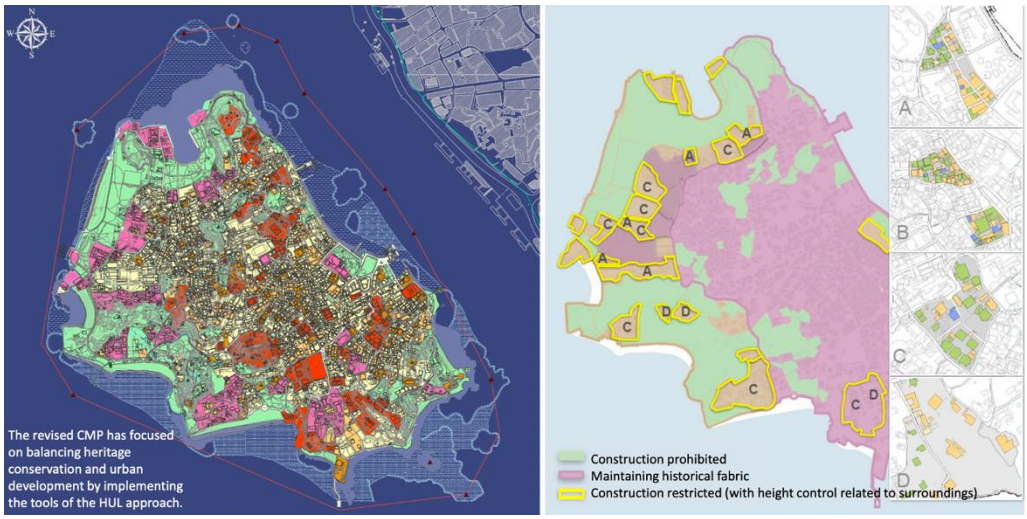


Figure 29 Kulangsu Historical and Cultural District Conservation Plan, 2019, by Xiamen City Planning and Design Institute. Source: Xiamen Kulangsu-Wanshishan Scenic Area Management Committee & Kulangsu World Cultural Heritage Monitoring and Management Center

In the conservation management plan, a strict hierarchical space management and control strategy has been formulated, which divides and defines the green space, historical protection area, restricted construction area. After Kulangsu was included in the World Heritage List in 2017, all new urban construction plans must undergo a heritage impact assessment (HIA) before they can be implemented. Government administrative departments, professional institutions, owners and various stakeholders jointly communicate and negotiate in order to make decisions that more respect the value of the heritage. Meanwhile, the Kulangsu Monitoring Centre is connected to the national heritage monitoring platform and is equipped with an early warning mechanism. The whole system consists of nine modules, namely, individual characteristics of heritage, body disease, tourism and tourists, social environment, natural environment, daily inspections, construction control, protection projects and comprehensive monitoring. Additionally, since the key threat to the integrity and sustainability of Kulangsu heritage site is the tourism pressure, the government set a maximum limit on the travellers and commuters. The number of visitors has been effectively reduced by controlling the access ferries since 2017.

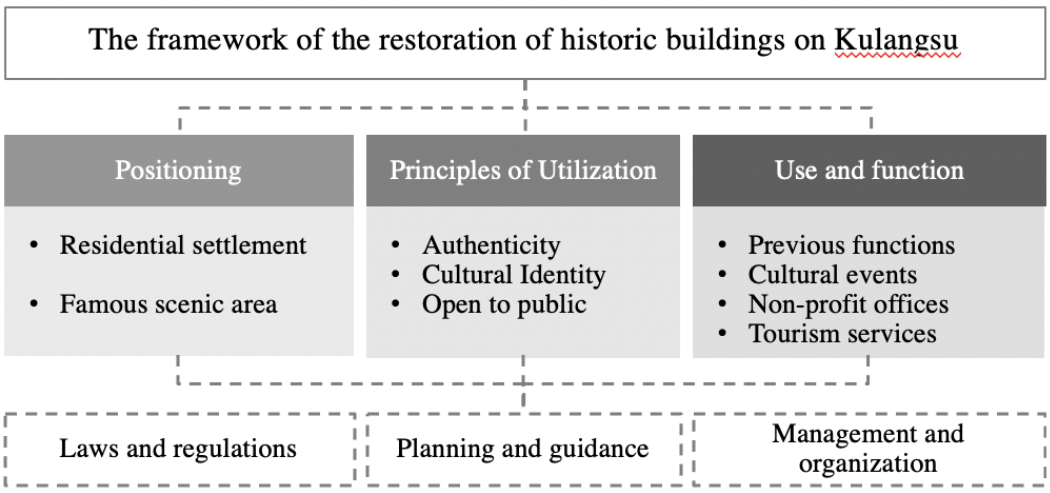


Figure 30 The framework of the restoration of historic buildings on Kulangsu

In addition to the detailed quality and style classification, the protection and renovation of Kulangsu historical buildings are mainly summarized into four ways (see Figure 30). Firstly, the original functions are largely maintained to reflect the authenticity of the heritage, which is mainly applicable to various religious buildings and residences; Secondly, some buildings partially retained their original

functions and are open to the public as an exhibition place or transformed into art activity venues. Thirdly, several houses are reconstructed into non-profit Kulangsu research and management-related office premises. Lastly, a few buildings are reconstructed into tourist service facilities.

The residents and tourists are not only witnesses of the spread of the heritage, but also active participants. The Kulangsu stakeholder committee as a form of public council is composed of residents with household registration, non-residents with household registration, representatives of island-based institutions and industry associations. It serves as an important platform for stakeholders to participate in the decision-making process (see Figure 31). The public council not only participates in the discussion of government resolutions and policies, but also proposes to the government on behalf of the community, involving people's livelihood and welfare, heritage protection, environmental protection, and tourism market management. In addition, through cultural policy support and a variety of exhibitions, the public can be informed of, participate in, and supervise the process of cultural heritage protection to the utmost extent. Local schools have also introduced cultural heritage conservation in the general education process. In terms of presentation and interpretation, the heritage property offers guided tours of multiple themes. Tourists can also explore this island individually via sign-guided routes and maps. Furthermore, the online presentation of the property allows for a virtual tour by means of a GIS-based exploration platform. Well-organized tourist service centres are easily found at almost every street corner.

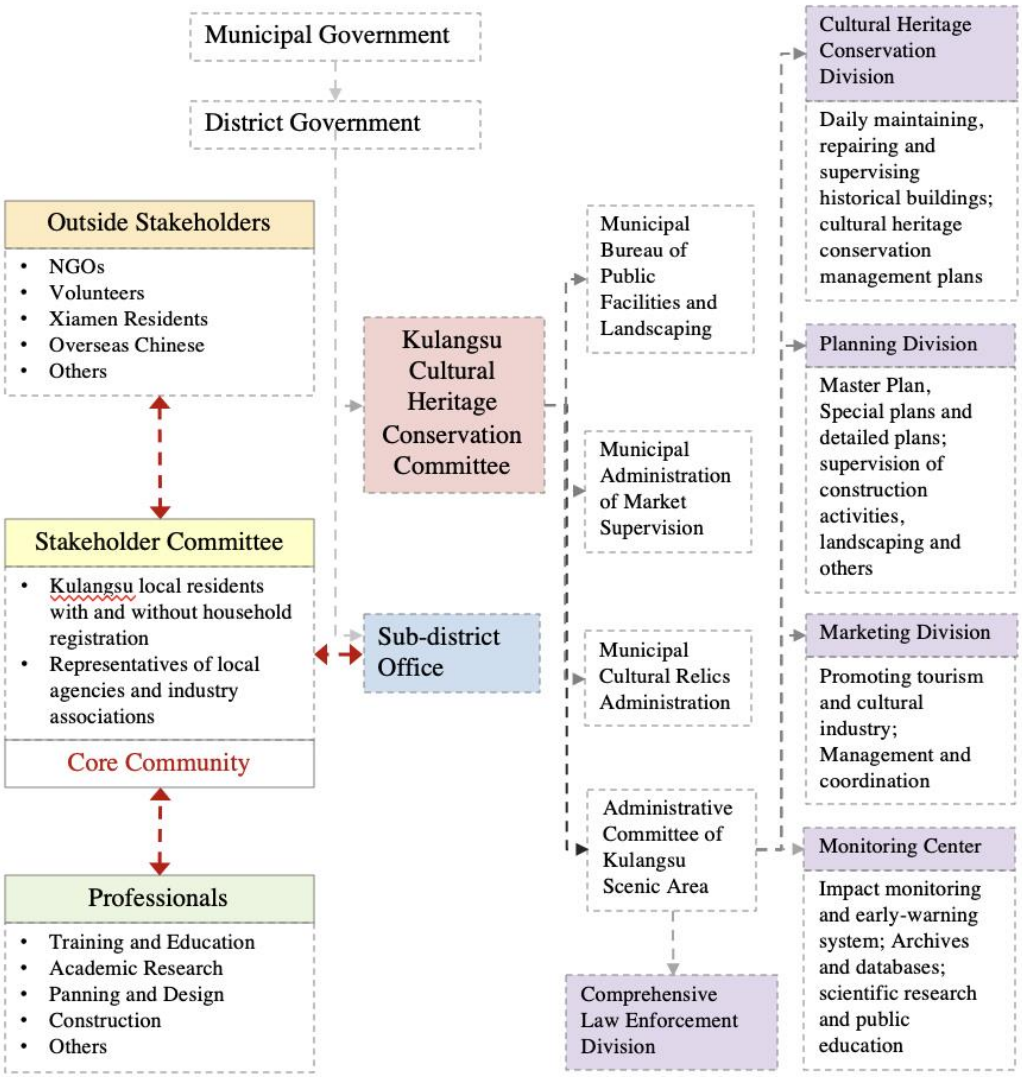


Figure 31 The management system of Kulangsu Heritage site and the role of stakeholders committee

5.3.5. The Post-epidemic Management Strategy: Extensive Use of Digital Platforms in China and Abroad

After 2017, many social media accounts dedicated to mining and promoting the historical and cultural value of Kulangsu have appeared on the Internet. The posters mainly include the aboriginals, the young generation, and the new Kulangsu people who settled here from other towns. In addition, more and more

spontaneously formed social groups participate in related actions such as querying the historical background of cultural relics and strengthening collective memory. These private groups not only organize a large number of public welfare activities, but also exchange and share with other netizens on social platforms with great enthusiasm.

In the second half of 2020, Xiamen Cultural Tourism Bureau held a series of exhibitions, such as the "2020 Cross-Strait Tourism Expo", "The 16th Cross-Strait Book Fair", and "The 13th Cross-Strait Cultural Expo", in order to alleviate the adverse impact of the epidemic on the cultural tourism industry. At the same time, social media platforms were employed as a significant tool to promote the cultural heritage of Kulangsu. By cooperating with influential leaders, Xiamen Cultural Tourism Bureau launched VR panoramic experience videos on overseas social media such as Facebook, Twitter, and YouTube, and on domestic social media such as Wechat and Weibo. At the same time, a series of hashtags and hot topics such as #There is a kind of life called Xiamen, #Spring in the Garden, and #Colorful Kulangsu were continuously launched to maintain the attractiveness of Xiamen to overseas tourists. According to data from the Ministry of Culture and Tourism of the People's Republic of China, these videos have been viewed more than 1.05 million times, with 209 posts on Facebook and 159 pictures posted on Instagram. With the help of KOL's influence, the online posts related to Xiamen cultural heritage and tourism has gained more than 10 million exposures.

In addition, a series of online platforms have been developed and maintained by Xiamen Kulangsu-Wanshishan Scenic Area Management Committee, such as the Kulangsu World Cultural Heritage Website (http://www.glysyw.com/) with online heritage maps, and the official visitor's guide to Kulangsu (https://kulangsuisland.org/) to introduce both the tangible and intangible heritage value. The widely used official government platform (http://gly.xm.gov.cn/) mainly includes three sections: interactive communication, government information disclosure, and Kulangsu style. In the interactive communication section, users can directly initiate online complaints to the government mailbox, such as "Kulangsu rent-free for one and a half months leads to complaints from businesses", or seek assistance from the authority, such as "academic research requests historical visitor volume data". The government also collects public opinions in the interactive communication section from time to time in order to better collect and adopt the suggestions of the people, such as "the solicitation of public opinion on enhancing the cultural atmosphere of Kulangsu Island."

5.4. Method: The Roadmap of Research Process

Chapter 4 draws on a social media app to identify, collate and centralize personal data implicated in cultural heritage conservation. It is a trial to evaluate the broader community in a passive participation way. The research methodology of Chapter 5 is to discover the way to actively involve the core community. It builds on the online survey tools yielded by social media to obtain satisfaction ratings and feedback from citizens through structured and objective questionnaires and interviews. Analytical personal data collection is part of the research process, both as a tool for mapping and interpreting the core community, and as a means for testing the feasibility of current conservation strategies, which may enable further investigation. Table 17 shows the brief roadmap of the research process with four phases.

Table 17 The brief roadmap of the research design and process

The Brief Roadmap of the Research Process		
Phase 1	*1.1*	Determining of the Outstanding Universal Value
	1.2	Mapping the Stakeholders Network
Phase 2	*2.1*	The Design and Structure of the Survey
	2.2	The Data Mining and Analysis of the Online-Survey
	2.3	The Supplement of Semi-structured Interview
Phase 3	*3.1*	The General Profiles of Participants
	3.2	The Screening Process and Assessment of the Willingness to Participate (WP) and Pay (WTP)
	3.3	The Evaluation on Identifying Relations between Values and Meanings
Phase 4	*4.1*	The Analysis of the Interviews to Representative of Stakeholders from Different Interest Groups based on Thematic Coding
	4.2	The Proposal of Additional Guidelines and the New Scenario

Phase 1 focuses on identifying and recognizing the Outstanding Universal Value (OUV) of the Kulangsu heritage site. The OUV is categorized into two aspects: material value and immaterial value. Island urban form, patterns and fabrics, landscape and gardens, and buildings and courtyards are listed as the material value elements with detailed indicators. The traditions and customs, religions, and living habits of the local community are considered as part of the

immaterial value. The second part of Phase 1 illustrates the stakeholder's network of the core community on Kulangsu. The obligations and rights of each stakeholder are stated according to the official documents from the government. Relevant regulations and policies to encourage public participation in the decision-making process of heritage conservation and safeguard their welfares are listed as well.

The second phase is mainly about the setting of the online survey, from design throughout data mining. The online survey as specified in phrase 2.1 is designed into seven sections: memory and perceptions, approach to authorities, willingness to participate, willingness to pay, the concept towards "public" building and the "personal" one, the concept of value, and personal information. In phase 2.2, the data needed in the investigation is collected through online questionnaires with the help of social media (Wechat) in November 2021. WeChat users can directly click the shared questionnaire link in the WeChat group and Moments to respond or scan a QR code to open the questionnaire. In addition, group texting and mailing are also used as an invitation method. At the end of the questionnaire, financial compensation using online payment is set as a reward mechanism for filling out the survey sheet. Following that in phase 2.3, face-to-face interviews are conducted with professionals, experts, residents, and government administrators with a semi-structured list of questions. It is a crucial supplement to the anonymous survey to understand the differences beyond the common characteristics of different stakeholders.

Phase 3 states in detail the process of data examination and result identification of the online questionnaire. The crucial point of this step is to build up a model to transform collected qualitative data into quantitative language. In step 3.1, the general profiles of participants including the geo-distribution, the proportion of residents, occupation, gender and age are illustrated in detail. Meanwhile, the process of selecting effective answers based on the answering time, inconsistent answers and the attributes of the local are also listed with corresponding results. Step 3.2 mainly contributes to the in-depth analysis of the filtered results based on SPSS. The Correlation Analysis based on the chi-square test is applied to examine the statistical dependence between different variables and tasks (Coscia et al., 2018). Next, step 3.3 further investigates and evaluates the relation between values and meanings supported by quantitative data. The possible reasons and explanations for the result of the correlated variables are extracted due to the participants' responses.

The fourth phase is to effectively analyse the content of the interview record and propose a new scenario of public participation. In phase 4.1, a systematic

process to organize and highlight the meaning of distinct opinions from interviewees, with different occupations and beneficial interests, is employed in this research (Gibbs, 2018). A hybrid process of inductive and deductive thematic analysis is used to interpret the narrative text data (Fereday and Muir-Cochrane, 2006). Architectural professionals, academic experts, government administrators, and residents are interviewed face to face according to the pre-set list of questions. In Phase 4.2, a guideline as additional strategies is generated taking into account the participants' values, preferences and needs. The framework is structured following the guidelines recommended by previous researches. More particularly, eight macro-categories related to sensitive issues have been identified (landscape, conservation, waterfront, enhancement, user basin, connection, flows) within which the main principles are specified.

5.4.1. The Outstanding Universal Value (OUV) of the World Cultural Heritage Property: Kulangsu

Kulangsu, as one of the sites inscribed in the WHL, has been qualified with certain representivity in the pertinent cultural-historical context, which means it has Outstanding Universal Value (Jokilehto, 2006). In the UNESCO document, 2005 version of Operational Guidelines for the Implementation of the World Heritage Convention, "intrinsic" and "objective" values [51] are repeated to nominated properties and then widely discussed by many scholars (Coscia et al., 2018; Labadi, 2013; UNESCO, 2005). The heritage valorization on the international level helps to reinforce the national identities promoting by authorized heritage discourse (De Cesari, 2010; Di Giovine, 2008; Meskell, 2002; Smith, 2006). Beside the material part, which is already well represented, the immaterial part and its value, such as cultural landscape, nonmonumental cultures, should also be actively presented and listed (Cleere, 1996).

[51] "Objective values are typically defined as the immutable characteristics related to the fabric or history of a particular property…Intrinsic value is used to regulate and limit the proliferation of meaning by granting to "experts" the authority to identify the true significance of properties" (Labadi, 2013)

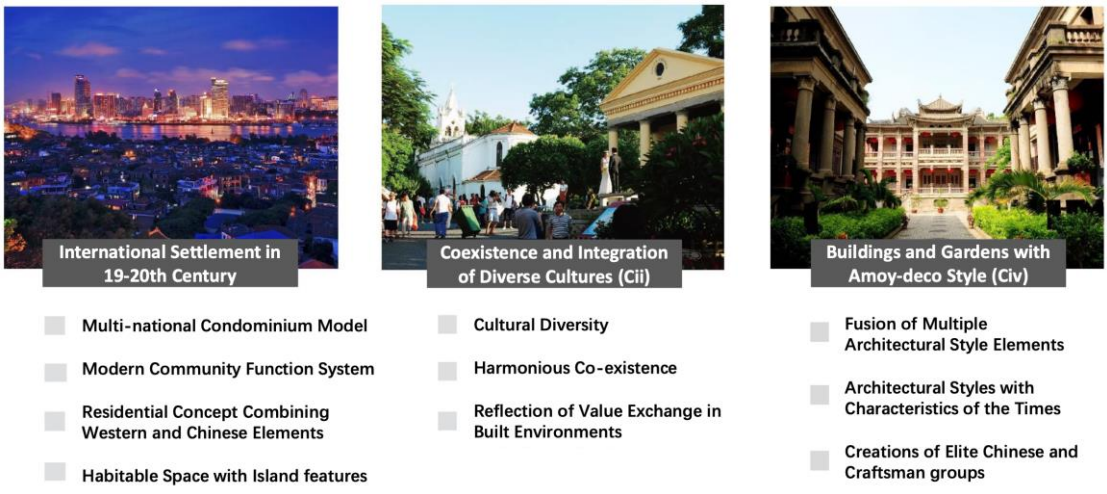


Figure 32 The theme of Outstanding Universal Value of Kulangsu heritage site



Figure 33 The urban functional form, street patterns and fabrics, landscape and scene, building and garden types, and cultural traditions as holistic and living heritage conservation elements

Culture and identity are not just about social relationships, but they are also spatial. At the beginning of the 20th century, the urban form of the historical

international settlement of Kulangsu gradually took shape (see Figure 32). With its cultural tolerance, modern infrastructure, and pleasant natural landscape, Kulangsu became an ideal settlement for the elite. From the urban planning perspective, as shown in Figure 33, the modern community functional system of this island is planned under the multi-national condominium model, forming a habitable space with island features. From the architectural view, the unique residential concept combining western and Chinese elements are outstanding and impressive for both domestic citizens and foreigners. The presentative of the unbelievable coexistence and integration of diverse cultures is mainly on the reflection of value exchange in built environments carrying the cultures with strong conflict.

The Outstanding Universal Value (OUV) of Kulangsu can be roughly summarized into two aspects: material value and non-material value (see Table 18). The material value mainly includes the overall morphological characteristics of the settlements located on the islands, the organic street system pattern and urban fabric, the eclectic style neighbourhoods, natural landscapes and cultural and historical landmarks. At the non-material level, local cultural traditions and customs that embrace multiple cultural backgrounds and religious beliefs have also developed unique forms of music and art. Regardless of foreign religious beliefs or local superstitions, Western festivals and local folk customs, they are all inherited and continued in the daily lives of local residents. The urban heritage of Kulangsu has contributed to the accumulation of value as a world cultural heritage for human civilization, while the local community is given the responsibility of protecting and inheriting OUV.

Table 18 The Outstanding Universal Value of Kulangsu heritage site

The Outstanding Universal Value of Kulangsu	
Material Value	Island Urban Form • Geographical features of the island • External transportation by ferry • Residence-based urban function • Morphological characteristics of the settlement
	Patterns and Fabrics • Historic pedestrian path network on the hillside • Well-preserved scale of roads and interfaces • Various types of neighbourhood fabric
	Landscape and Gardens

	• Hilly natural landscapes • Historic landscapes that integrate natural and human elements • Street scenes endowed with connotations from different cultures
	Buildings and Courtyards • Historic buildings with western architectural styles • Representative works of Amoy-deco Style • Traditional and local Red Brick House Style
Immaterial Value	Traditions and Customs • Native cultural folks and South-eastern Chinese local customs • Imported Western festivals and manners • Open and cultural tolerant community
	Religions • Western-based Christianism • China-originated Taoism and Buddhism • Chinese Fengshui philosophy • South-eastern Chinese local superstitious
	Living Habits • Modern living habits and entertainment activities • Contemporary cultural activities integrated with historic scenes • Dependence on the energy and labour resource from the Xiamen urban area

5.4.2. The Stakeholders Network of the Core Community

The establishment of the public council of the local community in 2016 was motivated and promoted by the two main contradictions in the cultural heritage management practices of Kulangsu. One is the contradiction between residents and tourists due to different demands and diverse interests. The other one is the conflict between different stakeholders due to the lack of an effective negotiation mechanism.

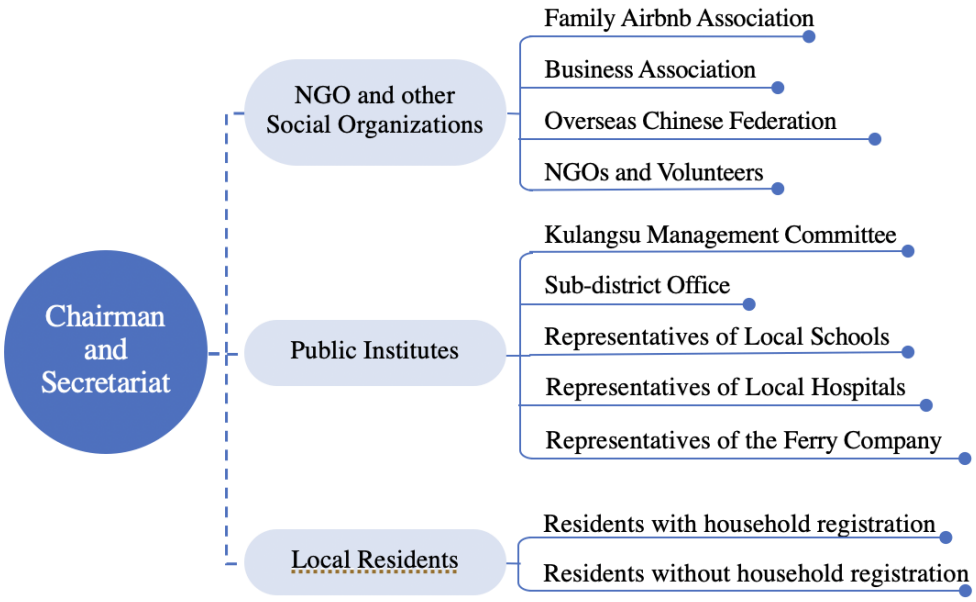


Figure 34 The structure of the stakeholders committee as the local public council

The Kulangsu Public Council is a public consultation platform for stakeholders to participate in the management of Kulangsu. It is composed of 27 members from the local island, who come from local public institutes, families, commercial entities, social organizations, and NGOs, etc (see Figure 34). The Kulangsu Public Council was established with the support and help of the Kulangsu Management Committee, the Kulangsu Sub-district Office and the Social Governance and Legal Research Centre of Xiamen University. The chairman, vice-chairman and secretary-general of the council were elected and became the leading group of the council. In addition, the public council should hold at least one meeting every quarter, and temporary meeting were also held when needed. The meeting must be attended by two-thirds of the members, that is to say, at least 18 members must participate, or otherwise the meeting would be cancelled. The proposals that they have made during the decision-making process mainly focus on four sections: the policy and strategies from the government[52], the residents' livelihood related

[52] It is mainly about implementing visitors' restriction regulation, strengthening comprehensive management, utilization of public houses, etc.

issues[53], the heritage conservation and environmental protection[54], and the tourism and market management[55] (see Figure 35).



Figure 35 The stakeholders committee, business association and other forms of local organizations' activities on heritage conservation issues

The main task of the public council is to negotiate and discuss matters related to the management of Kulangsu. It helps to resolve some internal contradictions promptly and promote self-management and social autonomy as a communicating platform for all stakeholders. Second, the audience can rely on the information feedback mechanism to reflect the actual situation to the authority and put forward specific suggestions to promote the government's scientific decision-making. Third, the council assists the government to communicate with residents and implementing policies that benefit the people.

The responsible person of the assigned historic building should take charge of the daily maintenance and management to ensure its integrity and safety. For damages caused by force majeure such as typhoons, the responsible person can apply for tax exemption and technical support. Besides, funding is offered to historic buildings used as new cultural venues. The increased restoration cost of the compulsory restoration can be subsidized as well. Concerning the residents, the government should formulate community development plans to improve community welfare covering social, medical, educational, and livelihood insurance, and improve the working and living conditions. Meanwhile, the government may grant appropriate subsidies to those whose rights are compromised or whose burden is increased due to cultural heritage protection. Other stakeholders, such as business agencies and NGOs, shall abide by relevant regulations in terms of civilized

[53] It is mainly about improving community service quality, resuming film playing in public places, improving sewage treatment, etc.

[54] It is mainly about rescuing and protecting historic properties, installing smoke and oil eliminators in restaurants, etc.

[55] It is mainly about regulating the guide agencies and service, supporting time-honored brands merchants, the green channel for family hotels receiving overnight visitors, etc.

behaviour, commercial activities, urban environment, traffic order and so on while enjoying the well-preserved cultural heritage. A series of policies have also been issued to guarantee the rights and welfare of the local community, as following: Regulations of Xiamen Special Economic Zone on the Conservation of the Cultural Heritage of Kulangsu (2019), Interim Provisions on "Substituting Awards for Supplements" for Kulangsu Public Welfare Cultural and Sports Projects (2018), Interim Measures for the Management of Non-Residential Public Houses Leasing in Kulangsu (2018), and Interim Measures for Supporting Focal Cultural Development on Kulangsu Island (2018).

5.4.3. The Setting of the Online Survey and Interviews

The objective of the data acquisition setting of the online survey is listed below. Firstly, to understand the preferences of the participants in favour of the demolition or the conservation of the historical complexes and their concept of values. Secondly, to understand whether the regeneration projects can satisfy participants' needs, values and preferences, in order to make a comparison between the expectations of both the insiders and outsiders. Thirdly, to measure the public's willingness to participate in the decision-making, co-design, and collaboration with professionals, and their willingness to pay for the projects. Fourthly, to evaluate the attitude of the citizens towards the government-led project as the discussion on "public" and "personal (private)" properties. The overall target is to examine whether this western-based methodology could generate a similar or different result.

The online survey is distributed and disseminated on the Wechat[56] platform, which is one of the most popular social media Apps in China and worldwide. On the one hand, the content of WeChat dissemination has the characteristics of personal privacy. Due to the strict requirement of dual real-name authentication of identity and bank account, the communication is mainly peer-to-peer and interpersonal. On the other hand, Wechat focuses on social interaction rather than mass communication (Tang, 2014). Messages of varied forms, such as texts, images, videos, and links, can be accurately sent to designated groups and online

[56] WeChat is a Chinese instant messaging, social media and mobile payment app developed by Tencent. First released in 2011, it became the world's largest standalone mobile app in 2018, with over a billion monthly active users. Source: Wikipedia (https://en.wikipedia.org/wiki/WeChat).

communities through group messaging. Besides, it is very easy to forward messages to a single friend or publish it on Moment which is similar to Instagram. Last but not least, during the epidemic, Wechat was used as the main platform for sending official notifications, and the communication tool for friends and for colleagues in smart working.

Table 19 The setup and main components of the questionnaire

Part 1	**Memory and Perceptions**
	Sense of community, Feeling of belonging and sense of place, The method to restore the historic building.
Part 2	**The Way to Communicate with Authorities**
	The way to obtain notices, The way to express suggestions, The way to participate into decision-making.
Part 3	**Willingness to Participate**
	Knowledge of the process of renewal projects of public/private buildings (cost, time consuming, procedures…), The way to know and access to regenerated projects, The degree of willingness to participate, The difficulty to participate.
Part 4	**Willingness to Pay**
	The degree of willingness to pay, The invest preferences, Personal donation amount to support heritage preservation, The reason for not paying.
Part 5	**The Concept towards 'Public" Building and the "Personal" one**
	Types of public/private buildings, The necessity to collect proposals from the public, Public housing and the respond on the needs of residents, Quality of life improvement.
Part 6	**The Concept of Value**
	Cultural heritage elements, Values.
Part 7	**Personal Information**
	Gender, Age, Education, Residence place, Occupation.

The questionnaire is structured with seven sections as shown in Table 19. In the first section, questions consist regarding memory and perceptions of the place, including the sense of community and place. and the personal favourite renovation project to reflect certain keywords, and the main approach to renovating historic buildings. The second section focuses on the way to obtain notices from authorities, express suggestions to the responsible administrating organization, and participate in the decision-making process. A question on the degree of the possibility of adopting residents' suggestions is supplemented to understand the optimistic/pessimistic attitude held by the local people. The third section aims to understand the residents' willingness to participate in the decision making of renovation projects. The knowledge of the restoration procedure and the way to access to the projects are examined, as well as the difficulty to take part in the project. The fourth section is on willingness to pay, such as the intention to invest, to donate on which type of building, the amount of money to donate, and the reason for the negative answer. The fifth section is designed to distinguish the concept of "public" and "private" buildings in the local's mind. Their attitude toward the considered public housing is important to understand the social and individual mindset. The sixth section is about the elements and values of cultural heritage and its importance, such as environmental value, cultural value and educational value. The last part is the collection of personal information on gender, age, education, resident household place, and occupation.

According to the objectives, various question types are selected, including matrix multiple-choice, fill-in-the-blank questions, multiple-choice questions, scale questions, single choice questions, etc. Some questions are set up with direct correlation and jump logic. For example, in the question "willingness to pay", respondents whose answer is negative will skip the building types that they want to invest in and directly go to the question of why they are not willing to invest. The same logic and structure of the questionnaire are applied to the question list of the interview. The answers were obtained very flexibly according to the interviewee's professional knowledge, educational background, and interest groups to which they belong.

The participants are selected from stakeholders of different communities to present the ideas of the certain group they belong to. Prof. Shaosen WANG, the dean of the Department of Architecture from Xiamen University, is seen as a representative of professionals due to his experience of taking part in the

Regulations on the Protection of Historic Buildings on Kulangsu Island in Xiamen Special Economic Zone[57]. The presentative of academic experts is Prof. Yuan LI, professor and PhD supervisor, School of Architecture and Civil Engineering, Xiamen University. He is also a member of the Big Data Committee of the China Urban Science Research Association. The administrator from the government, Mr Songrong CAI is the director of Kulangsu World Heritage Centre, Xiamen Kulangsu-Wanshishan Scenic Area Management Committee. An anonymous resident in the urban area of Xiamen is interviewed on-site. While the record of interview to another 67-years resident on Kulangsu island namely Qinong DONG is cited and translated from the "Heritage Bridge" salon event, organized by China World Cultural Heritage Center.

[57] The Regulations on the Protection of Historic Buildings on Kulangsu Island in the Xiamen Special Economic Zone was promulgated and implemented by the Xiamen Municipal Government in January 2000. In 2011, the Xiamen Municipal Government promulgated the " Kulangsu Island Cultural Heritage Site Protection and Management Plan" and " Kulangsu Island Regulatory Detailed Plan". In 2012, the "Regulations on the Protection of Kulangsu Cultural Heritage in Xiamen Special Economic Zone" was promulgated.

5.5. Result and Findings

Before the data analysis process, reliability analysis[58] and validity analysis[59] are calculated on SPSS to examine the stability and rationality of the questionnaire. The reliability analysis shows a Cronbach's alpha value of 0.877, indicating that the questionnaire setting is highly reasonable for further analysis. As the result of validity analysis, the KMO value of this questionnaire is 0.869, BTS is 1873.165, and the P-value is 0.00, indicating that the questionnaire is extremely effective.

5.5.1. The General Profiles of Participants

At the end of the survey in November 2021, 292 respondents from various provinces of China have taken part, of which more than half are residents from Xiamen city and the Kulangsu area (see Figure 36). The questionnaire screening is structured on the answers filled in by the participants instead of the obtained IP address for identifying the locals. The two main reasons are the epidemic lockdown measures and China's household registration policy. The strict quarantine policy against the epidemic has made transporting difficult for commuters. Some residents had to stay in other places, and some tourists temporarily stayed in Xiamen. On the other hand, China's household registration policy imposes relatively strict restrictions on the settlement of residents in large cities, which has caused some residents to be unable to obtain household registration even though they have lived there for a long time.

Table 20 incorporates some other indicators to profile the participants, such as gender structure, age structure, education level, long-term residence place, and occupation. Regarding the gender structure, the male-to-female ratio among

[58] Reliability refers to the degree of consistency with which the same results are obtained when the same indicators or measurement tools are used to repeatedly measure the same things. The most commonly used indicator is the Cronbach's alpha as the reliability coefficient. It is generally believed that the Cronbach's alpha should be between 0 and 1. A generally accepted rule is that α of 0.6-0.7 indicates an acceptable level of reliability, and 0.8 or greater indicate a very good level. However, values higher than 0.95 are not necessarily good, since they might be an indication of redundancy.

[59] The main purpose of Validity Analysis is to test whether the respondent understands the intention of the questionnaire designer, that is to say, whether the questionnaire effectively achieves the purpose of the survey. If the Kaiser-Meyer-Olkin (KMO) is greater than 0.6 and the Bartlett's Test of Sphericity (BTS) is significant at $\alpha < .05$ then the questionnaire is considered to have high validity.

respondents is 50.7:49.3, roughly the same as that of China's overall population. Considering the age structure, the audience who replied to this questionnaire are mostly under 35 years old. The proportion of participants aged 26-35 in this survey is 47.6%, the highest among all age groups; the proportion of participants aged under 25 is 38.0%, ranking second among all age groups. In contrast, the proportion of the netizens aged over 36 is just 15.4%.

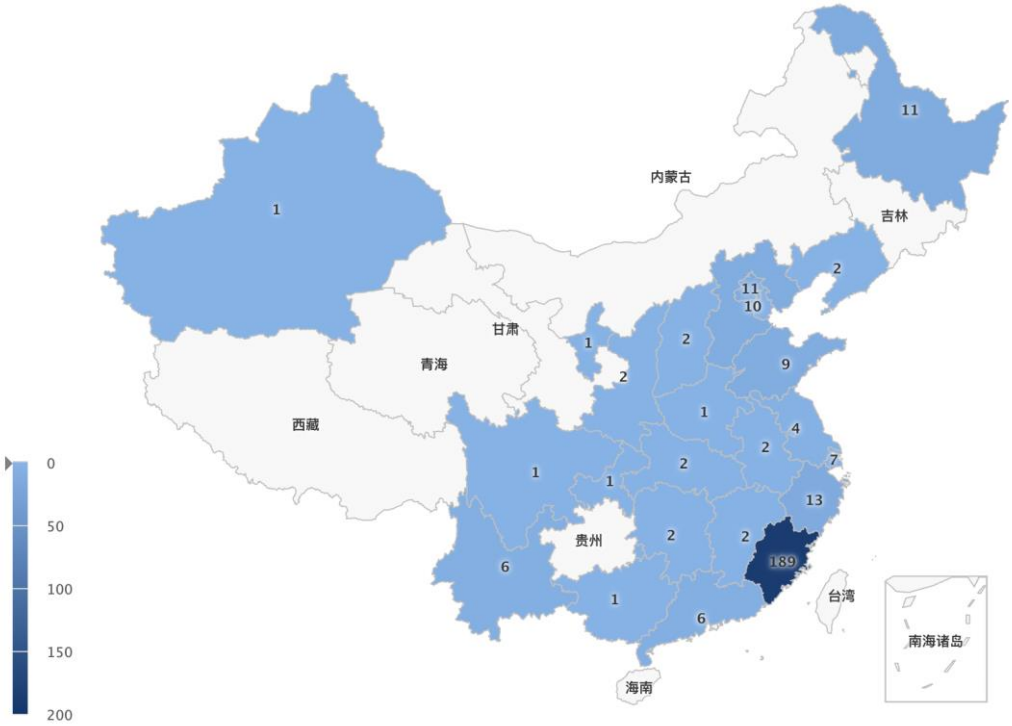


Figure 36 The geographical distribution of participants based on IP address analysis

The highest education of the respondents is relatively higher than that of general citizens. Around 85% of the participating people have a bachelor's degree or above. According to the seventh national census released by the National Bureau of Statistics, as of 2021, there are 15,467 people with a university education per 100,000 people (approximately 15%). This gap may result from the broadcasting path of the questionnaire. The survey starts from the academic community of Xiamen University and is further spread in the Wechat groups of Kulangsu Airbnb Association, Cultural Heritage Centre, and some other online communities. The determination of the users' habitual residence is based on the administrative hierarchy of cities in China. Fujian Province, Xiamen City, and Kulangsu District are applied as indicators to measure the long-term residential location. The

collected information on occupation shows that architectural students and professors are the most active stakeholders, accounting for 24.3% of the whole.

Table 20 Comprehensive profile of the participants in the Kulangsu cultural heritage survey

Categories	Indicators	%
Gender	Male	50.7
	Female	49.3
Age (Years)	Under 25	38.0
	26-35	47.6
	36-45	6.2
	46-55	6.2
	56-65	1.0
	Over 65	1.0
Education Level	Without Diploma	7.9
	Junior College	8.6
	Bachelor's Degree	59.9
	Master's Degree	23.6
Long-term Residence	Kulangsu	19.9
	Xiamen (Out of Kulangsu)	45.2
	Fujian (Out of Xiamen)	8.2
	Out of Fujian	26.7
Occupation	Real estate professionals	2.7
	Professionals: Architect/Urban planner/Landscape architect	14.0
	Architectural Students/Professors	24.3
	Staff related to cultural heritage protection	2.7
	Government Officials	10.3
	Other	45.9

The number of professionals, including architects, urban planners and landscape architects, ranks second. The government administrative staff also show great interest in supporting this study. Nearly half (45.9) of the participants are from other subjects, such as students and teachers of non-related majors, research personnel, corporate staff, information technology technicians, engineers, freelancers, designers, restaurant service staff, financial staff, human resources salary performance experts, nursing and care workers. The study also attracts wide

attention from the financial industry, transportation industry, commercial trade, tourism, manufacturing, etc.

5.5.2. The Screening Process and Assessment of the Willingness to Participate (WP) and Pay (WTP)

The objective of the screening process is to maintain a valid questionnaire of the identified local community. After 16 answer tests, the effective answer time is finally determined as more than 180 seconds. In the first step, 65 responses are considered invalid and removed due to the time limitation (see Table 21). The second and the third steps aim to narrow down the targeted group according to the long-term resident location of the respondents. Participants out of Fujian province and Xiamen city are recognized as tourists of long-distance passengers and short-distance passengers and temporarily excluded in this study. The last step is to judge the inconsistent answers based on the repeated questions deliberately set in the questionnaire testing. For example, in the question "Have you submitted your proposal in a building renovation project", participants who answered "Yes" will jump to the question "Name of the participating project". By examining this fill-in-the-blank question, the answer sheet will be seen as invalid if the response is a "No". In the end, 155 questionnaires are maintained as valid responding information.

Table 21 The process of screening of obtained responding information

Total Amount		292
Step 1	The answer time is less than 180 seconds	65
Step 2	Long residency outside Fujian Province	51
Step 3	Long residency outside Xiamen City	19
Step 4	Invalid questionnaire with contradictory answers	2
Final Amount		155

The assessment framework of the Willingness to Participate (WP) and the Willingness to Pay (WTP) is based on the classification of the online questionnaire. The dataset contains nine variables as shown in Table 22. Each option of the variables is rated on a 1-5 scale. The exception is the code for skipped questions, which is set to number -3. In this study, the correspondence between the code and its option mainly follows the order from low possibility to the high level, such as No=1, Yes=2; No=1, Low=2, Medium=3, High=4, Extremely high=5; etc.

Overall, what stands out in the V1 is that around half of the group (42.58%) expresses a medium level of familiarity with the resident-government

communication paths. It is apparent from the data of V2 that very few people (3.23%) have taken part in the collaboration on cultural heritage conservation. When asked whether it is necessary to be involved in the process communicatively and collaboratively (V3), 92.9% of the respondents offer a positive answer. In response to V4, one-third of those surveyed indicated that the restoration process of historic buildings is of no (10.97%) or relatively low (25.81%) transparency to the public. Of the 155 participants who responded to the V5 item, just 20% indicated that it is easy (13.55%) or highly accessible (6.45%) to participate in the decision-making process. Concerning the possibility of adopting suggestions from the residents in V6, around half (52.9%) of the participants hold a neutral attitude, 5.16% believe that it is impossible, 15.48% think it has little chance to happen, and the rest (26%) keep a rather positive opinion.

As shown in item V7, one out of ten participants (9.68%) believe that the renewal projects do not (1.29%) or hardly (8.39%) meet the virtual interest of the residents. Over half of the respondents (54.19%) think it is sufficient as a medium level, and the rest admit that it is highly (25.81%) or extremely highly (10.32%) in line with the interests of the residents. According to the responses of V8, the majority of the locals have a strong willingness to participate, while only 5.16% shows no interest or low interest. Just over half (55.48%) of those who answered the question of V9 reported that they would like to invest their money in cultural heritage conservation. Amongst those who are willing to pay, the majority (43.87%) indicated that they would like to pay a maximum of 5000 CNY on the restoration. According to the Average Wage of Staff and Workers in Urban Enterprises, Institution and Government Agencies released by the Fujian Provincial Bureau of Statistics, the average salary amount of Xiamen citizens reaches 108,554 CNY per year (9046 CNY per month) in 2020. It indicates that around half of the participates would like to invest a monthly salary to the cultural heritage conservation projects.

Table 22 The assessment framework of the Willingness to Participate and Willingness to Pay

Variable Name	Description	Category	Code	%
V1	Familiarity with the ways to communicate with the government	No	1	8.39
		Low	2	18.71
		Medium	3	42.58
		High	4	23.23
		Extremely high	5	7.10

V2	Collaboration experience	No	1	96.77
		Yes	2	3.23
V3	Need of communication and collaboration	No	1	7.1
		Yes	2	92.9
V4	The restoration process is clear and transparent to the public	No	1	10.97
		Low	2	25.81
		Medium	3	36.13
		High	4	18.06
		Extremely high	5	9.03
V5	Easiness to participate in the decision-making process	No	1	10.97
		Low	2	30.32
		Medium	3	38.71
		High	4	13.55
		Extremely high	5	6.45
V6	The possibility of adopting suggestions from the residents	Impossible	1	5.16
		Low	2	15.48
		Medium	3	52.90
		High	4	18.06
		Extremely possible	5	8.39
V7	The renewal projects meet the virtual interest of the residents	No	1	1.29
		Low	2	8.39
		Medium	3	54.19
		High	4	25.81
		Extremely high	5	10.32
V8	Willingness to participate	No	1	2.58
		Low	2	2.58
		Medium	3	25.16
		High	4	30.32
		Extremely high	5	39.35
V9	Willingness to pay (CNY)	<5,000	1	43.87
		5,000-10,000	2	8.39
		10,000-50,000	3	1.29
		>50,000	4	1.93
		n.a	-3	44.52

The Correlation Analysis is utilized to find out the relationship between the classified data. The purpose is to find out the possible influencing elements (V1-V7) on the WP (V8) and the WTP (V8). Correlation analysis uses the correlation coefficient to indicate the relationship between the analysis items, and the correlation coefficient used here is Spearman Correlation Coefficient (SCC). When

judging the result, the first step is to determine whether there is a relationship. If there is an * in the upper right corner of the number, it means the two variables are intercorrelated; otherwise, there is no correlation. Then, the affirmatives and negatives need to be checked according to the SCC value. Where the SCC value is greater than zero, it indicates a positive correlation; otherwise, it shows a negative correlation. Finally, the degree of the close relationship is judged according to the p-value. If the criterion of p-value is lower than 0.05, it indicates that the two sets of data are significantly correlated. Furthermore, the p-value lower than 0.01 indicates that the two sets of variables are extremely correlated. Here, the "significant" means that the appearance of the correlation coefficient is statistically significant and generally exists, rather than accidentally.

Table 23 The influencing factors of the willingness to participate and pay

X variable	Indicators	V8 Y^1 variable	V9 Y^2 variable
V1	Spearman correlation coefficient	0.114	0.172*
	p-value	0.159	0.032
V2	Spearman correlation coefficient	-0.203*	-0.114
	p-value	0.011	0.156
V3	Spearman correlation coefficient	-0.124	-0.068
	p-value	0.124	0.399
V4	Spearman correlation coefficient	0.251**	0.330**
	p-value	0.002	0
V5	Spearman correlation coefficient	0.204*	0.197*
	p-value	0.011	0.014
V6	Spearman correlation coefficient	0.166*	0.211**
	p-value	0.039	0.008
V7	Spearman correlation coefficient	0.240**	0.261**
	p-value	0.003	0.001

* $p<0.05$ ** $p<0.01$

The results of the correlational analysis between WP (V8) and the other variables are set out in Table 23. V8 shows no correlation with V1 or V3, judging from the over-0.05 p-values (V8 and V1, p=0.159; V8 and V3, p=0.124). The relationships between V8 and V5 and bewteenV8 and V6 both show a significance at the 0.05 level ($p \leq 0.05$), provided with the under-0.05 p-values (V8 and V5, p=0.011; V8 and V6, p=0.039). The correlation is positively attributed to the greater-than-zero SCC value (V8 and V5, SCC=0.204; V8 and V6, SCC=0.166). Different from above, a significant negative correlation at the 0.05 level is presented between V8 and V2 with an SCC value of -0.203 and a p-value of 0.011. In addition, the SCC value shows 0.251 between V8 and V4, and 0.240 between V8 and V7, indicating a positive correlation therebetween. Moreover, a significant correlation ($p \leq 0.01$) is shown between V8 and V4 and between V8 and V7, which means that V4 and V7 are closer to and have a greater impact on V8 than V5 and V6.

In parallel, Table 23 also provides the intercorrelations between the seven variables (V1-V7) and WTP (V9). The p-values between V9 and V2, V9 and V3 are 0.156 and 0.399, respectively, both greater than 0.05, which means that there is no correlation between V9 and V2 or V3. Furthermore, there are some positive correlations at both 0.05 level ($p \leq 0.05$) and the 0.01 level ($p \leq 0.01$). At the 0.05 level, the variable V1 (SCC=0.172, p=0.032) and the variable V5 (SCC=0.197, p=0.014) perform a relatively broader significant positive correlation with V9. At the 0.01 level, V9 and V4 (SCC=0.330, p=0), V9 and V6 (SCC=0.211, p=0.008), V9 and V7 (SCC=0.261, p=0.001) present the SCC values with positive numbers, indicating a stronger significant positive correlation.

Overall, the WP is influenced by the following issues: the participation frequency of the residents, the transparency of the architectural restoration process, the easiness to take part in the decision-making phase, the possibility of adopting the residents' suggestions, and the consistency with the local interests. Amongst others, the project management transparency and the optimistic attitude toward bottom-up feedback are more influential to the WP. On the other hand, the rest 6 variables have relatively poor connections with the public's eagerness and enthusiasm to be involved in the heritage management process. Meanwhile, the WTP is more related to management transparency, the acceding of residents' opinions, and the fulfilment of the grassroots' desire.

5.5.3. The Evaluation on Identifying Relations between Values and Meanings

Knowing from the previous Spearman correlation analysis, the greatest influencing factors for both WP and WTP are the transparency of the management process and the satisfaction of the residents' needs and interests. The government's attitude towards residents' opinions contributes to the motivation of WTP. In other words, improving the transparency of governance could largely help to promote public participation. Meanwhile, it is essential to meet the needs and interests of the public and local communities. At the same time, strengthening the trust in bottom-up communication and collaboration is another important factor. These relationships above may partly be explained by the following feedback from the participants.

Table 24 The knowledge about the protection and renovation process of public/private buildings

Degree / Aspects	1	2	3	4	5	Average score	Standard deviation
Time consumption	17	13	49	45	31	3.39	1.213
	10.97%	8.39%	31.61%	29.03%	20%		
Cost	17	14	38	52	34	3.46	1.239
	10.97%	9.03%	24.52%	33.55%	21.94%		
Declaration process	22	15	45	38	35	3.32	1.313
	14.19%	9.68%	29.03%	24.52%	22.58%		
Department involved	18	16	49	34	38	3.37	1.28
	11.61%	10.32%	31.61%	21.94%	24.52%		
Relevant policies and regulations	18	16	46	36	39	3.4	1.287
	11.61%	10.32%	29.68%	23.23%	25.16%		

The knowledge of the locals in Table 24 about the renovation process of protected buildings could help to identify the need-to-improve aspects of the governance (V4). The analysis of the public familiarity with various aspects of the building renovation process mainly takes the average value as an indicator of the central tendency. According to the table, the lowest value appears at the insight into the declaration process of the restoration projects (Average score=3.32). Sorted according to the degree of familiarity from low to high, the order is the involved department, the time consumption, and the relevant policies. In contrast,

participants showed high proficiency in the cost of building renovation (Average score=3.46).

The virtual demands of the audience are illustrated in Table 25 concerning the elements that need improvement in the heritage conservation process (V7). 76 out of 155 participants responded to this section. As seen in the chart, the greatest demand and critical view is for local custom conservation (61.84%) and transportation accessibility (59.21%). Despite that, other components of cultural heritage that need to be upgraded are intangible heritage and traditional crafts (50.00%), function (34.21%), building exterior (26.32%), and landscape (26.32%). Besides, 7 respondents, accounting for 9%, pointed out that there are other areas that need to pay attention to.

Table 25 The areas should be improved in the heritage conservation process

Option	Amount	Proportion
Building exterior	20	26.32%
Function	26	34.21%
Transportation accessibility	45	59.21%
Landscape	20	26.32%
Local customs	47	61.84%
Intangible heritage and traditional crafts	38	50.00%
Other	7	9.21%
Number of valid entries in this question	76	

Table 26 The reason for unwillingness to invest in the renovation of construction projects

Option	**Amount**	**Proportion**
It matters only to the government and has nothing to do with me.	17	15.89%
I have no way to participate in the project	71	66.36%
Restricted by policies and regulations	10	9.35%
I don't agree with the current way of protecting cultural heritage	6	5.61%
Other	23	21.50%
Number of valid entries in this question	107	

Figuring out the reason for unwillingness to invest (see Table 26) in the renovation of construction projects could support collecting fruitful feedbacks and advancing the bottom-up collaboration (V6). A total of 107 answers are received

for this question. What is striking in this table is the opinion (66.36%) that "I have no way to participate in the project", which is far ahead of other options. Interestingly, this answer tightly corresponds to the question about the easiness of participation (V5). Closer inspection of the table shows that 15.89% of the respondents assume that *'It matters only to the government and has nothing to do with me',* and 9.35% conceive that the investment activities are restricted by policies and regulations. Six citizens noted that they did not desire to pay due to their disagreement with the current way of cultural heritage protection. In addition, 23 participants expressed other reasons for the unwillingness to pay, such as *'there should be specific funding from the government to cover all the cost', 'I would like to, but I do not have enough money for living'*, etc.

Table 27 The correlation between the familiarity with communication methods (V1) and Easiness of participation (V5)

	Indicators	V1 Y variable
V5 X variable	Spearman correlation coefficient	0.525**
	p-value	0

** p<0.01

According to the correlation analysis in Table 27, there is a convincing linkage (p-value=0) between the communication-method familiarity (V1) and the easiness of public participation (V5). Thus, revealing the utilization of varied communicative platforms could assist to enhance the easiness of participation and boost the efficiency of double-way communication.

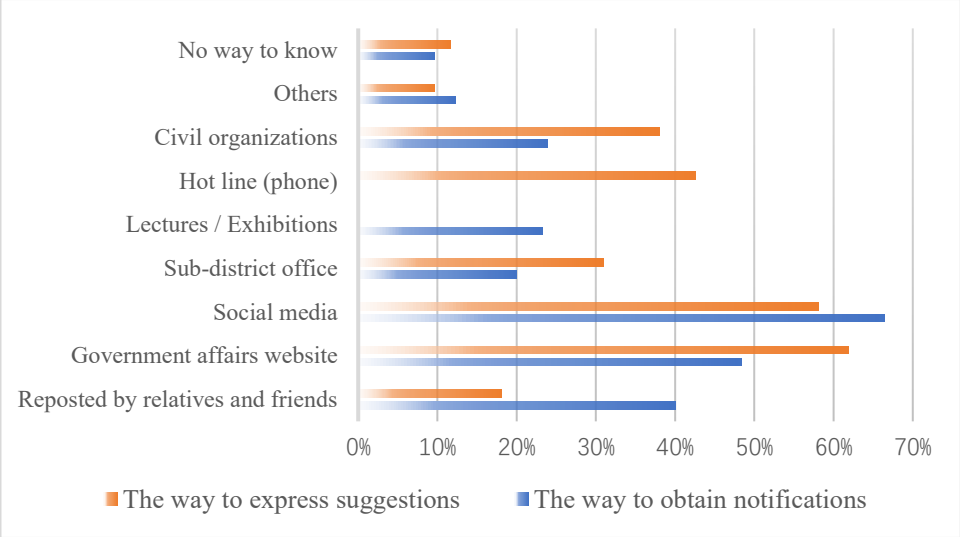


Figure 37 The channels to receive notifications from the government and to express suggestions from the residents

The results obtained from the online questionnaire on both the top-down and bottom-up communication approaches can be compared in Figure 37. As expected, social media platforms show excellent performance in the two-way conversation and can be considered as the most popular communication tool. Dialling the mayor hotline to complain and seek help is among the most popular bottom-up connecting ways. In addition, the government affairs website and the civil organizations are more used to express suggestions and complaints than to receive government notices. 96 residents admit that they used to submit comments and suggestions on the government affairs website, while only 75 residents prefer to read the notice announcement on the official website. 59 citizens have tried to express their complaints through civil organizations and heritage preservation associations, and 37 people have received bulletins from these agencies. To obtain proclamations reposted by relatives and friends is much trendier than giving suggestions. Door-on-door notification and communication by sub-district offices and neighbourhood committees are among the less popular top-down approaches together with lectures and exhibitions. What is worth mentioning is that around 10% of the participants voted on the option “no way to know” and another 10% choose other tools.

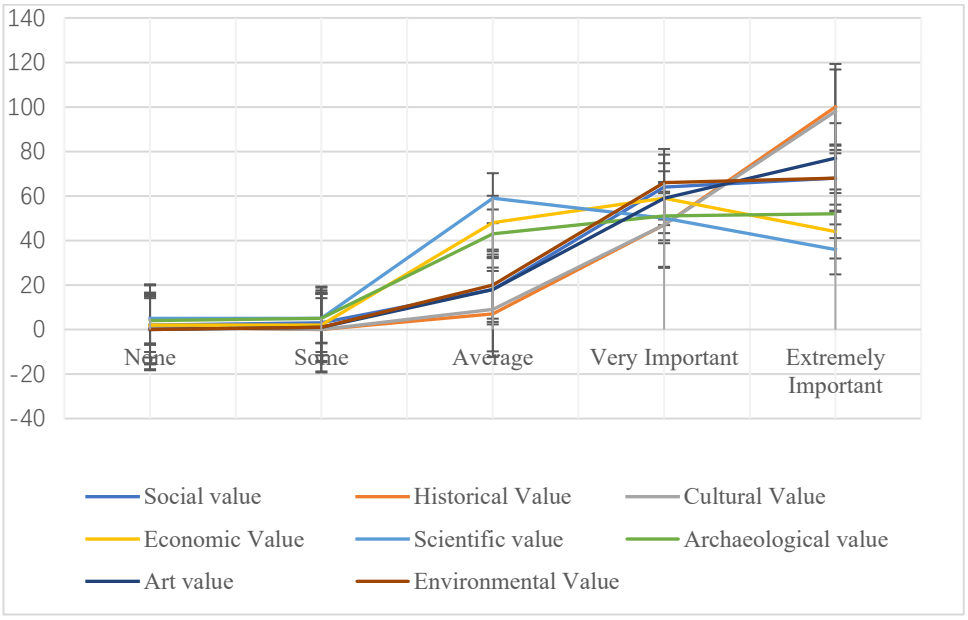


Figure 38 The values attributed to the Kulangsu cultural heritage set in the mind of the local

An assessment of the residents' opinions towards the values of Kulangsu heritage property is completed as a supplement. The awareness of citizens to engage in reforming community and place are gradually enhancing, so as the citizens' desire to participate in public events' decisions, such as urban redevelopment and heritage management, is noticeably increasing. To explore public participation by providing an insight into the complex and evolving relationship between official, professional and local narratives and memories of its inhabitants is extremely necessary and urgently needed.

In general, the eight listed values are all voted as vital attributes of cultural heritage with the minimum score as the average level. What stands out in Figure 38 is that historical values and cultural values top the "extremely important" sector. The residents are more concerned about the history carried by cultural heritage and related cultural events, such as exhibitions, traditional celebrations, local dialects. Residents living in the Kulangsu heritage site and their living habitat are also widely considered as one of the essential components of the cultural heritage. Moreover, environmental values, social values, art values and economic values are also considered as important aspects of heritage values. Due to the continuous inflow of a large number of tourists, the protection of these values is greatly threatened. Last

but not least, scientific values and archaeological values appear relatively less crucial to the locals.

5.6. Proposals to Enhance Community Participation

5.6.1. The Analysis of the Interviews to Representative of Stakeholders from Different Interest Groups based on Thematic Coding

Thematic coding and the reorganization of text data are employed as a practical method of organizing and classifying the interview-record content (Vaughn and Turner, 2016). The aim of thematic coding is taking chunks of text and labelling them as falling into certain categories, in a way that allows for later retrieval and analysis of the data (Gibbs, 2018). According to Fereday and Miur-Cochrane, the process of coding should contain six steps as shown in Table 28.

Table 28 The stages undertaken to code the data of discourse

No.	Coding Process
Stage 1	Developing the code manual
Stage 2	Testing the reliability of the code
Stage 3	Summarizing data and identifying initial themes
Stage 4	Applying template of codes and additional coding
Stage 5	Connecting the codes and identifying themes
Stage 6	Corroborating and legitimating coded themes

Source from: (Fereday and Muir-Cochrane, 2006)

For this study, codes were identified by the label name, the definition of the theme, and the description of the judgement criteria at the first stage. Reliability testing is commonly employed in quantitative studies and content analytic work. The aim of the inter-rater reliability checks is merely objective for ensuring the same subjective perspective to the text. The process of paraphrasing or summarizing involves listening to, recording, rephrasing the oral speech into literature expression and categorizing the content of each piece of data (Marks and Yardley, 2004). In stage 4, the analysis of the text was guided, but not confined, by the preliminary setting of codes. Expended codes from the original manual are supplemented according to the raw data. In the stage 5, similarities and differences between separate data groups were emerging in the process of connecting codes. The final stage illustrates the process of further clustering the themes that were previously identified from the coded text. The previous stages were closely

scrutinized to ensure that the clustered themes were representative of the initial data analysis and assigned codes.

Table 29 Connecting the data-driven codes, identifying themes, and details

Code 1			
Label		**The Willingness to Participate (WP)**	
Definition		The views and attitudes towards public participation	
Description		The degree of willingness to be engaged in the decision-making process	
Feedbacks	**P**	keyword	Strong willing
		Detail	Xiamen people care about their architectural heritage so much that strongly hope that the illegal buildings could be demolished, and the historic buildings could be well protected.
	AE	keyword	Inclusive participation
		Detail	It's not just experts who need to step in, cultural heritage enthusiasts around the world can also participate in the conservation.
	A	keyword	Compulsory participation
		Detail	The restoration projects are only approved when the residents agree. If there are objections, the government will not conduct any forced intervention.
	L	keyword	Strong willing
		Detail	I hope that Kulangsu could remain a sustainable tourist attraction instead of losing its original characteristics in a short period of time. Therefore, our local residents are very concerned about the renovation projects in Kulangsu.
Code 2			
Label		**The Willingness to Pay (WTP)**	
Definition		The opinions towards WTP of the local	
Description		The positiveness or negativizes attitude while evaluating the WTP	
Feedbacks	**P**	keyword	Positive
		Detail	Most Kulangsu people are willing to pay for the construction renovation projects, especially when their houses are rated as historical buildings and it is necessary to be repaired.
	AE	keyword	Undefined
		Detail	This issue involves management mechanism and subsequent benefits, and residents need to make judgments based on these aspects.
	A	keyword	Positive

		Detail	The house owner conducts the reconstruction, pays for the repair and applies for subsidies on account of the corresponding financial statistics.
		keyword	Positive
	L	Detail	Running short of money, we can get some funding for the protection of historical buildings from the commune, Xiamen Ancient Building Protection Association (NGO), or private fund-raising.
Code 3			
Label		**Public and Private**	
Definition		The concept of "public" and "private" buildings in the local's mind	
Description		The judging criteria and the knowledge of the public housing	
Feedbacks	**P**	keyword	Difficult to define, Ownership
		Detail	Ownership of the historic buildings in Kulangsu is difficult to define. There is kind of house called 'public house' of undefined property rights involving a lot of stakeholder consultation and tug-of-war.
	AE	keyword	Obvious distinction, Ownership, Function
		Detail	From the perspective of ownership, the distinction between public housing and private housing is obvious. But there are big coordination problems in the management of private houses. The concept of public buildings mainly refers to spatial attributes.
	A	keyword	Historic heritage as public property
		Detail	There are two types of historic houses in Kulangsu, one is ordinary houses and the other is defined as historic heritage. Whether it is public or private houses, ensuring safety is our top priority.
	L	keyword	All belongs to the state, Ownership, Function
		Detail	The judgment of public and private is mainly based on the nature of use, the subject of use, and property rights, but the ownership of both belongs to the state.

P: Professional, AE: Academic Expert, A: Authority, L: The Local

Seven broad themes emerged from the interview record analysis, among which three are selected as key themes. A recurrent theme in the interviews was a sense amongst interviewees that one of the important communication ways are through door-to-door visits of the community committee or sub-district office. As the anonymous resident noted '*We shall first report our complaint to the community*

committee, then the committee will mediate the views of all residents to reach a consensus.' The public council, the mayor's hotline, the website and social media are also mentioned by the interviewees. The majority of participants agreed with the statement that to achieve the agreement among most citizens is a compulsory procedure issued by the government before any restoration project on the island. Prof. Wang pointed out: *'In general, a historical building renovation process needs to be publicly announced by the government both online and offline. If there is any objection, a complaint may be filed during the publicity period online or through sub-district office.'* When asked about values, the participants were unanimous in the view that the heritage site of Kulangsu presents multi-values, such as social value, economic value, cultural value, historical value, in whichh the humanistic aspects matter most to Kulangsu. Mr Cai from the Kulangsu management committee states: *'Kulangsu shows good economic value, because it is a popular touristic place in China. I would also highlight the humanistic value.'*

As shown in Table 29, WP, WTP, and Public/Private are narrated from the professional, academic expert, authority, and the local representatives. A common view amongst interviewees on WP was that the local has a strong willingness to participate in the decision-making of the heritage conservation projects. As one interviewee, the local Xiamen citizen, said: '*I hope that Kulangsu could remain a sustainable tourist attraction instead of losing its original characteristics in a short period of time. Therefore, our local residents are very concerned about the renovation projects in Kulangsu.*' Interestingly, the interviewee whose occupation is a coordinator in the government used powerful terms: *'The restoration projects are only approved when the residents agree. If there are objections, the government will not conduct any forced intervention.'* While the scholar from Xiamen University spoke about integrity and inclusiveness describing WP: '*It's not just experts who need to step in, cultural heritage enthusiasts around the world can also participate in the conservation.'*

When asked about WTP, three out of four participants were unanimous that it is a positive answer. The experienced professional believes that *'Most Kulangsu people are willing to pay for the construction renovation projects, especially when their houses are rated as historical buildings and it is necessary to be repaired.'* This view was echoed by another informant who is from the management committee: *'The house owner conducts the reconstruction, pays for the repair and applies for subsidies on account of the corresponding financial statistics.'* A common citizen states that *'Running short of money, we can get some funding for the protection of historical buildings from the commune, Xiamen Ancient Building*

Protection Association (NGO), or private fund-raising.' However, the academic expert expresses that *'WTP is an undefined result under multi-factors' interaction: 'This issue involves management mechanism and subsequent benefits, and residents need to make judgments based on these aspects.'*

The judging criteria and the knowledge of public housing is important to understand the social and individual mindset on large-scale cultural heritage conservation. Opinions of the participants differed as to how to distinguish public and private buildings of the heritage properties in Kulangsu. These views surfaced mainly in relation to the ownership and the function of the building. Two divergent and conflicting discourses emerged on wether the ownership is clearly defined. For the practitioner, the judgement on the public or private ownerships seems quite blur: *'Ownership of the historic buildings in Kulangsu is difficult to define. There is kind of house called 'public house' of undefined property rights involving a lot of stakeholder consultation and tug-of-war.'* While for the researcher it sounds an easy issue: *'From the perspective of ownership, the distinction between public housing and private housing is obvious.'* and *'The concept of public buildings mainly refers to spatial attributes.'* The local respondent supported the researcher on the criteria of spatial function: *'The judgment of public and private is mainly based on the nature of use, the subject of use, and property rights'* and further noted that *'The ownership of all the buildings belongs to the state'.* Ironically, the person of the authority tried to ignore this sensitive and sharp question: *'There are two types of historic houses in Kulangsu, one is ordinary houses and the other is defined as historic heritage. Whether it is public or private houses, ensuring safety is our top priority.'*

Overall, these results indicate that opinions from different stakeholders varies due to their cultural, educational background, and the interest group they presented. The results clearly show that there are many interesting overlaps between the opinions from insiders (community members) and outsiders. It was also notable that insiders emphasized intangible values to a far greater extent than material values. Both insider and outsiders' views cannot be seen seperately and none of them is necessarily righter than the other one. It is crutial to consider both forms of knowledge as a whole to understand cultural heritage values. To summarize their comments is a strong support and necessary supplement for the quantitative analysis of group preference. Besides, while focusing on the growth in Internet users, we still need to pay attention to the non-netizen's community. Shortage of skills,

limited literacy level and inadequate devices are significant reasons why non-netizens do not access the Internet (CNNIC, 2021). The theme-coding method to study interview contents is suggested to apply on mapping the broader communities.

5.6.2. The Guideline and Framework of Strategical Approaches to Promote Community Engagement

> *"Inappropriate landscape development can change or obliterate locally distinctive characteristics and cultural meanings, creating a break between communities and their past. A landscape's contribution to culture requires decision-makers to have a detailed knowledge of the particular values of that place, and how the values help support (or otherwise) cultural identity and diversity. (Stephenson, 2008)"*

The initial objective of the study is to identify the factors that influence the level of public participation. The correlation analysis examined the result obtained from online questionnaires. It was found that the knowledge on and the transparency of the building restoration process, the easiness to participate in the decision-making discussion, the bottom-up feedback effect, and the satisfaction of the interest are the four most important correlating indicators. For the knowledge about the protection and renovation process, it occurs that the declaration procedure is the most unfamiliar part for the public. Concerning the decision-making participation, most of the respondents vote for the lack of a communication platform. Regarding double-way communication, social media platforms stand out as the most popular tool between the government and citizens. Last but not least, the interest of the audiences is found out to focus on the improvement of local custom conservation, transportation accessibility, and intangible heritage and traditional crafts maintenance.

Another interesting finding is that both from the result of the questionnaire and the interview, there is a strong willingness among the locals to be involved in heritage management. Moreover, the participants also show an optimistic attitude on WTP which proved the participation eagerness. It is interesting to note that in the public and private distinguish section, stakeholders hold different views and recognition. The determination of house ownership is the focus of controversy, and it is also a thorny issue in estate management.

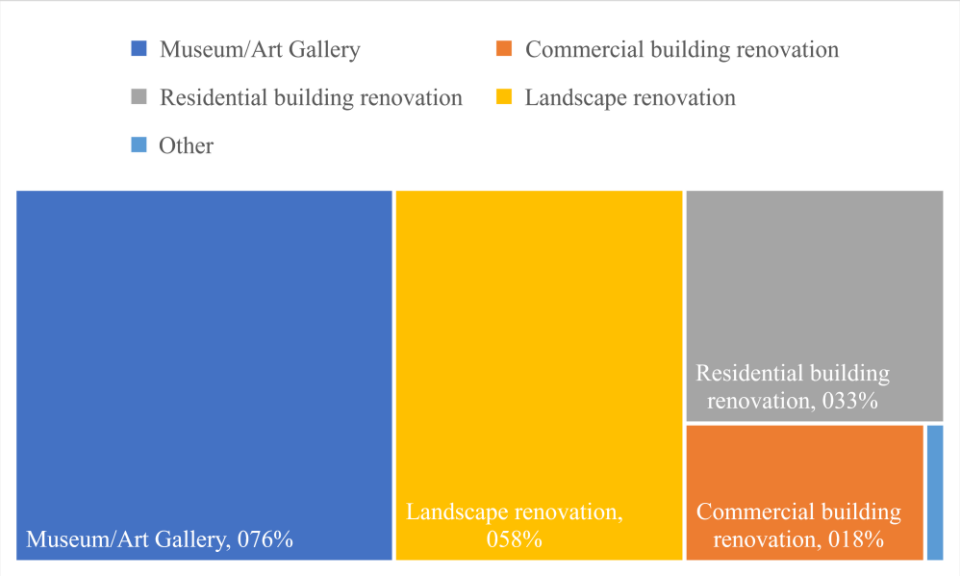


Figure 39 The type of building that the residents would like to invest in

To understand the type of building that the residents are concerned about most, a vote is established on the buildings that they would like to invest in (see Figure 39). Museum and art galleries rank the first with the support of 76% of residents. The renovation and improvement of the landscape is the second important cultural heritage aspect as 58% of participants care about. With only 33% and 18% supporters, the popularity of the residential and commercial buildings is relatively not considered as much as the museums and landscape. Thus, regarding the tangible heritage conservation of Kulangsu, the monitoring and regular assessment of status and damage dynamic of museums should be enhanced and programmed in the current management system. Meanwhile, the real-time monitoring of tourists' geographical distribution, climate-changing impact, environmental pollution, changing of vegetation, and the urban morphological transformation, would help to seek for long-term strategy and emergency response.

Figure 40 shows the preference of residents on restoration approaches to historic buildings. Compared with demolition and massively changing, partial renovation and whole preservation get more support. Only a small group of people believe that reconstruction is acceptable by destroying the structure and main features. The majority (136 out of 155) tend to amend the internal environment and retain the external characteristics of the building. About one-third of the participants prefer to preserve everything, including the interior, structure and façade of the

building. The result shows that the willingness of the residents to keep the local architectural style and unique declarations is noticeably strong. The concerns and needs on improving the interior environment and spatial function emerge as well.

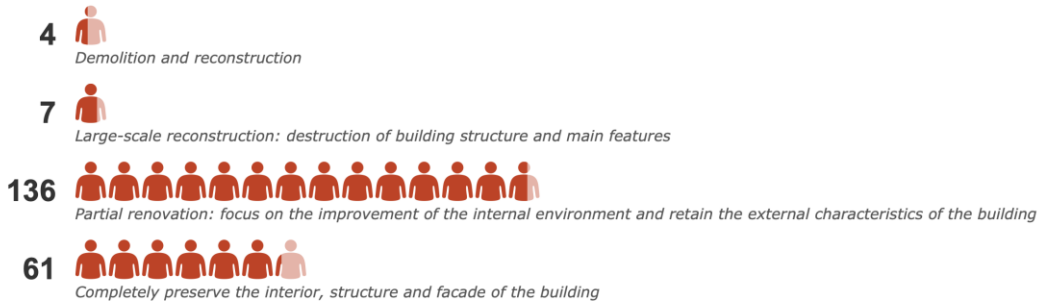


Figure 40 The votes on the methods that should be mainly used to protect the urban/architectural heritage of Kulangsu Island

Beyond the physical aspect of the urban heritage properties, the intangible aspects of the heritage are further highlighted as carrying the collective memory in the responses to the features of the favourite restored building (see Figure 41). Typical local architectural features, well-handled details, functionality are among the most important factors. Some researchers believe that the locals pay more attention to the intangible aspects of heritage properties other than the material values, while the professionals show an opposed interest in those two sides (Yang et al., 2021). Therefore, how to keep the balance of those stakeholders groups who showed clearly different interests in heritage assets should be further explored.

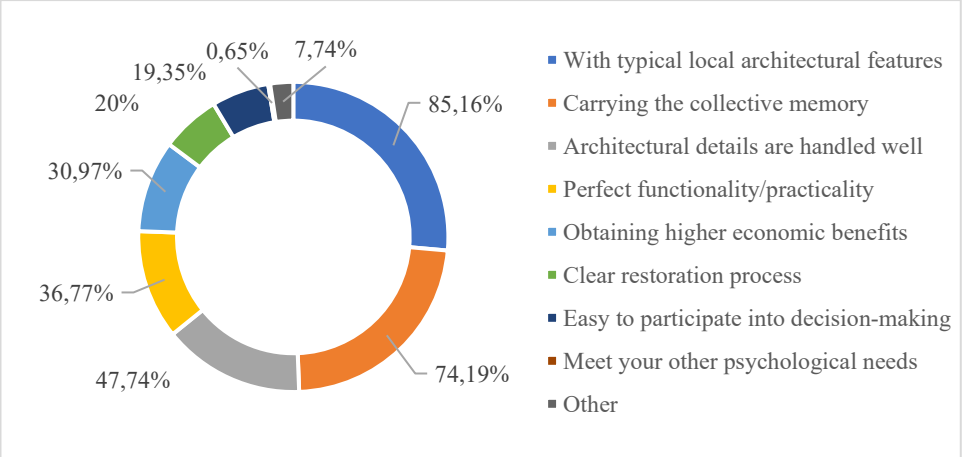


Figure 41 The features of the favourite restored building

Seeing from the above illustrations, it is obvious that the locals care more about the restoration of museums, art galleries and natural landscape in the heritage site. It may be due to the concern on public attributed-property monument buildings and the sharing environment. Regarding the residential building and houses, the majority of residents believe that keeping the details and entire facade of the building is important. Meanwhile, the improvement of the interior space quality should be considered according to the habitant's requests for better living conditions. It is notable that, most residents hold the view that the collective memory and the sense of belonging appear the most important aspects in heritage settlements, which should be carefully taken into consideration by the urban planning strategy makers, designers and governments.

Chapter 6

6. Conclusion

Over the last decade, it has been increasingly necessary and important to pay attention to the participatory method in cultural heritage management. In 1994, the Nara Document on Authenticity cautiously opened the way to a culturally based appreciation of conservation values (Jokilehto, 2005); in 1998, the Stockholm Intergovernmental Conference on Cultural Policies for Development clearly expressed culture from the perspective of development (Roders and Bandarin, 2019). Since then, international practitioners have attached greater importance to the diversity of cultural expressions and recognised that an understanding of cultural diversity is a solution to ensure an effective and sustainable link between a society and its heritage (Roders and Bandarin, 2019). People-oriented approaches are challenging the established principles defined by both material-based and values-based approaches (Court and Wijesuriya, 2017; Poulios, 2014). Likewise, UNESCO recommends the Historic Urban Landscape approach as a "bottom-up" expression of social values and social choices that can better recognise cultural diversity and the dynamic nature of urban heritage under the context of rapid globalisation (Bideau and Yan, 2018; Taylor, 2016).

The "community engagement tools" are regarded as one of the expanded conservational instruments by the HUL approach among "regulatory systems", "technical tools (knowledge and planning tools)", and "financial tools" of the Historic Urban Landscape approach, contributing to long-term sustainable and inclusive urban development (Bandarin and Oers, 2012; Settis, 2011). Among them, the identification of the core and broader community is a priority for stakeholder engagement (Chitty, 2016; Court and Wijesuriya, 2017). According to some scholars, the core community refers to the residents who are living in or nearby the heritage site, while other facilitators (e.g. authorities, experts, and economic actors) are recognised as the broader community (Affleck and Kvan, 2008; Li et al., 2020b).

The study confirmed that social media plays a core role in inclusive heritage management and contains multi-potential values to structure the inner connection of stakeholders and express the preferences of users and non-users in urban landscape studies without distinction (Wilkins et al., 2022). Up to June 2021, 49.1% of the 402 million non-netizens in China were from urban areas, and the rest of 50.9% were from rural areas (CNNIC, 2021). In China, the gap between urban and rural areas in terms of non-netizens is gradually closed, which create a more suitable social and humanistic foundation for broadcasting the use of social media in heritage conservation in the post-pandemic period. However, in this study, the focus is more on the cultural heritage preservation aspect, so that the topics of the smart

cities (Batty, 2014; Visvizi et al., 2021) are ignored temporarily in a certain extent, which will be developed in further researches.

Locally distinctive characteristics and cultural meanings can be changed or obliterated by inappropriate urban development, and a break between communities and their past can be created. In such circumstances, a number of scholars and cultural heritage professionals have acknowledged social media as a tool for participatory praxis. With the tool, different stakeholders are allowed to have various encounters and convene dialogues with each other. At the same time, multivocal heritage narrative is allowed to be faced with controversy over cultural heritage (Ginzarly et al., 2019; Liew, 2014; Oers, 2014; Russo et al., 2008). It is found that the assessment framework can not only generate an overall picture of key cultural heritage values but also offer an integrated evaluative approach that helps both heritage conservation strategy makers and urban planners.

Despite the role played by social media in heritage management highlighted in previous chapters, the analyses in Chapter 4 addressed the open data that can be acquired from Weibo, including texts and images. The result of the research analysis reveals that the public participation level in Chinese cultural heritage management is still at a primary level and residents in Kulangsu concern more about the buildings and nature landscapes other than urban design. Chapter 5 shows that the transparency of governance, the correspondence with the needs and interests of the local communities, and the trust in bottom-up communication and collaboration are the most important factors to promote the Willingness to Participate and Willingness to Pay in China.

It should be noted that users of Weibo or any social media are not representative of the whole society, and thus findings from the social media data analysis cannot be generalised to the general public. However, their views reflect one voice among other stakeholders. Therefore, results from other surveys such as workshops, interviews and onsite questionnaires should be referenced to complement the results and suggest an interpretation of heritage assets and user-environment relationship that is more complex.

Chapter 5 shows that the heritage asset could embody diverse values and focus on the value perceptions and preservation attitudes of residents and professionals. Such information provides important paradoxes for future research, especially value orientation, place attachment, and its relationship with heritage preservation. In this study, the methodology applied for the analysis of data from Chinese social

media Weibo enhances the understanding of people-centered heritage management in rapid urbanization. In addition, the online questionnaire and a series of in-depth semi-structured interviews involve people of different professions, ages, and permanent/temporary residents. It was shown in the results that the different analyses should complement one another within the historic urban landscape approach to provide insights into local's opinions and further enhance public participation. Both interview/surveys and social media data can provide important insights about urban and landscape heritage preferences, but neither in isolation is perfect.

According to the study, it is highly recommended to introduce the analysis of social media data when making decisions on urban heritage conservation as a strategy in the post-pandemic period. In cultural heritage conservation, the use of social media can add up knowledge on daily encounters with the historic urban landscape and on heritage assets and places that are neglected by experts (Ginzarly et al., 2019). Therefore, the combination of traditional survey methods and methods integrating social media would allow the cultural heritage to be more inclusive. The most challenging part is to provide a comprehensive solution that integrates different methods to help both specific applications and the decision-making process.

Moreover, computer vision can be a trustable tool to present residents' preferences and is worth being widely applied in Chinese urban heritage studies. The information is extracted from images would be useful for the experts since it integrates folksonomies generated from tagging into their classification models. This would create a more collaborative and inclusive approach to making agreements on what to protect for the generations to come. Additionally, considering diverse values could be embedded in heritage assets, including social, aesthetic, age, historic, economic, scientific, political, and ecological values (Da Silva and Roders, 2012) , it is necessary to conduct a comprehensive community-based survey to get rid of the current dictatorship dominated by standard expert-based studies on urban heritage’s material forms.

However, there are some limitations to this study. Although the users’ comments to the uploaded images as well as the values in association with different scenes are revealed by Weibo, the demographic characteristic of users, including gender, age, professional status, and education are not covered in the analyzed data in Chapter 4. In further research, methods comparison should be improved and new methods with the demographic characteristics of social media users considered.

Besides, it is critical to relate the research data with the original population and to link the values and the complexity of the community. In terms of value-based heritage, investigation can go deeper into the differences between the interpretation of users and experts in terms of heritage values. This is to promote the communication discourse and provide information to future typologies of values systems. In addition, future participatory conservation planning, implementation, and assessment should be addressed among the broader community and involved stakeholders.

As more and more heritage professionals adopt the values-based approaches, one of the emerging challenges is how to gather interpretations of heritage and significance and organize them into actionable information (Fredheim and Khalaf, 2016). Thus, another limitation of this study is that the national criteria to evaluate urban heritage values is not reviewed by the community. To improve the national criteria for assessing heritage value, it would be critical to include a critical review of the community to increase the comprehensiveness of objectiveness (Fitri et al., 2015). Future research should identify what heritage is, explore aspects of value that explain the significance of each feature, its worth for conservation and qualifiers of value that justifies why some features should be given priority in conservation efforts. Generally speaking, instead of merely serving as a complement with sharing information, the government should provide a greater role to the public to bridge the collaboration in two-way communication, and thus can be counterproductive in protecting and preserving heritage.

References

Affleck J and Kvan T (2008) A Virtual Community as the Context for Discursive Interpretation: A Role in Cultural Heritage Engagement. International Journal of Heritage Studies 14(3): 268–280. DOI: 10.1080/13527250801953751.

Aigner A (2016) Heritage-making 'from below': the politics of exhibiting architectural heritage on the Internet – a case study. International Journal of Heritage Studies 22(3): 181–199. DOI: 10.1080/13527258.2015.1107615.

Arrigoni G, Schofield T and Pisanty DT (2019) Framing collaborative processes of digital transformation in cultural organisations: from literary archives to augmented reality. Museum Management and Curatorship. DOI: 10.1080/09647775.2019.1683880.

Asur S, Huberman B, Szabó G, et al. (2011) Trends in Social Media : Persistence and Decay. 5th International AAAI Conference on Weblogs and Social Media. DOI: 10.2139/ssrn.1755748.

Athukorala K, Lagerspetz E, von Kügelgen M, et al. (2014) How carat affects user behavior: implications for mobile battery awareness applications. In: Proceedings of the 32nd annual ACM conference on Human factors in computing systems - CHI '14, Toronto, Ontario, Canada, 2014, pp. 1029–1038. ACM Press. DOI: 10.1145/2556288.2557271.

Bakker FT, Antonelli A, Clarke J, et al. (2020) The Global Museum: natural history collections and the future of evolutionary science and public education. Peerj 8. London: Peerj Inc: e8225. DOI: 10.7717/peerj.8225.

Bandarin F and Oers R van (2012) The Historic Urban Landscape: Managing Heritage in an Urban Century. John Wiley & Sons.

Bandarin F and Oers R van (2014) Reconnecting the City: The Historic Urban Landscape Approach and the Future of Urban Heritage. John Wiley & Sons.

Batty M (1997) The computable city. International Planning Studies 2(2). Routledge: 155–173. DOI: 10.1080/13563479708721676.

Batty M (2014) Can it Happen Again? Planning Support, Lee's Requiem and the Rise of the Smart Cities Movement. Environment and Planning B: Planning and Design 41(3). SAGE Publications Ltd STM: 388–391. DOI: 10.1068/b4103c2.

Batty M (2018) Digital twins. Environment and Planning B: Urban Analytics and City Science 45(5). SAGE Publications Ltd STM: 817–820. DOI: 10.1177/2399808318796416.

Batty M and Doyle S (1998) Visual Communication in Urban Planning and Urban Design. GIS and Urban Design. CASA Working Papers 2, 1 October. London, UK: Centre for Advanced Spatial Analysis University College London. Available at: https://discovery.ucl.ac.uk/id/eprint/220/1/urbanplan.pdf.

Batty M, Dodge M, Jiang B, et al. (1999) GIS and urban design. Batty, Michael and Dodge, Martin and Jiang, Bin and Smith, Andy (1998) GIS and urban design. Working paper. CASA Working Papers (3). Centre for Advanced Spatial Analysis (UCL), London, UK.

Beel DE, Wallace CD, Webster G, et al. (2017) Cultural resilience: The production of rural community heritage, digital archives and the role of volunteers. Journal of Rural Studies 54: 459–468. DOI: 10.1016/j.jrurstud.2015.05.002.

Bencardino M and Greco I (2014) Smart Communities. Social Innovation at the Service of the Smart Cities. Tema. Journal of Land Use, Mobility and Environment 0(0). DOI: 10.6092/1970-9870/2533.

Benden DM and Taft MC (2019) A Long View of Archaeological Collections Care, Preservation, and Management. Advances in Archaeological Practice 7(3). New York: Cambridge Univ Press: 217–223. DOI: 10.1017/aap.2019.22.

Bex RT, Lundgren L, Crippen KJ, et al. (2018) Designing for Public Participation in Paleontology Through the Development of an App. In: Proceedings of the 5th European Conference on Social Media (ecsm 2018) (eds V Cunnane and N Corcoran), Nr Reading, 2018, pp. 462–465. Acad Conferences Ltd.

Bideau FG and Yan H (2018) Historic Urban Landscape in Beijing: The Gulou Project and Its Contested Memories. In: Maags C and Svensson M (eds) Chinese Heritage in the Making. Experiences, Negotiations and Contestations. Amsterdam University Press, pp. 93–118. DOI: 10.2307/j.ctt2204rz8.7.

Blumenfield T and Silverman H (2013) Cultural Heritage Politics in China. Springer Science & Business Media.

Borona G and Ndiema E (2014) Merging research, conservation and community engagement. Journal of Cultural Heritage Management and Sustainable Development. DOI: 10.1108/JCHMSD-04-2013-0012.

Bottero M, Ferretti V and Mondini G (2014) Constructing Multi-attribute Value Functions for Sustainability Assessment of Urban Projects. In: 2014, pp. 51–64. DOI: 10.1007/978-3-319-09150-1_5.

Bottero M, Mondini G and Datola G (2017) Decision-Making Tools for Urban Regeneration Processes: From Stakeholders Analysis to Stated Preference Methods. Tema-Journal of Land Use Mobility and Environment 10(2). 2: 193–212. DOI: 10.6092/1970-9870/5163.

Boy JD and Uitermark J (2017) Reassembling the city through Instagram. Transactions of the Institute of British Geographers 42(4): 612–624. DOI: 10.1111/tran.12185.

Brigato MV, Coscia C, Curto R, et al. (2014) Valutazioni per strategie di sviluppo turistico sostenibile. Il caso del Bacino Metallifero dell'Iglesiente (ITA). Territorio 69: 123–133.

Camillo S (1889) City Planning According to Artistic Principles. London: Phaidon Press.

Castells M (2013) Communication Power. OUP Oxford.

Cerreta M and Poli G (2013) A Complex Values Map of Marginal Urban Landscapes: An Experiment in Naples (Italy). International Journal of Agricultural and Environmental Information Systems (IJAEIS) 4(3). IGI Global: 41–62. DOI: 10.4018/ijaeis.2013070103.

Cerreta M, Inglese P, Malangone V, et al. (2014) Complex Values-Based Approach for Multidimensional Evaluation of Landscape. In: 2014, pp. 382–397. DOI: 10.1007/978-3-319-09150-1_28.

Cesario V, Coelho A and Nisi V (2017) Enhancing Museums' Experiences Through Games and Stories for Young Audiences. In: Interactive Storytelling, Icids 2017 (eds N Nunes, I Oakley, and V. Nisi), Cham, 2017, pp. 351–354. Springer International Publishing Ag. DOI: 10.1007/978-3-319-71027-3_41.

Champion E and Rahaman H (2019) 3D Digital Heritage Models as Sustainable Scholarly Resources. Sustainability 11(8). 8: 2425. DOI: 10.3390/su11082425.

Chan RSK (2019) Chan See Shu Yuen: A Cantonese Ancestral Clan in Malaysia as Transnational Social Support Network. In: World Heritage and Legacy: Culture, Creativity, Contamination (ed. A Ciambrone), Roma, 2019, pp. 354–363. Gangemi Editore S P A.

Chen C (2017) Science Mapping: A Systematic Review of the Literature. Journal of Data and Information Science 2(2): 1–40. DOI: 10.1515/jdis-2017-0006.

Chen C and Song M (2017) Representing Scientific Knowledge: The Role of Uncertainty. Springer.

Chen CP, Weng J-Y, Yang C-S, et al. (2018) Employing a data mining approach for identification of mobile opinion leaders and their content usage patterns in large telecommunications datasets. Technological Forecasting and Social Change 130: 88–98. DOI: 10.1016/j.techfore.2018.01.014.

Chen F and Romice O (2009) Preserving the cultural identity of Chinese cities in urban design through a typomorphological approach. Urban Design International 14: 36–54. DOI: 10.1057/udi.2009.6.

Cheng S, Yu Y and Li K (2017) Historic conservation in rapid urbanization: a case study of the Hankow historic concession area. Journal of Urban Design 22(4): 433–454. DOI: 10.1080/13574809.2017.1289064.

Cheng Y (2013) Collaborative planning in the network: Consensus seeking in urban planning issues on the Internet—the case of China: Planning Theory. DOI: 10.1177/1473095213499655.

Chitty G (2016) Heritage, Conservation and Communities: Engagement, Participation and Capacity Building. Taylor & Francis.

Cici B, Gjoka M, Markopoulou A, et al. (2015) On the Decomposition of Cell Phone Activity Patterns and Their Connection with Urban Ecology. In: Proceedings of the 16th ACM International Symposium on Mobile Ad Hoc Networking and Computing, New York, NY, USA, 2015, pp. 317–326. MobiHoc '15. ACM. DOI: 10.1145/2746285.2746292.

Claisse C, Ciolfi L and Petrelli D (2017) Containers of Stories: using co-design and digital augmentation to empower the museum community and create novel experiences of heritage at a house museum. Design Journal 20: S2906–S2918. DOI: 10.1080/14606925.2017.1352801.

Clarivate JW (2020) The literature review | your definitive guide. In: Clarivate. Available at: https://clarivate.com/blog/literature-review-definitive-guide/ (accessed 19 November 2021).

Cleere H (1996) The concept of 'outstanding universal value' in the World Heritage Convention. Conservation and Management of Archaeological Sites 1(4). Routledge: 227–233. DOI: 10.1179/135050396793139042.

CNNIC (2021) The 48th Statistical Report on China's Internet Development. August. China Internet Network Information Center: China Internet Network Information Center.

Conti G, Cross T and Raymond D (2015) Pen Testing a City. In: Black Hat USA 2015, Las Vegas, August 2015, p. 11.

Corallo A, Trono A, Fortunato L, et al. (2018) Cultural Event Management and Urban e-Planning Through Bottom-Up User Participation. International Journal of E-Planning Research 7(1). 1: 15–33. DOI: 10.4018/IJEPR.2018010102.

Coscia C and Curto R (2017) Valorising in the absence of public resources and weak markets: The case of "Ivrea, the 20th century industrial city". Green

Energy and Technology (9783319496757): 79–99. DOI: 10.1007/978-3-319-49676-4_7.

Coscia C, Fregonara E and Rolando D (2015) Project management, briefing and territorial planning. The case of military properties disposal. TERRITORIO: 135–144. DOI: 10.3280/TR2015-073020.

Coscia C, Lazzari G and Rubino I (2018) Values, Memory, and the Role of Exploratory Methods for Policy-Design Processes and the Sustainable Redevelopment of Waterfront Contexts: The Case of Officine Piaggio (Italy). Sustainability 10(9): 2989. DOI: 10.3390/su10092989.

Costa DG, Damasceno A and Silva I (2019) CitySpeed: A Crowdsensing-Based Integrated Platform for General-Purpose Monitoring of Vehicular Speeds in Smart Cities. Smart Cities 2(1): 46–65. DOI: 10.3390/smartcities2010004.

Cotterill S, Hudson M, Lloyd K, et al. (2016) Co-curate: Working with Schools and Communities to Add Value to Open Collections. Journal of Interactive Media in Education (1). 1: UNSP 14. DOI: 10.5334/jime.414.

Court S and Wijesuriya G (2017) People-Centred Approaches to the Conservation of Cultural Heritage: Living Heritage. In: Chitty G (ed.) Heritage, Conservation and Communities: Engagement, Participation and Capacity Building. Newyork: Routledge, pp. 34–50.

Da Silva AMTP and Roders ARP (2012) Cultural heritage management and heritage (impact) assessments. Proceedings of the Joint CIB W070, W092 & TG72 International Conference on Facilities Management, Procurement Systems and Public Private Partnership, 23-25 January 2012, Cape Town, South Africa.

Davidoff P (1965) Advocacy and Pluralism in Planning. Journal of the American Institute of Planners 31(4): 331–338. DOI: 10.1080/01944366508978187.

De Cesari C (2010) World Heritage and mosaic universalism: A view from Palestine. Journal of Social Archaeology 10(3). SAGE Publications: 299–324. DOI: 10.1177/1469605310378336.

De Filippi F, Coscia C and Guido R (2018) MiraMap: A Collective Awareness Platform to Support Open Policy-Making and the Integration of the

Citizens' Perspective in Urban Planning and Governance. In: Technologies for Development (eds S Hostettler, S Najih Besson, and J-C Bolay), Cham, 2018, pp. 127–139. Springer International Publishing. DOI: 10.1007/978-3-319-91068-0_11.

De Filippi FD, Coscia C and Guido R (2019) From Smart-Cities to Smart-Communities: How Can We Evaluate the Impacts of Innovation and Inclusive Processes in Urban Context? International Journal of E-Planning Research (IJEPR) 8(2): 24–44. DOI: 10.4018/IJEPR.2019040102.

De Nadai M, Staiano J, Larcher R, et al. (2016) The Death and Life of Great Italian Cities: A Mobile Phone Data Perspective. Proceedings of the 25th International Conference on World Wide Web - WWW '16: 413–423. DOI: 10.1145/2872427.2883084.

De Reu J, Plets G, Verhoeven G, et al. (2013) Towards a three-dimensional cost-effective registration of the archaeological heritage. Journal of Archaeological Science 40(2). 2: 1108–1121. DOI: 10.1016/j.jas.2012.08.040.

Deng Z, Lin Y, Zhao M, et al. (2015) Collaborative planning in the new media age: The Dafo Temple controversy, China. Cities 45: 41–50. DOI: 10.1016/j.cities.2015.02.006.

Dhonju HK, Xiao W, Mills JP, et al. (2018) Share Our Cultural Heritage (SOCH): Worldwide 3D Heritage Reconstruction and Visualization via Web and Mobile GIS. Isprs International Journal of Geo-Information 7(9). 9: 360. DOI: 10.3390/ijgi7090360.

Di Giovine MA (2008) The Heritage-Scape: UNESCO, World Heritage, and Tourism. Lanham: Lexington Books.

Diaz-Andreu M (2017) Introduction to the themed section 'digital heritage and the public'. International Journal of Heritage Studies 23(5). 5: 404–407. DOI: 10.1080/13527258.2017.1286780.

Eriksen MB and Frandsen TF (2018) The impact of patient, intervention, comparison, outcome (PICO) as a search strategy tool on literature search quality: a systematic review. Journal of the Medical Library Association : JMLA 106(4): 420–431. DOI: 10.5195/jmla.2018.345.

Falco E and Kleinhans R (2018) Digital Participatory Platforms for Co-Production in Urban Development: A Systematic Review. Available at: www.igi-global.com/article/digital-participatory-platforms-for-co-production-in-urban-development/201852 (accessed 14 April 2020).

Fereday J and Muir-Cochrane E (2006) Demonstrating Rigor Using Thematic Analysis: A Hybrid Approach of Inductive and Deductive Coding and Theme Development. International Journal of Qualitative Methods 5(1). SAGE Publications Inc: 80–92. DOI: 10.1177/160940690600500107.

Fernandez JG, Tammi K and Joutsiniemi A (2017) Extending the Life of Virtual Heritage: Reuse of Tls Point Clouds in Synthetic Stereoscopic Spherical Images. In: Aguilera D, Georgopoulos A, Kersten T, et al. (eds) 3d Virtual Reconstruction and Visualization of Complex Architectures, pp. 317–323. DOI: 10.5194/isprs-archives-XLII-2-W3-317-2017.

Ferreira TC (2018) Bridging planned conservation and community empowerment: Portuguese case studies. Journal of Cultural Heritage Management and Sustainable Development. DOI: 10.1108/JCHMSD-05-2017-0029.

Fitri I, Ahmad Y and Ahmad F (2015) Conservation of Tangible Cultural Heritage in Indonesia: A Review Current National Criteria for Assessing Heritage Value. Procedia - Social and Behavioral Sciences 184. REFLECTIONS ON CREATIVITY: PUBLIC ENGAGEMENT AND THE MAKING OF PLACE: 71–78. DOI: 10.1016/j.sbspro.2015.05.055.

Fong S (ed.) (2011) Networked Digital Technologies: Third International Conference, NDT 2011, Macau, China, July 11-13, 2011, Proceedings. Communications in Computer and Information Science. Berlin Heidelberg: Springer-Verlag. Available at: https://www.springer.com/gp/book/9783642221842 (accessed 26 March 2019).

Forte F and Fusco Girard L (2009) Creativity and new architectural assets: The complex value of beauty. International Journal of Sustainable Development 12: 160–191. DOI: 10.1504/IJSD.2009.032776.

Fredheim LH and Khalaf M (2016) The significance of values: heritage value typologies re-examined. International Journal of Heritage Studies 22(6). Routledge: 466–481. DOI: 10.1080/13527258.2016.1171247.

Friedman B and Nissenbaum H (1996) Bias in Computer Systems. ACM Trans. Inf. Syst. 14(3): 330–347. DOI: 10.1145/230538.230561.

Fu Z and Bu Y (2016) Constructing the Research Model of Beijing Neighborhood Through the Living Lab Method. In: Cross-Cultural Design (ed. P-LP Rau), 2016, pp. 527–539. Lecture Notes in Computer Science. Springer International Publishing.

Fusco Girard L, Gravagnuolo A and De Rosa F (2019) The Multidimensional Benefits of Terraced Landscape Regeneration: An Economic Perspective and Beyond. In: Varotto M, Bonardi L, and Tarolli P (eds) World Terraced Landscapes: History, Environment, Quality of Life. Environmental History. Cham: Springer International Publishing, pp. 273–293. DOI: 10.1007/978-3-319-96815-5_17.

Garduño Freeman C (2010) Photosharing on Flickr: Intangible heritage and emergent publics. International Journal of Heritage Studies 16(4–5). 4–5. Taylor & Francis: 352–368.

Gelernter M (1995) Sources of Architectural Form: A Critical History of Western Design Theory. Manchester University Press.

Gesenhues A (2013) Study: Mobile Users & Older Generations Are Driving Social Media Growth Around The World. Available at: https://marketingland.com/study-social-network-growth-across-the-globe-driven-by-mobile-users-older-generations-41982 (accessed 28 February 2019).

Giaccardi E (2012) Heritage and Social Media: Understanding Heritage in a Participatory Culture. Routledge.

Gibbs GR (2018) Analyzing Qualitative Data. 1 Oliver's Yard, 55 City Road London EC1Y 1SP: SAGE Publications Ltd. DOI: 10.4135/9781526441867.

Giglitto D, Lazem S and Preston A (2018) In the Eye of the Student: 'An Intangible Cultural Heritage Experience, with a Human-Computer Interaction Twist'. In: Proceedings of the 2018 Chi Conference on Human Factors in Computing Systems (chi 2018), New York, 2018. Assoc Computing Machinery. DOI: 10.1145/3173574.3173864.

Giglitto D, Lazem S and Preston A (2019) A Participatory Approach for Digital Documentation of Egyptian Bedouins Intangible Cultural Heritage. Interaction Design and Architectures (41). 41: 31–49.

Ginzarly M and Jordan Srour F (2021) Cultural heritage through the lens of COVID-19. Poetics: 101622. DOI: 10.1016/j.poetic.2021.101622.

Ginzarly M, Pereira Roders A and Teller J (2019a) Mapping historic urban landscape values through social media. Journal of Cultural Heritage 36: 1–11. DOI: 10.1016/j.culher.2018.10.002.

Goodman M (2015) Future Crimes: Everything Is Connected, Everyone Is Vulnerable and What We Can Do About It. Knopf Doubleday Publishing Group.

Greenwald R (2020) After COVID-19, What's Next for Landscape Architecture? In: Metropolis. Available at: https://metropolismag.com/viewpoints/covid-19-landscape-architecture/ (accessed 25 November 2021).

Gropius W (1965) The New Architecture and the Bauhaus. MIT Press.

Habermas J (1984) The Theory of Communicative Action (tran. M Thomas). Volume One: Reason and the Rationalization of Society. Boston, MA: Beacon Press.

Haklay M (2013) Citizen Science and Volunteered Geographic Information: Overview and Typology of Participation. In: Sui D, Elwood S, and Goodchild M (eds) Crowdsourcing Geographic Knowledge: Volunteered Geographic Information (VGI) in Theory and Practice. Dordrecht: Springer Netherlands, pp. 105–122. DOI: 10.1007/978-94-007-4587-2_7.

Harmon RR, Castro-Leon EG and Bhide S (2015) Smart cities and the Internet of Things. In: 2015 Portland International Conference on Management of Engineering and Technology (PICMET), August 2015, pp. 485–494. DOI: 10.1109/PICMET.2015.7273174.

Harrison R (2009) Understanding the Politics of Heritage. Manchester University Press.

Hawelka B, Sitko I, Beinat E, et al. (2014) Geo-located Twitter as proxy for global mobility patterns. Cartography and Geographic Information Science 41(3): 260–271. DOI: 10.1080/15230406.2014.890072.

Healey P (1997) Collaborative Planning: Shaping Places in Fragmented Societies. Macmillan International Higher Education.

Hickerson HT (1997) Realizing new means: Networked access to research collections. In: Museums and the Web 97: Selected Papers (eds D Bearman and J Trant), Pittsburgh, 1997, pp. 151–160. Archives & Museum Informatics.

Hood C and Reid P (2018a) Social media as a vehicle for user engagement with local history: A case study in the North East of Scotland. Journal of Documentation 74(4). Bingley: Emerald Group Publishing Ltd: 741–762. DOI: 10.1108/JD-12-2017-0167.

Hood C and Reid P (2018b) Social media as a vehicle for user engagement with local history: A case study in the North East of Scotland. Journal of Documentation 74(4). 4: 741–762. DOI: 10.1108/JD-12-2017-0167.

Howard J (1996) Art Nouveau: International and National Styles in Europe. Manchester University Press.

Huang C-C, Lien L-C, Chen P-A, et al. (2017) Identification of Opinion Leaders and Followers in Social Media. In: The 6th International Conference on Data Science, Technology and Applications, 2017, pp. 180–185. Science and Technology Publications, Lda. DOI: 10.5220/0006416801800185.

Hudson-Smith A, Milton R, Dearden J, et al. (2009) The Neogeography of Virtual Cities: Digital Mirrors into a Recursive World. In: Foth M (ed.) Handbook of Research on Urban Informatics: The Practice and Promise of the Real-Time City. Hershey, New York, US: Information Science Reference (IGI Global), pp. 270–292. Available at: https://www.igi-global.com/book/handbook-research-urban-informatics/www.igi-global.com/book/handbook-research-urban-informatics/514.

Hung RYY (2021) The Afterlives of Jataka Deer's Compassion - In memory of our dog Baibai. Am Journal of Art and Media Studies 25. Belgrade: Singidunum Univ, Fac Media & Communications: 49–66. DOI: 10.25038/am.v0i25.446.

Hurley A (2016) Chasing the Frontiers of Digital Technology Public History Meets the Digital Divide. Public Historian 38(1). 1: 69–88. DOI: 10.1525/tph.2016.38.1.69.

Innes JE and Booher DE (1999) Consensus Building and Complex Adaptive Systems. Journal of the American Planning Association 65(4): 412–423. DOI: 10.1080/01944369908976071.

Innes JE and Booher DE (2004) Reframing public participation: strategies for the 21st century. Planning Theory & Practice 5(4): 419–436. DOI: 10.1080/1464935042000293170.

Jeffrey S, Jones S, Maxwell M, et al. (2020) 3D visualisation, communities and the production of significance. International Journal of Heritage Studies. DOI: 10.1080/13527258.2020.1731703.

Johnson P-A (1994) The Theory of Architecture: Concepts Themes & Practices. John Wiley & Sons.

Jokilehto J (2005) Definition of Cultural Heritage: References to Documents in History. ICCROM Working Group 'Heritage and Society'.

Jokilehto J (2006) World Heritage: Defining the outstanding universal value. City and Time 2.

Jones A (2007) Memory and Material Culture by Andrew Jones. DOI: 10.1017/CBO9780511619229.

Jong AD (2015) Using Facebook as a Space for Storytelling in Geographical Research. Geographical Research 53(2): 211–223. DOI: 10.1111/1745-5871.12095.

Julia Angwin JL (2016) Machine Bias. Available at: https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing (accessed 28 February 2019).

Kalfatovic MR, Costantino G and Rinaldo CA (2019) The Biodiversity Heritage Library: Unveiling a World of Knowledge About Life on Earth. In: Digital Libraries for Open Knowledge, Tpdl 2019 (eds A Doucet, A Isaac, K Golub, et al.), Cham, 2019, pp. 352–355. Springer International Publishing Ag. DOI: 10.1007/978-3-030-30760-8_32.

Khan Z, Anjum A, Soomro K, et al. (2015) Towards cloud based big data analytics for smart future cities. Journal of Cloud Computing 4(1): 2. DOI: 10.1186/s13677-015-0026-8.

Khromova A, Costa CS, Erjavec IS, et al. (2016) IS THE MEDIATED PUBLIC OPEN SPACE A SMART PLACE? RELATIONSHIPS BETWEEN URBAN LANDSCAPES AND ICT - THE COST ACTION TU 1306 CYBERPARKS. Scires-It-Scientific Research and Information Technology 6(2). Roma: Caspur-Ciber Publ: 17–27. DOI: 10.2423/i22394303v6n2p17.

Kingston R (2002) The role of e-government and public participation in the planning process. In: XVI AESOP Congress, Volos, GREECE, 1 July 2002.

Kitchin R (2014) The real-time city? Big data and smart urbanism. GeoJournal 79(1): 1–14. DOI: 10.1007/s10708-013-9516-8.

Kitchin R and Dodge M (2011) Code/Space: Software and Everyday Life. MIT Press.

Kleinhans R, Ham MV and Evans-Cowley J (2015) Using Social Media and Mobile Technologies to Foster Engagement and Self-Organization in Participatory Urban Planning and Neighbourhood Governance. Planning Practice & Research 30(3): 237–247. DOI: 10.1080/02697459.2015.1051320.

Komossa F, Wartmann FM, Kienast F, et al. (2020) Comparing outdoor recreation preferences in peri-urban landscapes using different data gathering methods. Landscape and Urban Planning 199. Amsterdam: Elsevier: 103796. DOI: 10.1016/j.landurbplan.2020.103796.

Krueger R and Gibbs D (2008) 'Third Wave' Sustainability? Smart Growth and Regional Development in the USA. Regional Studies 42(9): 1263–1274. DOI: 10.1080/00343400801968403.

Kużelewska E and Tomaszuk M (2020) European Human Rights Dimension of the Online Access to Cultural Heritage in Times of the COVID-19 Outbreak. International Journal for the Semiotics of Law - Revue internationale de Sémiotique juridique. DOI: 10.1007/s11196-020-09712-x.

Kyvelou SS and Gourgiotis A (2019) Landscape as Connecting Link of Nature and Culture: Spatial Planning Policy Implications in Greece. Urban Science

3(3). 3. Multidisciplinary Digital Publishing Institute: 81. DOI: 10.3390/urbansci3030081.

Lafreniere D, Weidner L, Trepal D, et al. (2019) Public participatory historical GIS. Historical Methods: A Journal of Quantitative and Interdisciplinary History 52(3). 3. Taylor & Francis: 132–149.

Labadi S (2013) UNESCO, Cultural Heritage, and Outstanding Universal Value: Value-Based Analyses of the World Heritage and Intangible Cultural Heritage Conventions. Rowman & Littlefield.

Li A (2018) Practices and Reflections on Residents' Participation in Heritage Conservation: A Case Study of Courtyard Reorganisation in Dashilar, Beijing. Heritage Architecture (02): 76–83. DOI: 10.19673/j.cnki.ha.2018.02.009.

Li J, Krishnamurthy S, Pereira Roders A, et al. (2020a) Community participation in cultural heritage management: A systematic literature review comparing Chinese and international practices. Cities 96: 102476. DOI: 10.1016/j.cities.2019.102476.

Li J, Krishnamurthy S, Pereira Roders A, et al. (2020b) State-of-the-practice: Assessing community participation within Chinese cultural World Heritage properties. Habitat International 96: 102–107. DOI: 10.1016/j.habitatint.2019.102107.

Liang X (2020) Participatory Management for Cultural Heritage: Social Media and Chinese Urban Landscape. Available at: https://www.springerprofessional.de/en/participatory-management-for-cultural-heritage-social-media-and-/18172900 (accessed 15 July 2020).

Liang X, Lu Y and Martin J (2021) A Review of the Role of Social Media for the Cultural Heritage Sustainability. Sustainability 13(3). Basel: Mdpi: 1055. DOI: 10.3390/su13031055.

Liang X, Hua N and Zhang Y (2022) Chinese Social Media (Weibo) as a Tool to Advance Participatory Management During the Pandemic Period. In: Proceedings of Sixth International Congress on Information and Communication Technology (eds X-S Yang, S Sherratt, N Dey, et al.),

Singapore, 2022, pp. 983–993. Lecture Notes in Networks and Systems. Springer. DOI: 10.1007/978-981-16-2377-6_89.

Liew CL (2014) Participatory Cultural Heritage: A Tale of Two Institutions' Use of Social Media. D-Lib Magazine 20(3/4). DOI: 10.1045/march2014-liew.

Liew CL (2021) Let's talk about risks: a pillar framework for social media risk management in memory institutions. Online Information Review. Bingley: Emerald Group Publishing Ltd. DOI: 10.1108/OIR-08-2020-0380.

Lin Y, Zhang X and Geertman S (2015) Toward smart governance and social sustainability for Chinese migrant communities. Journal of Cleaner Production 107: 389–399. DOI: 10.1016/j.jclepro.2014.12.074.

Loren-Mendez M, Pinzon-Ayala D, Ruiz R, et al. (2018) Mapping Heritage: Geospatial Online Databases of Historic Roads. The Case of the N-340 Roadway Corridor on the Spanish Mediterranean. Isprs International Journal of Geo-Information 7(4). 4: 134. DOI: 10.3390/ijgi7040134.

Lum K and Isaac W (2016) To predict and serve? Significance 13(5): 14–19. DOI: 10.1111/j.1740-9713.2016.00960.x.

Maags C (2018) Creating a Race to the Top: Hierarchies and Competition within the Chinese ICH Transmitters System. In: Maags C and Svensson M (eds) Chinese Heritage in the Making. Experiences, Negotiations and Contestations. Amsterdam University Press, pp. 121–144. DOI: 10.2307/j.ctt2204rz8.8.

Maags C and Svensson M (2018) Chinese Heritage in the Making: Experiences, Negotiations and Contestations. Amsterdam University Press.

MacRae G (2017) Universal heritage meets local livelihoods: 'awkward engagements' at the world cultural heritage listing in Bali. International Journal of Heritage Studies 23(9): 846–859. DOI: 10.1080/13527258.2017.1339107.

Magro MJ (2012) A Review of Social Media Use in E-Government. Administrative Sciences 2(2). 2. Molecular Diversity Preservation International: 148–161. DOI: 10.3390/admsci2020148.

Maloney-Krichmar D, Abras C and Preece J (2002) Revitalizing an online community. In: Social Implications of Information and Communication Technology, Proceedings (ed. JR Herkert), New York, 2002, pp. 13–19. Ieee. DOI: 10.1109/ISTAS.2002.1013790.

Marks DF and Yardley L (2004) Research Methods for Clinical and Health Psychology. SAGE.

Meskell L (2002) Negative Heritage and Past Mastering in Archaeology. Anthropological Quarterly 75(3). The George Washington University Institute for Ethnographic Research: 557–574.

Methley AM, Campbell S, Chew-Graham C, et al. (2014) PICO, PICOS and SPIDER: a comparison study of specificity and sensitivity in three search tools for qualitative systematic reviews. BMC Health Services Research 14(1): 579. DOI: 10.1186/s12913-014-0579-0.

Mihailova M (2021) To Dally with Dali: Deepfake (Inter)faces in the Art Museum. Convergence-the International Journal of Research into New Media Technologies 27(4). Thousand Oaks: Sage Publications Inc: 882–898. DOI: 10.1177/13548565211029401.

Miles HC, Wilson AT, Labrosse F, et al. (2016) Alternative Representations of 3D-Reconstructed Heritage Data. Acm Journal on Computing and Cultural Heritage 9(1). 1: 4. DOI: 10.1145/2795233.

Muhammad T and Kim K (2018) Sustainable and ICT-Enabled Development in Developing Areas: An E-Heritage E-Commerce Service for Handicraft Marketing. In: International Conference on Sustainable Development and Green Technology (Sdgt 2017), p. UNSP 012009. DOI: 10.1088/1742-6596/989/1/012009.

Murgante B, Tilio L, Lanza V, et al. (2011) Using participative GIS and e-tools for involving citizens of Marmo Platano–Melandro area in European programming activities. Journal of Balkan and Near Eastern Studies 13(1). Routledge: 97–115. DOI: 10.1080/19448953.2011.550809.

Murgante B, Botonico G, Graziadei A, et al. (2019) Innovation, technologies, participation: new paradigms towards a 2.0 citizenship. International

Journal of Electronic Governance 11(1). Inderscience Publishers: 62–88. DOI: 10.1504/IJEG.2019.098814.

Nitzky W (2013) Community Empowerment at the Periphery? Participatory Approaches to Heritage Protection in Guizhou, China. In: Blumenfield T and Silverman H (eds) Cultural Heritage Politics in China. Springer Science & Business Media, pp. 205–235.

Noland R and Ishaque M (2006) Smart Bicycles in an Urban Area: Evaluation of a Pilot Scheme in London. Journal of Public Transportation 9(5). DOI: http://doi.org/10.5038/2375-0901.9.5.5.

Noveck BS (2010) Wiki Government: How Technology Can Make Government Better, Democracy Stronger, and Citizens More Powerful. Washington, DC, US: Brookings Institution Press. Available at: https://www.jstor.org/stable/10.7864/j.ctt6wphsz (accessed 2 May 2022).

Nummi P (2018) Crowdsourcing Local Knowledge with PPGIS and Social Media for Urban Planning to Reveal Intangible Cultural Heritage. Urban Planning 3(1). 1: 100–115. DOI: 10.17645/up.v3i1.1266.

Oers R (2014) Conclusion: The Way Forward: An Agenda for Reconnecting the City. Reconnecting the City: The Historic Urban Landscape Approach and the Future of Urban Heritage: 317–332. DOI: 10.1002/9781118383940.oth.

Oers R van and Roders AP (2013) Road map for application of the HUL approach in China. Journal of Cultural Heritage Management and Sustainable Development. DOI: 10.1108/JCHMSD-01-2013-0002.

Okic A, Redondi AEC, Galimberti I, et al. (2019) Analyzing Different Mobile Applications in Time and Space: a City-Wide Scenario.: 7.

Pang AS-K (2010) Social scanning: Improving futures through Web 2.0; or, finally a use for twitter. Futures 42(10). Global Mindset Change: 1222–1230. DOI: 10.1016/j.futures.2010.09.003.

Park CS and Kaye BK (2017) The tweet goes on: Interconnection of Twitter opinion leadership, network size, and civic engagement. Computers in Human Behavior 69: 174–180. DOI: 10.1016/j.chb.2016.12.021.

Peltonen E, Lagerspetz E, Hamberg J, et al. (2018) The Hidden Image of Mobile Apps: Geographic, Demographic, and Cultural Factors in Mobile Usage. In: Proceedings of the 20th International Conference on Human-Computer Interaction with Mobile Devices and Services, New York, NY, USA, 2018, p. 10:1-10:12. MobileHCI '18. ACM. DOI: 10.1145/3229434.3229474.

Pickering CM and Norman P (2020) Assessing discourses about controversial environmental management issues on social media: Tweeting about wild horses in a national park. Journal of Environmental Management 275. London: Academic Press Ltd- Elsevier Science Ltd: 111244. DOI: 10.1016/j.jenvman.2020.111244.

Popple S (2015) The new Reithians: Pararchive and citizen animateurs in the BBC digital archive. Convergence-the International Journal of Research into New Media Technologies 21(1). 1: 132–144. DOI: 10.1177/1354856514560312.

Poulios I (2014) Discussing strategy in heritage conservation: Living heritage approach as an example of strategic innovation. Journal of Cultural Heritage Management and Sustainable Development 4(1): 16–34. DOI: 10.1108/JCHMSD-10-2012-0048.

Prastyawan A and Isbandono P (2018) The Efforts of Joyoboyo Citizens in Preserving Traditional Children's Games Through Dolanan Village. In: Witjaksono AD, Tandyonomanu D, Awaru AOT, et al. (eds) Proceedings of the 1st International Conference on Social Sciences (Icss 2018), pp. 378–381.

Preece J (2009) An Event-Driven Community in Washington, DC: Forces That Influence Participation. Handbook of Research on Urban Informatics: The Practice and Promise of the Real-Time City. DOI: 10.4018/978-1-60566-152-0.ch006.

Prictor M, Huebner S, Teare HJA, et al. (2020) Australian Aboriginal and Torres Strait Islander Collections of Genetic Heritage: The Legal, Ethical and Practical Considerations of a Dynamic Consent Approach to Decision Making. Journal of Law Medicine & Ethics 48(1). 1: 205–217. DOI: 10.1177/1073110520917012.

Psomadaki OI, Dimoulas CA, Kalliris GM, et al. (2019) Digital storytelling and audience engagement in cultural heritage management: A collaborative model based on the Digital City of Thessaloniki. Journal of Cultural Heritage 36: 12–22. DOI: 10.1016/j.culher.2018.07.016.

Purkis H (2017) Making digital heritage about people's life stories. International Journal of Heritage Studies 23(5). 5: 434–444. DOI: 10.1080/13527258.2016.1190392.

Qi R, Zhou T, Dong W, et al. (2021) A Review on the Research of Public Participation In Urban and Rural Heritage Protection in China in Recent 20 Years. China City Planning Review (1): 105–118.

Rabe J, Ietto B, Muth R, et al. (2021) Citizens' engagement in urban development through blockchain: a human-centered design approach. In: 2021 IEEE International Conference on Technology Management, Operations and Decisions (ICTMOD), 2021, pp. 1–6. DOI: 10.1109/ICTMOD52902.2021.9739434.

Rania Q (2017) Using Social Hub Media to Expand Public Participation in Municipal Urban Plans. Procedia Engineering 198: 34–42. DOI: 10.1016/j.proeng.2017.07.072.

Ratti C and Claudel M (2016) The City of Tomorrow: Sensors, Networks, Hackers, and the Future of Urban Life. Yale University Press.

Riegl A (1903) The Modern Cult of Monuments: Its Character and Its Origin. MIT Press.

Riva Sanseverino E, Riva Sanseverino R and Anello E (2018) A Cross-Reading Approach to Smart City: A European Perspective of Chinese Smart Cities. Smart Cities 1(1): 26–52. DOI: 10.3390/smartcities1010003.

Roders AP and Bandarin F (2019) Reshaping Urban Conservation: The Historic Urban Landscape Approach in Action. Springer.

Rose G and Willis A (2018) Seeing the smart city on Twitter: Colour and the affective territories of becoming smart. Environment and Planning D: Society and Space: 0263775818771080. DOI: 10.1177/0263775818771080.

Ross H, Baldwin C and Carter RW (Bill) (2016) Subtle implications: public participation versus community engagement in environmental decision-making. Australasian Journal of Environmental Management 23(2). Taylor & Francis: 123–129. DOI: 10.1080/14486563.2016.1194588.

Rubino I, Barberis C, Xhembulla J, et al. (2015) Integrating a Location-Based Mobile Game in the Museum Visit: Evaluating Visitors' Behaviour and Learning. JOCCH 8: 15–15. DOI: 10.1145/2724723.

Russo A, Watkins J, Kelly L, et al. (2008) Participatory Communication with Social Media. Curator: The Museum Journal 51(1): 21–31. DOI: 10.1111/j.2151-6952.2008.tb00292.x.

Sabra JB, Andersen HJ and Rodil K (2015) Hybrid cemetery culture: Making death matter in cultural heritage using smart mobile technologies. In: 2015 International Conference on Culture and Computing (Culture Computing), 2015, pp. 167–174. IEEE.

Sairinen R and Kumpulainen S (2006) Assessing social impacts in urban waterfront regeneration. Environmental Impact Assessment Review 26(1): 120–135. DOI: 10.1016/j.eiar.2005.05.003.

Salo K, Giova D and Mikkonen T (2016) Backend Infrastructure Supporting Audio Augmented Reality and Storytelling. In: Human Interface and the Management of Information: Applications and Services, Pt Ii (ed. S Yamamoto), Cham, 2016, pp. 325–335. Springer International Publishing Ag. DOI: 10.1007/978-3-319-40397-7_31.

Sanders EB-N and Stappers PJ (2008) Co-creation and the new landscapes of design. CoDesign 4(1): 5–18. DOI: 10.1080/15710880701875068.

Sarvarzadeh SK and Abidin SZ (2012) Problematic Issues of Citizens' Participation on Urban Heritage Conservation in the Historic Cities of Iran. Procedia - Social and Behavioral Sciences 50. AcE-Bs 2012 Bangkok, Sukosol Hotel, Bangkok, Thailand, 16-18 July, 2012: 214–225. DOI: 10.1016/j.sbspro.2012.08.029.

SEMPER G, HERRMANN W, MALLGRAVE HF, et al. (1989) The four elements of architecture and other writings.

Settis S (2011) We the Citizens, English translation of chapter 7 of Paesaggio, Costituzione, cemento: la battaglia per l'ambiente contro il degrado civile (Einaudi, 2010). California Italian Studies 2(1). Available at: https://escholarship.org/uc/item/7c90g6dp (accessed 22 September 2019).

Shah DV, Cho J, Eveland WP, et al. (2005a) Information and Expression in a Digital Age: Modeling Internet Effects on Civic Participation. Communication Research 32(5): 531–565. DOI: 10.1177/0093650205279209.

Shah DV, Cho J, Eveland WP, et al. (2005b) Information and Expression in a Digital Age: Modeling Internet Effects on Civic Participation. Communication Research 32(5): 531–565. DOI: 10.1177/0093650205279209.

Shaw BJ, Draux H, Martín MG, et al. (2017) Contributions of citizen science to landscape democracy: potentials and challenges of current approaches. Landscape Research 42(8). Routledge: 831–844. DOI: 10.1080/01426397.2017.1385750.

Smith L (2006) Uses of Heritage. London: Routledge. DOI: 10.4324/9780203602263.

Spacca S, Dellapiana E and Sanna A (2018) Promoting Industrial Cultural Heritage by Augmented Reality: Application and Assessment. The Open Cybernetics & Systemics Journal 12(1): 61–71. DOI: 10.2174/1874110X01812010061.

Spruce L and Leaf K (2017) Social Media for Social Justice. Journal of Museum Education 42(1). 1: 41–53. DOI: 10.1080/10598650.2016.1265852.

Sroczynska J (2012) Role of Ict Technologies in the Conservation of Building Monuments (ed. J Jasienko).

Statham N (2019) Scientific Rigour of Online Platforms for 3d Visualisation of Heritage. Virtual Archaeology Review 10(20). 20: 1–16. DOI: 10.4995/var.2019.9715.

Stephenson J (2008) The Cultural Values Model: An integrated approach to values in landscapes. Landscape and Urban Planning 84(2): 127–139. DOI: 10.1016/j.landurbplan.2007.07.003.

Svensson M (2018) Heritage 2.0: Maintaining Affective Engagements with the Local Heritage in Taishun. In: Svensson M and Maags C (eds) Chinese Heritage in the Making. Experiences, Negotiations and Contestations. Amsterdam University Press, pp. 269–292. DOI: 10.2307/j.ctt2204rz8.14.

Svensson M and Maags C (2018) Mapping the Chinese Heritage Regime: Ruptures, Governmentality, and Agency. In: Svensson M and Maags C (eds) Chinese Heritage in the Making: Experiences, Negotiations and Contestations. Asian Heritages. Amsterdam University Press, pp. 11–38. Available at: DOI: 10.2307/j.ctt2204rz8.4.

Tang X (2014) Journalism and Communication Digest 新闻学传播学文摘. Beijing Book Co. Inc.

Tasker G and Liew CL (2020) 'Sharing my stories': genealogists and participatory heritage. Information Communication & Society 23(3). 3: 389–406. DOI: 10.1080/1369118X.2018.1510533.

Taylor K (2016) The Historic Urban Landscape paradigm and cities as cultural landscapes. Challenging orthodoxy in urban conservation. Landscape Research 41(4). Routledge: 471–480. DOI: 10.1080/01426397.2016.1156066.

Throsby D (2012) Heritage Economics: a Conceptual Framework. The Economics of Uniqueness.

Townsend AM (2013) Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia. W. W. Norton & Company.

Tzouganatou A (2018) Can Heritage Bots Thrive? Toward Future Engagement in Cultural Heritage. Advances in Archaeological Practice 6(4). 4: 377–383. DOI: 10.1017/aap.2018.32.

UNESCO (2005) Operational Guidelines for the Implementation of the World Heritage Convention. 7, place de Fontenoy 75352 Paris 07 SP France: UNESCO World Heritage Centre.

van der Hoeven A (2019) Historic urban landscapes on social media: The contributions of online narrative practices to urban heritage conservation. City, Culture and Society 17: 61–68. DOI: 10.1016/j.ccs.2018.12.001.

Varaiya P (1993) Smart cars on smart roads: problems of control. IEEE Transactions on Automatic Control 38(2): 195–207. DOI: 10.1109/9.250509.

Vaughn P and Turner C (2016) Decoding via Coding: Analyzing Qualitative Text Data Through Thematic Coding and Survey Methodologies. Journal of Library Administration 56(1). Routledge: 41–51. DOI: 10.1080/01930826.2015.1105035.

Veldpaus L and Pereira Roders A (2013) Urban Heritage: Putting the Past into the Future. The Historic Environment: Policy & Practice 4: 3–18. DOI: 10.1179/1756750513Z.00000000022.

Verdini G, Frassoldati F and Nolf C (2017) Reframing China's heritage conservation discourse. Learning by testing civic engagement tools in a historic rural village. International Journal of Heritage Studies 23(4): 317–334. DOI: 10.1080/13527258.2016.1269358.

Visvizi A, Hoyo RP del and Murgente B (2021) Smart city as the city of knowledge. In: Smart Cities and the UN SDGs. Netherlands: Elsevier, pp. 211–232.

Volland NM (2011) Taking urban conservation online: Chinese civic action groups and the internet. Online Society in China: Creating, Celebrating, and Instrumentalising the Online Carnival: 184–199. DOI: 10.4324/9780203828519.

Wang Xiwei ZL (2020) Research on Thematic Map Construction and Relationship Path of Opinion Leaders in Social Network Public Opinion: An Analysis Based on Internet Rumor Topics. information and Documentation Services 41(2): 47–55. DOI: 10.12154/j.qbzlgz.2020.02.006.

Weeks BE, Ardèvol-Abreu A and Gil de Zúñiga H (2017) Online Influence? Social Media Use, Opinion Leadership, and Political Persuasion. International Journal of Public Opinion Research 29(2): 214–239. DOI: 10.1093/ijpor/edv050.

Whitehand JWR, Gu K and Whitehand SM (2011) Fringe Belts and Socioeconomic Change in China. Environment and Planning B: Planning and Design 38(1): 41–60. DOI: 10.1068/b36104.

WHITRAP (2015) Report for the 39 Session of the World Heritage Committee. Bonn, Germany: WHITRAP.

Wilkins EJ, Van Berkel D, Zhang H, et al. (2022) Promises and pitfalls of using computer vision to make inferences about landscape preferences: Evidence from an urban-proximate park system. Landscape and Urban Planning 219: 104315. DOI: 10.1016/j.landurbplan.2021.104315.

Williamson W and Ruming K (2015) Assessing the effectiveness of online community opposition to precinct planning. Australian Planner 52(1). Abingdon: Routledge Journals, Taylor & Francis Ltd: 51–59. DOI: 10.1080/07293682.2015.1019755.

Wilson K and Desha C (2016) Engaging in design activism and communicating cultural significance through contemporary heritage storytelling A case study in Brisbane, Australia. Journal of Cultural Heritage Management and Sustainable Development 6(3). 3: 271–286. DOI: 10.1108/JCHMSD-10-2015-0039.

Winner L (2001) The Whale and the Reactor: A Search for Limits in an Age of High Technology. Nachdr. Chicago: Univ. of Chicago Press.

Wu Z (2014) Effect of Third-Party Participation in Urban Planning: A Case Study on Enning Road In Guangzhou. China City Planning Review (02): 62-68+75.

Wysocki L (2018) Farting Jellyfish and Synergistic Opportunities: The Story and Evaluation of Newcastle Science Comic. Comics Grid-Journal of Comics Scholarship 8: 6. DOI: 10.16995/cg.119.

Xie S, Zhang X, Li Y, et al. (2017) Echoes of Italian lessons on the typo-morphological approach: A planning proposal for Gulangyu Island, China. Habitat International 69: 1–17. DOI: 10.1016/j.habitatint.2017.08.003.

Yamamura T (2015) Revitalization of Historical Heritage Using Pop Culture in Japan: Shiroishi City and the Game/Anime Sengoku Basara. Tourism Analysis 20(3). 3: 327–332. DOI: 10.3727/108354215X14356694891933.

Yang H, Qiu L and Fu X (2021) Toward Cultural Heritage Sustainability through Participatory Planning Based on Investigation of the Value Perceptions and

Preservation Attitudes: Qing Mu Chuan, China. Sustainability 13(3). 3. Multidisciplinary Digital Publishing Institute: 1171. DOI: 10.3390/su13031171.

Yang WB and Yen YN (2017) A Planning by Using Digital Technology in the Reconstruction of Cultural Heritage Sites - a Case Study of Qiong-Lin Settlement in Kinmen Area. In: Hayes J, Ouimet C, Quintero MS, et al. (eds) Icomos/Isprs International Scientific Committee on Heritage Documentation (Cipa) 26th International Cipa Symposium - Digital Workflows for Heritage Conservation, pp. 719–724. DOI: 10.5194/isprs-archives-XLII-2-W5-719-2017.

Yeates R and Guy D (2006) Collaborative working for large digitisation projects. Program-Electronic Library and Information Systems 40(2). 2: 137–156. DOI: 10.1108/00330330610669262.

Yu L, Asur S and Huberman BA (2011) What Trends in Chinese Social Media. arXiv:1107.3522 [physics]. Available at: http://arxiv.org/abs/1107.3522 (accessed 10 November 2021).

Yung EHK, Chan EHW and Xu Y (2014) Sustainable Development and the Rehabilitation of a Historic Urban District – Social Sustainability in the Case of Tianzifang in Shanghai. Sustainable Development 22(2): 95–112. DOI: 10.1002/sd.534.

Zhou L (2011) Active Protection and Overall Creation of Historical and Cultural Cities. Science Press.

Ziegler MJ, Perez VJ, Pirlo J, et al. (2020) Applications of 3D Paleontological Data at the Florida Museum of Natural History. Frontiers in Earth Science 8. Lausanne: Frontiers Media Sa: 600696. DOI: 10.3389/feart.2020.600696.

Zucconi G (2014) Gustavo Giovannoni: A Theory and a Practice of Urban Conservation. Change Over Time 4: 76–91. DOI: 10.1353/cot.2014.0009.

Zuo J, Li C and Dong J (2018) Green Space System Planning Practices of Multidimensional Network Construction in High-Density Areas Under the Coexistence Trend of Incremental Planning and Existing Stock Planning. In: Shen Z, Huang L, Peng K, et al. (eds) Green City Planning and Practices in Asian Cities: Sustainable Development and Smart Growth in Urban

Environments. Strategies for Sustainability. Cham: Springer International Publishing, pp. 175–191. DOI: 10.1007/978-3-319-70025-0_8.

Appendix

Appendix A. The Online Questionnaire: Public Participation and Investigation of Kulangsu Cultural Heritage

Duration: 01 Jan 2020 - 31 December 2020

Platform: Weibo

The Selected Result of Weibo in Original Language: Chinese Version

1. The data of Macau

1	ID	Nickname	Gender	Followe	Follower	Analysis	Text	Image	Time	Likes	Reposts	Comments
6	IqoJSE	永利澳门Wyn	Male	71	141108	HVS	永利澳门WynnMacau	Null	2020/1/20 21:07	10	4	13
7	IqyYBI	史丹利澳門	Male	1403	93293	OA	史丹利澳門:【澳門】	Null	2020/1/21 23:10	2	0	0
8	IBKLq	李天宇ione	Male	1919	231122	HVS	李天宇ione:【澳门的	Null	2020/4/4 13:24	0	1	0
27	J0za5j	DiorChan的世	Female	1058	11686	HVS	DiorChan的世界:嚟咗	Null	2020/5/5 22:35	13	0	0
29	J23Ps	要在澳门	Female	176	354188	HVS	要在澳门:📍「郑家大	Null	2020/5/15 18:30	2	0	0
30	J2S4F	Cuddy·Macau	Female	145	10770	HVS	Cuddy·Macau:澳門的	Null	2020/5/21 2:24	5	0	2
94	J4aPM	王莉平168	Female	228	642	HVS	王莉平168:农村的房子整体风水	2020/5/29 16:00	0	0	0
108	J8VHjH	魅力澳门	Male	217	513020	HVS	魅力澳门:#澳门旅游	Null	2020/6/29 22:40	11	98	2
113	JbASu	澳亚卫视	Male	129	542064	OA	澳亚卫视:#澳门身边	Null	2020/7/17 11:10	2	0	0
116	JcgkDr	澳門科技大學	Male	194	4265	HVS	澳門科技大學研究生	Null	2020/7/21 20:42	4	3	0
141	JeVz6(	王莉平168	Female	228	642	HVS	王莉平168:南风古灶	http://t.cn/8	2020/8/8 9:21	2	0	0
216	Jf8MV	寶寶_Lei	Female	643	71	HVS	寶寶_Lei:拍攝好地方	Null	2020/8/9 19:01	0	0	0
218	Jfeu7a	澳门特区发布	Male	12	80107	OA	澳门特区发布:#澳门	Null	2020/8/10 9:31	22	4	2
237	JffclEE	澳門機場虛擬	Male	199	2117	HVS	澳門機場虛擬候機樓	Null	2020/8/10 11:21	1	0	0
263	JfgCQ	澳门商报官方	Male	297	49882	OA	澳门商报官方:#澳门	Null	2020/8/10 14:58	4	1	1
293	JfxpKI	澳亚卫视	Male	129	542063	Archive	澳亚卫视:#澳门身边	Null	2020/8/12 9:43	0	0	0
303	JhRYC	新濠影汇	Male	87	79327	HVS	新濠影汇:【澳门标志	Null	2020/8/27 17:45	1	1	1
308	JjlFy7	澳亚卫视	Male	129	542064	OA	澳亚卫视:#澳门身边	Null	2020/9/6 11:10	2	0	0
310	JjxEH5	澳门城市大学	Male	93	10449	Lectures	澳门城市大学:【聚焦	Null	2020/9/7 17:41	8	0	0
331	Jmzdx	飞天小能豆豆	Male	290	903	HVS	飞天小能豆豆:中西	Null	2020/9/27 15:10	8	0	3
342	JobX6	澳门旅發會	Male	715	314	Exhibition	澳门旅發會:2020/10/	Null	2020/10/8 7:37	0	0	0
358	JogTcr	澳门城市大学	Male	93	10449	Lectures	澳门城市大学:【祝贺	Null	2020/10/8 20:11	2	0	0
359	Jozh6d	澳门太阳城集	Male	62	1892587	HVS	澳门太阳城集团Sunc	Null	2020/10/10 19:00	231	234	49
382	Jt5p5q	澳门司法警察	Male	1158	3997	Lectures	澳门司法警察局:司警	Null	2020/11/9 12:08	28	0	3
395	JvchN	澳门城市大学	Male	93	10449	OA	澳门城市大学:【澳城	Null	2020/11/23 9:20	8	1	0
399	JvfYsl	澳门城市大学	Male	93	10449	Exhibition	澳门城市大学:【http	Null	2020/11/23 18:44	6	2	0
401	JwS5W	澳门城市大学	Male	93	10449	OA	澳门城市大学:葉冬柏	Null	2020/12/4 9:37	5	1	0
402	Jxuvlk	蘑菇ventilPan	Male	107	1	HVS	蘑菇ventilPandora:	Null	2020/12/8 11:25	0	0	0
412	JxEnZ	澳門日報	Male	6	73182	HVS	澳門日報:【澳门游踪	Null	2020/12/9 12:33	5	0	0
548	JxYnx	澳門日報	Male	6	73182	HVS	澳門日報:【澳门记忆	Null	2020/12/11 15:27	5	1	1
549	JAJBd	澳门吃喝玩乐	Female	111	4312837	HVS	澳门吃喝玩乐风云:澳	Null	2020/12/29 19:20	219	153	137

2. **The data of Lijiang**

1	ID	Nicknam	Gender	Followee	Follower	Analysis	Text	Image	Time	Likes	Reposts	Comments
8	InXtae	游云南自由	Male	139	59600	HVS	游云南自	Null	2020/1/4 20:01	0	0	0
25	IoR1Cc	柔芳旭洪	Male	112	107	HVS	柔芳旭洪	Null	2020/1/10 17:27	0	0	0
65	IpBNW	杨福泉	Male	2084	43810	HVS	杨福泉:丽	Null	2020/1/15 16:32	2	1	0
81	IpL1Si	世界文化遗	Male	547	21482	Exhibition	世界文化	Null	2020/1/16 16:01	7	0	0
162	IpLDSx	云南丽江旅	Male	497	201567	HVS	云南丽江	Null	2020/1/16 17:35	7	4	0
184	Is2Ffzq	大理同城网	Female	940	365	HVS	大理同城	Null	2020/1/31 16:35	5	1	0
188	ItTbHa	一舍一舍	Male	893	209	HVS	一舍一舍	Null	2020/2/12 20:08	0	0	0
189	Ivb30W	烟雨红尘梦	Male	249	350	HVS	烟雨红尘	http://t.cn/	2020/2/21 7:27	4	0	0
242	Ivx4lp(	民族时报	Male	317	156367	OA	民族时报	Null	2020/2/23 15:31	0	1	0
268	IxXbdx	大理约拍跟	Male	9	12025	HVS	大理约拍	Null	2020/3/10 13:39	1	0	0
314	IzjBQb	南京租房小	Female	349	11645	HVS	南京租房	http://t.cn/	2020/3/19 12:36	1	0	2
320	Izw4x6	南京租房小	Female	349	11645	HVS	南京租房	Null	2020/3/20 20:19	0	0	0
332	IzUOi(	青春-旅记	Female	275	120	HVS	青春-旅记	Null	2020/3/23 11:18	2	0	2
334	IDrcgc	大昆明攻略	Female	475	103575	HVS	大昆明攻	Null	2020/4/15 15:16	5	6	0
340	IEF2jzr	丽江同城网	Male	1056	195797	Lectures	丽江同城	Null	2020/4/23 16:20	2	0	0
373	J0VN5	浪沧公郎	Male	4919	6144	HVS	浪沧公郎	Null	2020/5/8 8:11	1	1	0
409	J2kEGi	飞鸟与鱼	Male	1048	1048100	HVS	飞鸟与鱼	http://t.cn/	2020/5/17 13:20	327	59	128
423	J5kvkA	唯摸爱	Male	2286	614	HVS	唯摸爱:	Null	2020/6/6 6:28	0	0	0
467	J6seSk	丽江日报	Male	676	168984	Exhibition	丽江日报	Null	2020/6/13 15:59	4	0	0
492	J6NvhI	表哥与茶	Male	3	136	HVS	表哥与茶	Null	2020/6/15 22:07	21	23	0
499	J9nFKc	南月营销策	Female	31	22186	HVS	南月营销	Null	2020/7/2 21:53	0	0	0
552	J9stp9	丽江同城网	Male	1056	195797	OA	丽江同城	Null	2020/7/3 10:06	0	0	0
600	J9t7M	腾冲文旅	Female	2456	172221	HVS	腾冲文旅	Null	2020/7/3 11:46	2	3	1
626	J9usLA	云南旅游攻	Male	12	8064	HVS	云南旅游	Null	2020/7/3 15:10	2	2	0
695	Jb1HX	云南攻略必	Female	107	2	HVS	云南攻略	Null	2020/7/13 17:38	0	0	0
699	JcuYHi	丽江同城	Male	825	20451	HVS	丽江同城	Null	2020/7/23 10:00	2	0	0
742	JdyYax	丽江同城	Male	825	20451	HVS	丽江同城	Null	2020/7/30 10:00	2	0	0
767	JfqMfq	掌上春城官	Male	378	2272	Archive	掌上春城	Null	2020/8/11 16:49	0	0	0
794	JflZEzk	都市条形码	Male	856	1277730	Archive	都市条形	Null	2020/8/13 15:11	3	0	1
796	JfLPA7	云南指南	Female	758	288998	Archive	云南指南	Null	2020/8/13 22:25	6	0	0
797	Jg8Vlu	杨福泉	Male	2084	43810	HVS	杨福泉:我	Null	2020/8/16 9:12	2	2	0
798	Jge9oz	行走的拖孩	Male	224	71337	HVS	行走的拖	Null	2020/8/16 22:30	1	1	1
799	Jghl9a	程子淳メ时	Male	145	24	HVS	程子淳メ	Null	2020/8/17 7:34	1	0	1
806	JgvELv	丽江解方	Male	208	31753	Archive	丽江解方	Null	2020/8/18 19:04	3	0	0
815	Jh89j6	云南旅游咨	Female	385	58834	HVS	云南旅游	Null	2020/8/22 21:04	0	0	0
828	Ji0IHh(	丽江同城	Male	825	20451	HVS	丽江同城	Null	2020/8/28 16:00	0	0	1
829	Jju179	HBKXu志帅	Male	574	1824	HVS	HBKXu志	Null	2020/9/7 8:25	0	1	0
831	Jk5BQ	旅游学长	Male	550	1328519	HVS	旅游学长	Null	2020/9/11 8:07	0	0	0
843	Jk6BSk	丽江同城会	Male	2211	124424	HVS	丽江同城	Null	2020/9/11 10:40	5	2	0
857	JlCrdf\	丽江同城会	Male	2211	124424	HVS	丽江同城	Null	2020/9/21 9:32	3	0	1
871	JmgSL	游云南自由	Male	139	59600	HVS	游云南自	Null	2020/9/25 16:30	1	0	0
879	Jmo8y	丽江纳客旅	Male	1430	355	HVS	丽江纳客	Null	2020/9/26 10:58	1	0	0
880	JnQgC	奔跑的鸵鸟	Male	2279	330	HVS	奔跑的鸵	http://t.cn/	2020/10/6 0:25	0	0	0
929	Jom8L	晨光摘閱會	Male	338	2192	HVS	晨光摘閱	Null	2020/10/9 9:33	0	0	0
936	Jrg1q7	崔俊杰南糯	Male	1233	23187	HVS	崔俊杰南	Null	2020/10/28 11:30	4	0	0
937	JrhEiu	世界文化遗	Male	547	21482	OA	世界文化	Null	2020/10/28 15:38	3	2	2
941	JrjuFsL	丽江同城会	Male	2211	124424	Feedback	丽江同城	Null	2020/10/28 20:20	0	0	0
943	JroCGd	丽江同城网	Male	1056	195797	OA	丽江同城	Null	2020/10/29 9:23	0	0	0
944	Jrq5Yk	HBKXu志帅	Male	574	1824	HVS	HBKXu志	Null	2020/10/29 13:08	0	0	1
945	JrAiLE\	杨福泉	Male	2084	43810	HVS	杨福泉:我	Null	2020/10/30 15:07	2	6	0
950	Js5rLy\	苍洱彩云	Male	14949	307007	HVS	苍洱彩云	Null	2020/11/2 22:25	4	1	10
960	JsOpm	陌璃ann	Female	53	26	HVS	陌璃ann:	Null	2020/11/7 16:52	1	0	0
961	JtViKn	呵呵xj4egp	Male	3005	274	HVS	呵呵xj4e	Null	2020/11/15 0:16	0	0	0
962	JwLGR	fen一颗心宁	Female	807	8	HVS	fen一颗心	Null	2020/12/3 17:18	0	0	1
969	JwU81	丽江玉龙雪	Male	458	14458	HVS	丽江玉龙	http://t.cn/	2020/12/4 14:47	0	0	0
991	JwUpH	世界文化遗	Male	547	21482	HVS	世界文化	Null	2020/12/4 15:31	4	1	1
005	Jx0UKI	千笑笑笑笑	Male	123	1	HVS	千笑笑笑	Null	2020/12/5 8:04	0	0	0
006	JxPZ4r	丽江消防	Female	1221	75740	Workshops	丽江消防	Null	2020/12/10 18:05	0	0	1
011	Jz0y1(	行走的拖孩	Male	224	71337	HVS	行走的拖	Null	2020/12/18 10:48	2	0	0
014	Jz0BL1	丽江同城会	Male	2211	124424	HVS	丽江同城	Null	2020/12/18 10:58	1	0	2
025	JzGb6I	丽江消防	Female	1221	75714	OA	丽江消防	Null	2020/12/22 20:47	4	0	1
031	JzNnG	丽江同城会	Male	2211	124424	OA	丽江同城	Null	2020/12/23 15:08	0	0	0
033	JzPoBl	丽江同城	Male	825	20451	Lectures	丽江同城	Null	2020/12/23 20:15	0	0	0
035	JzX9t5	无限红河	Male	278	80162	OA	无限红河	Null	2020/12/24 16:00	9	0	0

3. The data of Pingyao

1	ID	Nickname	Gender	Followee	Follower	Analysis	Text	Image	Time	Likes	Repost	Comment
9	Jyqfasj	天鹭湖	女	6	8	HVS	天鹭湖:孩	Null	2020/12/14 14:23	1	0	1
40	JiNImm	印象晋中	男	620	157594	HVS	印象晋中	Null	2020/9/2 20:43	2	0	0
48	Jg81Ys	孟褚kk	男	45	60	HVS	孟褚kk:斗	Null	2020/8/16 6:56	1	0	0
59	J4B7yd	山西人文地理	女	503	38475	HVS	山西人文	Null	2020/6/1 10:55	2	0	0
61	J4brls6	晋中政法	男	164	3461	HVS	晋中政法	Null	2020/5/29 17:33	4	8	5
68	J2a207	太原科技大学	男	50	776	HVS	太原科技	Null	2020/5/16 10:17	1	0	0
70	J0uOqk	平遥文旅之声	女	2306	50980	OA	平遥文旅	Null	2020/5/5 11:31	2	2	1
76	IEFw6p	畅游-旅行	男	69	61	HVS	畅游-旅行	Null	2020/4/23 17:34	1	0	0
81	IzU7YIq	忆乡忆客之山	女	429	29695	HVS	忆乡忆客	Null	2020/3/23 9:34	4	4	0
96	JARIgm	山西市场导报	男	1756	107792	OA	山西市场	Null	2020/12/30 16:00	1	0	0
104	Jog1Lz	山西消防	男	438	631405	Archive	山西消防	Null	2020/10/8 18:00	5	2	1
114	JicGl4Q	我是光头峰	男	146	19	HVS	我是光头	Null	2020/8/29 22:28	1	0	0
119	J8nZOx	平遥古城攻略	男	1630	4025	HVS	平遥古城	Null	2020/6/26 8:52	1	1	0
120	J7oKAw	晋南侯马	男	250	16893	HVS	晋南侯马	Null	2020/6/19 20:57	1	0	0
123	J6JopsV	山西日报	男	156	5579322	HVS	山西日报	Null	2020/6/15 11:40	6	2	0
151	JywsM7	莫尼卡xyz	女	766	193	HVS	莫尼卡xy	http://t.cn	2020/12/15 6:13	0	0	1
154	JxZY4d	880山西交通广	女	502	926671	OA	880山西交	Null	2020/12/11 19:30	0	0	0
190	JtIR4E9	山西大学自动	女	28	45	HVS	山西大学	Null	2020/11/13 16:34	2	0	1
224	JntXY6	忻州师范学院	女	185	8805	HVS	忻州师范	Null	2020/10/3 15:38	1	0	2
227	Jn8V1u	山西消防	男	438	631405	Exhibition	山西消防	Null	2020/10/1 10:03	1	1	1
233	JmzHRc	平遥古城景区	男	495	1247	HVS	平遥古城	Null	2020/9/27 16:25	6	2	5
245	JlvxFwc	太原铁路	女	673	1238588	HVS	太原铁路	Null	2020/9/20 15:58	109	36	28
257	JkKULs	平遥文旅之声	女	2306	50980	Exhibition	平遥文旅	Null	2020/9/15 17:16	2	2	1
381	J4K1as	黄河新闻网	男	173	273506	Archive	黄河新闻	Null	2020/6/2 9:34	1	7	0
383	J3geGF	悟空1989A	男	635	70	HVS	悟空1989	Null	2020/5/23 15:55	2	0	0
398	IF5mCr	萧刚微博	男	270	1187	HVS	萧刚微博	http://t.cn	2020/4/26 11:22	4	4	3
438	IAmYjw	宠妹狂魔33	男	97	143	HVS	宠妹狂魔	Null	2020/3/26 11:00	10	0	0
499	IqHXnE	阿琳199301	女	167	12	HVS	阿琳199	Null	2020/1/22 22:02	2	0	1
548	JwJQv0	中北大学电气	男	61	771	HVS	中北大学	Null	2020/12/3 12:37	0	0	0
549	JwyNw	平遥文旅之声	女	2306	50980	OA	平遥文旅	Null	2020/12/2 8:29	2	0	0
556	JsYAW	平遥文旅之声	女	2306	50980	HVS	平遥文旅	Null	2020/11/8 18:48	0	3	0
566	JnVgqi	郝宏的碎碎念	女	1328	571	HVS	郝宏的碎	Null	2020/10/6 13:08	2	0	0
576	JjSeJsT	平遥文旅之声	女	2306	50980	HVS	平遥文旅	Null	2020/9/9 22:04	0	0	0
588	Jdrfcw	山西文旅网	男	645	715608	HVS	山西文旅	Null	2020/7/29 14:20	10	17	16
591	JdiRast	晋师化材学院	女	278	2353	Workshops	晋师化材	Null	2020/7/28 16:58	127	101	121
620	J54exX	平遥文旅之声	女	2306	50980	Archive	平遥文旅	Null	2020/6/4 13:02	12	3	5
651	IoxOua	朔州贴吧	男	417	78499	Exhibition	朔州贴吧	http://t.cn	2020/1/8 16:32	10	1	1
652	JyCm67	平遥文旅之声	女	2306	50980	HVS	平遥文旅	Null	2020/12/15 21:13	2	0	0
653	JwBAH	晋中头条	女	597	120160	Archive	晋中头条	Null	2020/12/2 15:36	1	3	1
655	Jwz1i24	爱我三晋	男	60	16	HVS	爱我三晋	Null	2020/12/2 9:03	0	0	2
656	JwyOqc	平遥文旅之声	女	2306	50980	HVS	平遥文旅	Null	2020/12/2 8:31	1	1	2
665	JvK10E	平遥文旅之声	女	2306	50980	OA	平遥文旅	Null	2020/11/26 23:12	1	0	0
668	Jvp76h	山西市场导报	男	1756	107793	OA	山西市场	Null	2020/11/24 18:00	1	0	0
676	JtTkUlY	好人一身2794	男	79	49	HVS	好人一身	Null	2020/11/14 19:15	0	0	0
683	JsaKryv	Hi山西	男	83	10980	Lectures	Hi山西:#	Null	2020/11/3 11:54	29	4	4
687	Jq761t0	平遥文旅之声	女	2306	50980	HVS	平遥文旅	Null	2020/10/20 22:56	0	1	3
694	Jmektq	山西云媒体	男	286	17342	HVS	山西云媒	Null	2020/9/25 10:00	0	0	0
698	Jm7hVI	平遥文旅之声	女	2306	50980	HVS	平遥文旅	Null	2020/9/24 16:04	0	1	0
699	JlYq70l	平遥文旅之声	女	2306	50980	HVS	平遥文旅	Null	2020/9/23 17:30	2	0	0
701	Jl17bB1	平遥文旅之声	女	2306	50980	Archive	平遥文旅	Null	2020/9/17 10:31	2	0	3
704	JjpMse	平遥文旅之声	女	2306	50980	HVS	平遥文旅	Null	2020/9/6 21:38	2	0	1
705	JiSWJw	平遥文旅之声	女	2306	50980	Archive	平遥文旅	Null	2020/9/3 10:02	1	0	0
708	JiExPF8	平遥文旅之声	女	2306	50980	HVS	平遥文旅	Null	2020/9/1 21:23	0	0	1
709	JhhvQ7	平遥文旅之声	女	2306	50980	OA	平遥文旅	Null	2020/8/23 20:54	0	0	0
715	JevMpr	平遥文旅之声	女	2306	50980	HVS	平遥文旅	Null	2020/8/5 15:43	6	1	1
717	JdkxBA	平遥文旅之声	女	2306	50980	HVS	平遥文旅	Null	2020/7/28 21:16	1	2	0
718	JbKux9	山西旅游包车	男	613	23365	HVS	山西旅游	http://t.cn	2020/7/18 11:39	0	0	0
720	J5A189	平遥文旅之声	女	2306	50980	HVS	平遥文旅	http://t.cn	2020/6/7 21:57	8	7	2
722	J4KrBA	山西日报	男	156	5579318	OA	山西日报	Null	2020/6/2 10:40	4	4	0
725	J1o4Uz	萧刚微博	男	270	1187	HVS	萧刚微博	Null	2020/5/11 8:12	3	0	0
728	IF4kFq	平遥发布	男	386	20427	Archive	平遥发布	Null	2020/4/26 8:44	1	1	0
731	IEvX5xL	科学导报社	男	312	31876	OA	科学导报	Null	2020/4/22 17:13	0	0	0
732	IEiYzfF	忘川塞壬	女	520	30	Suggestions	忘川塞壬	Null	2020/4/21 8:11	0	0	0
735	IqRj72e	今日平遥	女	202	10509	OA	今日平遥	Null	2020/1/23 21:50	0	0	0
737	IqclrFz	山西三晋古韵	男	158	230	HVS	山西三晋	Null	2020/1/19 14:30	0	1	0
777	JiCsszt	山西老乡会联	男	118	10154	Archive	山西老乡	Null	2020/9/1 16:04	0	0	0
831	JuOl1tl	和小哈哈哈	女	204	11	Suggestions	和小哈哈	Null	2020/11/20 20:22	1	0	0
832	JpXbfB	晋中消防	女	759	150917	Lecture	晋中消防	Null	2020/10/19 21:41	59	52	32
833	JpX5Qv	晋中消防	女	759	150917	Lecture	晋中消防	Null	2020/10/19 21:28	61	51	29
836	JnTBVo	平遥茶馆	男	35	27	HVS	平遥茶馆	Null	2020/10/6 8:55	0	0	1
846	J9lxLrE	中青山西	男	836	188442	Feedback	中青山西	Null	2020/7/2 16:28	1	0	0
854	IAZonj	有态度的小子	男	312	1136	HVS	有态度的	Null	2020/3/30 12:48	0	0	0
855	IAS6bn	有态度的小子	男	312	1136	HVS	有态度的	Null	2020/3/29 18:14	0	0	0
856	IAHlUa	有态度的小子	男	312	1136	HVS	有态度的	Null	2020/3/28 14:53	0	0	0
857	IArGah	有态度的小子	男	312	1136	HVS	有态度的	Null	2020/3/26 22:59	1	0	0
858	IAcUI7	有态度的小子	男	312	1136	HVS	有态度的	Null	2020/3/25 9:22	0	0	0
859	IzGkJrf	有态度的小子	男	312	1136	HVS	有态度的	Null	2020/3/21 22:27	0	0	0
860	IznIyaN	有态度的小子	男	312	1136	HVS	有态度的	Null	2020/3/19 23:03	0	0	0
862	IyyVWi	有态度的小子	男	312	1136	HVS	有态度的	Null	2020/3/14 13:46	0	0	0
863	IxWFTiI	有态度的小子	男	312	1136	HVS	有态度的	Null	2020/3/10 12:22	1	0	0

4. The data of Xiamen

1	ID	Nickname	Gender	Followee	Follower	Analysis	Text	Image	Time	Likes	Reposts	Comments
2	JAysM	福天福地官方	Male	268	137883	HVS	福天福地	Null	2020/12/28 14:59	0	0	0
29	JAF5p	刺桐之泪	Female	1203	44735	HVS	刺桐之泪	Null	2020/12/29 7:51	25	19	20
45	JmSCN	LifeMaker-关于	Male	1159	75927	HVS	LifeMak	Null	2020/9/29 16:35	2	0	1
54	JgG8tr	集美旅游-极美	Female	1879	876696	HVS	集美旅游	Null	2020/8/19 21:45	2	0	0
55	Jg0Mz	Abby45	Female	1035	1589319	HVS	Abby45	Null	2020/8/15 12:28	415	367	156
63	Jae4KI	钟vv	Female	310	242	Archive	-钟vv:	Null	2020/7/8 11:17	1	0	0
77	IE3WN	水云居士楼客	Female	60	80	HVS	水云居士	Null	2020/4/19 17:55	0	0	0
78	IDI4L8	厦门前进	Male	43	155609	HVS	厦门前进	Null	2020/4/17 10:14	27	6	4
80	IyCw9	欢兔旅行网	Male	1177	1841	HVS	欢兔旅行	Null	2020/3/14 22:54	0	1	1
90	Jx0v9i	思明博览	Male	3027	1022871	HVS	思明博览	Null	2020/12/5 7:01	9	8	8
150	J8j7Od	数说泉州	Male	120	655	HVS	数说泉州	Null	2020/6/25 20:28	5	0	2
161	IF5vt7	厦门晚报	Male	487	2609128	Archive	厦门晚报	Null	2020/4/26 11:43	0	0	2
164	IDjmv	第一球迷胖哥	Male	7921	108961	HVS	第一球迷	Null	2020/4/14 19:19	4	0	10
165	ICEnJi	厦门日报	Male	902	857410	Interviews	厦门日报	Null	2020/4/10 11:00	0	0	0
169	IAm1I	厦门生活在线	Male	558	117199	Archive	厦门生活	Null	2020/3/26 8:35	3	1	0
172	Izamin	厦门晴天户外	Male	557	1285	HVS	厦门晴天	Null	2020/3/18 13:03	0	0	0
228	Jq1CR	海峡导报	Male	514	695289	Archive	海峡导报	Null	2020/10/20 9:00	1	0	0
233	JmLkP	部式先生在厦	Male	66	7	HVS	部式先生	Null	2020/9/28 22:01	0	0	0
241	JdrVD	今厦门	Female	121	10150	HVS	今厦门:	Null	2020/7/29 16:04	3	0	0
248	ICbU3	新鲜旅厦门	Female	1185	565268	HVS	新鲜旅厦	Null	2020/4/7 10:30	4	0	0
256	JAFZ3	兰若静云	Female	45	2168	HVS	兰若静云	Null	2020/12/29 10:08	7	2	5
261	JzwpIE	E鹭同心	Male	626	14762	HVS	E鹭同心	Null	2020/12/21 19:56	0	0	1
288	Jrkajcf	新加坡驻厦门	Male	71	683	Archive	新加坡驻	Null	2020/10/28 22:03	2	0	0
334	Jkb7qs	吃喝玩乐在厦	Female	2998	608252	Interviews	吃喝玩乐	Null	2020/9/11 22:09	0	0	2
351	Jheec4	今天也有开心	Female	323	1706	HVS	今天也有	Null	2020/8/23 12:33	1	0	0
354	JgFwv	厦门市文旅局	Female	746	2772692	HVS	厦门市文	Null	2020/8/19 20:12	3	1	2
360	JgiMx5	蓝光的书房	Male	2690	2148	HVS	蓝光的书	Null	2020/8/17 10:18	1	0	0
365	JeG9o	艺幼帽花	Female	214	67	HVS	艺幼帽花	Null	2020/8/6 18:07	0	0	0
366	Jex592	魅力的莆田	Female	3145	41163	HVS	魅力的莆	Null	2020/8/5 19:02	7	1	5
367	JeebIII	福州娜些事	Female	3425	29157	HVS	福州娜些	Null	2020/8/3 18:56	6	6	5
368	JedvJ4	港厦青年	Male	19	24	HVS	港厦青年	Null	2020/8/3 17:12	0	0	0
377	Jbu7d	去驴行	Male	64	20409	HVS	去驴行:	Null	2020/7/16 17:57	2	0	0
385	Jap9G	厦门日报	Male	902	857410	Archive	厦门日报	Null	2020/7/9 15:30	2	2	0
388	Jam8v	见书v	Male	151	123465	HVS	见书v:	Null	2020/7/9 7:48	5	1	1
390	Jaebdf	厦门日报游周	Female	191	9529	HVS	厦门日报	Null	2020/7/8 11:33	2	0	1
426	J42Vg	KINGWAY200	Male	5622	1345	HVS	KINGWA	http://t.cn/	2020/5/28 19:52	2	0	0
438	13479	新鲜旅厦门	Female	1185	565268	HVS	新鲜旅厦	Null	2020/5/22 11:17	0	0	1
442	J24lcD	SYK5200281	Male	57	98	HVS	SYK5200	Null	2020/5/15 20:44	1	0	0
451	J07ioy	去驴行	Male	64	20409	HVS	去驴行:	Null	2020/5/2 23:39	1	2	0
459	IEWBS	房建与休闲南	Male	567	327	Archive	房建与休	Null	2020/4/25 13:04	0	0	0
464	IDWB0	厦门旅游小编	Male	1061	13081	HVS	厦门旅游	Null	2020/4/18 23:14	6	0	12
466	ID1oo	陆地婚禮	Female	138	5578	HVS	陆地婚禮	http://t.cn/	2020/4/12 21:34	6	2	0
468	ICdILo	新鲜旅厦门	Female	1185	565268	HVS	新鲜旅厦	Null	2020/4/7 14:11	7	1	4
470	IBLnX	童言拾光绘馆	Female	727	265	HVS	童言拾光	Null	2020/4/4 14:59	4	1	1
471	IBvgA	张敬峰查理老	Male	315	1421	HVS	张敬峰查	http://t.cn/	2020/4/2 21:57	1	0	0
473	IAK1P	泅渡星河	Female	186	12204	HVS	泅渡星河	Null	2020/3/28 21:41	1	0	19
475	IAyXT	风铃叮当1903	Female	73	8	Archive	风铃叮当	Null	2020/3/27 17:32	0	0	0
482	Ixc2T5	冬貝勒吉祥	Male	1601	230745	HVS	冬貝勒吉	Null	2020/3/5 13:40	159	4	441
493	ItJ5Rv	厦门市文旅局	Female	746	2772692	HVS	厦门市文	Null	2020/2/11 18:27	1	2	0
495	Irj8wz	Helen-土豆	Female	1330	382	HVS	Helen-土	http://t.cn/	2020/1/26 20:41	0	0	0
500	InOXJ	福建房产	Male	88	287163	HVS	福建房产	Null	2020/1/3 22:21	0	0	0
506	JwlXD	厦门微博房产	Male	1139	792055	Archive	厦门微博	Null	2020/12/3 10:21	7	3	1
533	Jd8Es	南铁福州车务	Male	428	11167	HVS	南铁福州	Null	2020/7/27 15:00	5	4	3
558	Jccq2h	微微一笑将军	Male	125	22	Archive	微微一笑	Null	2020/7/21 10:45	0	0	0
661	J8Ttg3	厦门晚报	Male	487	2609128	Archive	厦门晚报	Null	2020/6/29 17:00	0	0	1
664	J623K9	福州城市建设	Male	1425	200947	Archive	福州城市	Null	2020/6/10 21:21	20	0	11
669	J4vseF	新浪厦门	Male	4861	1790397	Interviews	新浪厦门	http://t.cn/	2020/5/31 20:30	352	20	28
670	J4d9bs	礼遇厦门17	Male	98	269	Interviews	礼遇厦门	Null	2020/5/29 21:54	0	0	0
671	J4d91q	用户73619840	Female	59	2	Interviews	用户736	Null	2020/5/29 21:53	0	0	0
682	J3IGKr	新浪厦门	Male	4861	1790397	Interviews	新浪厦门	http://t.cn/	2020/5/26 16:21	1228	7	24
684	J3GDp	厦门身边事	Male	1777	502772	HVS	厦门身边	http://t.cn/	2020/5/26 11:07	267	4	6
703	IElgee	ATA厦门交通	Male	431	15818	HVS	ATA厦门	Null	2020/4/21 13:59	22	2	8
717	IoISLe	一鹭展翅Amo	Male	73	5504	Interviews	一鹭展翅	Null	2020/1/9 20:43	21	0	8
727	JzuVm	厦门房产头条	Male	346	168892	Archive	厦门房产	Null	2020/12/21 16:08	149	2	55
729	JpAIO	厦门房产头条	Male	346	168892	Feedback	厦门房产	http://t.cn/	2020/10/17 11:34	4	1	1
735	J0SiIxv	海岸线1999	Male	302	335	Archive	海岸线1	Null	2020/5/7 23:18	0	0	1
736	IEy88z	枫叶荻花秋瑟	Male	4701	7532	HVS	枫叶荻花	Null	2020/4/22 22:45	279	13	420
794	Jhqqn	清新福建文旅	Male	1225	7707366	HVS	清新福建	Null	2020/8/24 19:36	6	0	4
795	JhcMc	郭曙光	Male	518	280218	HVS	郭曙光:	Null	2020/8/23 8:51	2	0	0
821	J8Zxy4	南普陀寺	Male	28	7807	HVS	南普陀寺	Null	2020/6/30 8:27	15	33	5
832	J4zEz4	厦门网	Female	516	272789	Archive	厦门网:	Null	2020/6/1 7:11	0	0	0
848	ICYPA	集美旅游-极美	Female	1879	876696	HVS	集美旅游	Null	2020/4/12 15:03	0	0	3

850	ICyz6k	环球装修指南	Male	189	9568	HVS	环球装修	Null	2020/4/9 20:11	4	0	0
863	IowY5	蓝芷-	Female	904	89270	HVS	蓝芷-:#/	http://t.cn/	2020/1/8 14:23	37	3	56
877	JxIIWx	蘇-燕雪	Female	220	305	Archive	蘇-燕雪	Null	2020/12/9 23:36	0	0	0
909	JoxTO	小花酱MJ	Male	1294	15	HVS	小花酱M	Null	2020/10/10 15:29	0	0	0
931	JewtO	厦门晚报	Male	487	2609127	HVS	厦门晚报	Null	2020/8/5 17:30	3	0	1
934	Jdpfoc	福建政协	Male	29	8388	Archive	福建政协	Null	2020/7/29 9:15	1	0	0
936	JcHaw	厦门卫视	Female	649	1227829	HVS	厦门卫视	Null	2020/7/24 17:02	2	0	0
937	JclVd1	张培奋V	Male	1215	1646	HVS	张培奋V	Null	2020/7/22 10:56	5	4	1
940	JaTluh	张培奋V	Male	1215	1646	HVS	张培奋V	Null	2020/7/12 20:21	8	1	1
950	J99FR3	厦门市文旅局	Female	746	2772692	HVS	厦门市文	Null	2020/7/1 10:15	5	2	3
961	J4Q2h	呼建同ㄟ	Male	16	9	HVS	呼建同ㄟ	Null	2020/6/3 0:54	0	0	0
981	IFG0F3	见书v	Male	151	123465	HVS	见书v:三	Null	2020/4/30 8:39	0	1	1
988	IEPvvt	海西晨报	Male	629	387614	HVS	海西晨报	Null	2020/4/24 19:00	0	0	0
992	IEd1ul	苏华若是琦	Male	569	5866	HVS	苏华若是	Null	2020/4/20 17:01	0	0	0
994	IDoPy	海沧发布	Female	236	197512	Archive	海沧发布	Null	2020/4/15 9:14	1	0	0
1002	IyyFat	15度美学	Female	397	1090	HVS	15度美学	Null	2020/3/14 13:05	2	0	0
1010	InwKC	全国旅游秘籍	Male	3180	105611	HVS	全国旅游	Null	2020/1/1 23:59	8	0	8
1021	JzGEO	蓮小兔	Female	680	1924893	HVS	蓮小兔:	Null	2020/12/22 22:01	445	312	126
1022	Jzjtx8	厦门市文旅局	Female	746	2772692	HVS	厦门市文	Null	2020/12/20 11:00	4	0	2
1056	Jkah3t	厦门市文旅局	Female	746	2772692	HVS	厦门市文	Null	2020/9/11 20:00	2	0	3
1063	Jhpm1	B不了	Male	5836	622859	HVS	B不了:#	Null	2020/8/24 16:52	17	4	5
1069	JahzEd	厦门市文旅局	Female	746	2772692	HVS	厦门市文	Null	2020/7/8 20:12	5	6	1
1080	J6gEKI	厦门网	Female	516	272789	HVS	厦门网:	Null	2020/6/12 10:30	0	1	0
1093	JB1LW	摄影师-厦门海	Male	1277	6783	Archive	摄影师-	Null	2020/12/31 17:36	3	0	3
1151	JuraKA	贝铃_妃	Female	252	214	HVS	贝铃_妃	Null	2020/11/18 9:24	5	0	3
1172	JrCeD3	摄影师-厦门海	Male	1277	6783	HVS	摄影师-	Null	2020/10/30 20:03	1	1	3
1173	Jr0qEe	AMOY-HOT阿	Male	712	1200	HVS	AMOY-I	Null	2020/10/26 19:48	14	0	10
1174	JqWBx	厦门广电	Male	211	73765	HVS	厦门广电	Null	2020/10/26 10:04	6	2	0
1182	JpuPU	摄影师-厦门海	Male	1277	6783	HVS	摄影师-	Null	2020/10/16 21:32	3	0	1
1185	JpkLS3	摄影师-厦门海	Male	1277	6783	HVS	摄影师-	Null	2020/10/15 19:54	1	1	1
1187	Jpcfltb	森東影記	Male	82	1219	HVS	森東影記	Null	2020/10/14 22:12	2	0	0
1192	Jozrl7l	森東影記	Male	82	1219	HVS	森東影記	Null	2020/10/10 19:25	0	0	0
1193	JodKH	厦门约拍小哥	Male	335	12620	HVS	厦门约拍	Null	2020/10/8 12:12	63	17	18
1208	JlV18u	塞纳河畔的Jer	Female	591	410	HVS	塞纳河畔	Null	2020/9/23 8:50	2	0	2
1211	JlHHW	浪漫手绘本	Male	54	23228	HVS	浪漫手绘	Null	2020/9/21 22:57	5	0	0
1219	Jk2oya	李家三少V	Male	1137	2381	HVS	李家三少	http://t.cn/	2020/9/10 23:56	6	1	8
1243	JfUSrn	艺术西区	Female	462	11668	HVS	艺术西区	Null	2020/8/14 21:26	1	0	4
1246	JfoaPc	Form-World	Male	284	117	HVS	Form-W	Null	2020/8/11 10:11	0	0	0
1252	JeGe9	葡萄酒锋味	Male	730	668	HVS	葡萄酒锋	Null	2020/8/6 18:18	0	0	0
1259	Jeo1k3	厦门约拍	Male	107	122633	HVS	厦门约拍	Null	2020/8/4 19:57	3	0	0
1259	Jdrs0f	打工人摸鱼日	Female	726	663	HVS	打工人摸	Null	2020/7/29 14:51	3	0	5
1266	JcRuEl	AMOY-HOT阿	Male	712	1200	HVS	AMOY-I	Null	2020/7/25 19:19	3	0	2
1267	JcOuK	厦门旅行记	Female	830	1040316	HVS	厦门旅行	Null	2020/7/25 11:41	2	1	0
1272	JbCYC	-极限影音工作	Male	744	694	HVS	-极限影	Null	2020/7/17 16:31	11	0	1
1274	Jbtgiti	厦门前进	Male	43	155609	HVS	厦门前进	Null	2020/7/16 15:47	8	1	0
1310	J5KjAv	脖子发现	Male	20000	37533	HVS	脖子发现	Null	2020/6/9 0:10	30	5	18
1312	J5DOE	用户739051096	Male	213	25	HVS	用户739	Null	2020/6/8 7:37	0	0	0
1332	J3Gmc	蓝房网厦门站	Male	475	56265	Archive	蓝房网厦	Null	2020/5/26 10:26	0	0	0
1334	J3xtPs	Luyvchieh	Male	134	3094	Archive	Luyvchie	Null	2020/5/25 11:49	24	0	13
1348	J04Pld	浪漫手绘本	Male	54	23228	HVS	浪漫手绘	Null	2020/5/2 17:22	5	0	0
1350	IFBJdC	正眼视界	Male	70	161	HVS	正眼视界	Null	2020/4/29 21:45	0	0	0
1353	IEw8qv	浪漫手绘本	Male	54	23228	HVS	浪漫手绘	Null	2020/4/22 17:41	8	1	0
1355	IE1uqv	铂爵旅拍	Female	1864	6330313	HVS	铂爵旅拍	Null	2020/4/19 11:40	6	0	7
1388	IvcQqz	是Zero嗷	Male	1716	1335	HVS	是Zero嗷	Null	2020/2/21 12:01	0	0	0
1390	Iv3zl4f	厦门城新鲜事	Male	2482	277213	HVS	厦门城新	Null	2020/2/20 12:25	186	52	26
1391	IuXqQ	浪漫手绘本	Male	54	23228	HVS	浪漫手绘	Null	2020/2/19 20:47	5	5	0
1395	Is41od	阿兴大魔王	Male	37	35	HVS	阿兴大魔	Null	2020/1/31 20:03	1	0	0
1407	IpWM	摄影师-厦门海	Male	1277	6783	HVS	摄影师-	Null	2020/1/17 21:55	0	0	3
1411	Ipq3p	厦门微博房产	Male	1139	792056	Archive	厦门微博	Null	2020/1/14 10:37	2	1	1
1417	IofLB1	摄影师-厦门海	Male	1277	6783	HVS	摄影师-	Null	2020/1/6 18:35	7	1	1
1456	Jmhm	厦门微博房产	Female	137	9437	HVS	厦门微博	Null	2020/9/25 17:43	0	0	0
1457	Jm8EQ	设计师康康	Female	266	36607	Archive	设计师康	Null	2020/9/24 19:33	1	3	1
1496	JadR9(	是小Yellow啊_	Female	29	29	HVS	是小Yell	Null	2020/7/8 10:44	2	0	1
1510	J6bci8	王鹭佳的摄影	Male	854	13637	Archive	王鹭佳的	http://t.cn/	2020/6/11 20:36	0	0	0
1511	J5JSltc	一朵交织完美	Female	188	375	HVS	一朵交织	Null	2020/6/8 23:04	1	0	0
1524	IEaxQj	Hxc_XM	Male	498	119	HVS	Hxc_XM	Null	2020/4/20 10:43	6	0	3
1550	Iy7DG	秘密厦门	Female	213	30542	HVS	秘密厦门	Null	2020/3/11 16:17	20	0	2
1561	Irs6JD	浪漫手绘本	Male	54	23228	HVS	浪漫手绘	Null	2020/1/27 19:31	2	1	0
1591	IEkkcz	新鲜旅厦门	Female	1185	565268	HVS	新鲜旅厦	Null	2020/4/21 11:37	6	1	1

5. The data of Suzhou

1	ID	Nickname	Gender	Followee	Follower	Analysis	Text	Image	Time	Likes	Reposts	Comments
3	Jv1Ts	太湖微波_29(	Male	101	779	HVS	太湖微波	Null	2020/11/22 6:53	0	0	0
8	JtvQz	岩画之苏州情	Male	103	262	HVS	岩画之苏	http://t.cn/R	2020/11/12 7:27	0	0	0
10	JrizGv	MoreFunAsia	Male	100	541	HVS	MoreFun	Null	2020/10/28 18:00	0	0	0
13	JkiCU	苏州微博房产	Female	496	394874	Lecture	苏州微博	Null	2020/9/12 17:15	0	1	0
14	JjuNr8	苏州外事	Male	352	2648	HVS	苏州外事	Null	2020/9/7 10:24	4	0	0
51	Jd6hv(	吴中博物馆官	Male	572	6468	Exhibition	吴中博物	Null	2020/7/27 8:58	0	0	0
53	JbE53	扬州生活网	Male	2178	178673	HVS	扬州生活	Null	2020/7/17 19:20	2	0	0
63	J8CgK	Deshine建筑景	Male	334	222	HVS	Deshine建	Null	2020/6/27 21:12	0	0	0
66	J6M9(	苏州博物馆	Male	427	489802	HVS	苏州博物	Null	2020/6/15 18:42	45	30	13
68	J5eMI	苏州博物馆	Male	427	489802	Exhibition	苏州博物	Null	2020/6/5 15:54	27	11	5
69	J42uN	漫漫暮草兮	Female	47	10	HVS	漫漫暮草	Null	2020/5/28 18:47	0	0	0
77	IFSde	乐玩苏州	Female	123	5161414	Archive	乐玩苏州	Null	2020/5/1 15:43	104	3	300
80	IAH6t	苏州文化旅游	Male	226	1095674	Suggestions	苏州文化	Null	2020/3/28 14:15	4	0	0
84	IxX3c	LanAnril	Female	246	124	Interviews	LanAnril:	Null	2020/3/10 13:20	2	0	1
88	IsuOu	2087311487_2	Female	526	435700	HVS	20873114	Null	2020/2/3 16:15	0	0	0
93	JApxL	刘荣群高级工	Male	3981	734	HVS	刘荣群高	Null	2020/12/27 16:17	1	0	2
122	JolXV	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/9 9:07	1	0	0
144	JexvT	苏州趣江南	Male	336	124	HVS	苏州趣江	Null	2020/8/5 20:07	0	0	0
148	JdRN	focusontan	Male	148	1724	HVS	focusonta	Null	2020/8/1 9:56	0	0	0
151	JbSEK	苏州地产周刊	Male	50	55925	HVS	苏州地产	http://t.cn/A	2020/7/19 8:26	13	1	3
159	J8KZJ	不思議Washic	Male	385	728	Complaint	不思議W	Null	2020/6/28 19:25	1	0	0
160	J8J3zI	东风永健	Male	1474	1778017	HVS	东风永健	http://t.cn/R	2020/6/28 14:29	4	1	0
164	J70M(	莱芳林高兴	Female	1371	36	HVS	莱芳林高	Null	2020/6/17 7:56	0	0	0
168	J6b9W	Deshine建筑景	Male	334	222	HVS	Deshine建	Null	2020/6/11 20:31	0	0	0
173	J2V9L	快快乐乐的小	Male	742	2528	HVS	快快乐乐	Null	2020/5/21 10:15	12	11	4
182	IEXm	江南平安Null	Male	419	562	HVS	江南平安	http://t.cn/R	2020/4/25 15:00	1	0	0
188	IxxiF9	Deshine建筑景	Male	334	222	HVS	Deshine建	Null	2020/3/7 19:46	1	0	0
204	IoFrZI	乐居网苏州	Female	1564	170915	HVS	乐居网苏	Null	2020/1/9 11:59	0	0	0
212	JAdqE	苏州人大	Male	161	1621	OA	苏州人大	Null	2020/12/26 9:26	0	0	0
213	JA6Y	浦口人大	Male	180	706	HVS	浦口人大	Null	2020/12/25 17:00	1	0	1
260	JvEAI	苏州新闻	Male	1003	128919	OA	苏州新闻	Null	2020/11/26 9:24	2	0	0
269	JuJPjI	苏州新闻	Male	1003	128919	OA	苏州新闻	Null	2020/11/20 8:53	0	0	0
278	JtZIkb	苏州微博房产	Female	496	394875	HVS	苏州微博	Null	2020/11/15 11:30	110	59	57
293	Jt6Xm	Jiny只要三分	Female	280	142	HVS	Jiny只要	Null	2020/11/9 16:06	0	0	0
310	Jr8uv6	精选生活大转	Male	765	88060	HVS	精选生活	Null	2020/10/27 16:19	0	0	0
342	Jqbkeq	苏州新闻	Male	1003	128919	OA	苏州新闻	Null	2020/10/21 9:42	1	0	0
345	JpMu	苏州发布	Male	840	2520371	OA	苏州发布	Null	2020/10/18 18:30	10	1	7
354	JpaNF	二马旅行V	Male	311	306461	HVS	二马旅行	Null	2020/10/14 18:31	0	0	0
360	Jocwu	lishun_cn	Male	847	233	HVS	lishun_cn	Null	2020/10/8 9:04	0	0	0
363	Jnlqw	苏州地产零售	Male	758	11991	HVS	苏州地产	Null	2020/10/2 17:54	3	1	4
365	Jn8SE	苏州人大	Male	161	1621	Archive	苏州人大	Null	2020/10/1 9:58	0	0	1
368	JmwM	苏州新闻	Male	1003	128919	Archive	苏州新闻	Null	2020/9/27 8:58	0	0	0
370	Jmnhg	苏州人大	Male	161	1621	Archive	苏州人大	Null	2020/9/26 8:46	0	0	0
372	Jmeo9	苏州姑苏发布	Female	268	36890	HVS	苏州姑苏	Null	2020/9/25 10:09	1	0	0
373	Jmenf	太湖微波_29(	Male	101	779	OA	太湖微波	Null	2020/9/25 10:06	1	0	0
374	Jm51J	苏州姑苏发布	Female	268	36890	OA	苏州姑苏	Null	2020/9/24 10:19	1	1	2
375	JlVCU	苏州市文物保	Male	52	408	Workshops	苏州市文	Null	2020/9/23 10:23	0	0	0
379	JlxVR	太湖桃花岛主	Male	996	1942	HVS	太湖桃花	Null	2020/9/20 22:04	0	0	0
380	JllRzy	穹窿一草	Male	57	7	Complaint	穹窿一草	Null	2020/9/19 15:20	0	0	0
389	Jkbf3I	苏州姑苏发布	Female	268	36890	Collaboration	苏州姑苏	Null	2020/9/11 22:27	0	0	0
390	JjNAN	苏州姑苏发布	Female	268	36890	Exhibition	苏州姑苏	Null	2020/9/9 10:15	1	1	1
399	JjmQL	太湖微波_29(	Male	101	779	HVS	太湖微波	Null	2020/9/6 14:10	0	0	1
402	JjdjVl	二更更苏州	Female	110	748220	Archive	二更更苏	Null	2020/9/5 13:55	4	1	1
404	Jj3LtI	苏州新闻	Male	1003	128919	Exhibition	苏州新闻	Null	2020/9/4 13:35	0	0	0
421	Jh31JI	苏州发布	Male	840	2520371	HVS	苏州发布	Null	2020/8/22 8:02	24	9	24
429	Jfht7h	苏州人社	Male	161	19318	HVS	苏州人社	Null	2020/8/10 17:07	0	0	0
435	JeD0P	苏州姑苏发布	Female	268	36890	Research & I	苏州姑苏	Null	2020/8/6 10:07	0	1	1
455	JcpUq	用户64910211	Male	50	3	Complaint	用户6491	Null	2020/7/22 21:05	0	1	0
457	JckB4	苏州地产零售	Male	758	11991	HVS	苏州地产	Null	2020/7/22 7:34	12	0	1
474	J9D4E	太湖微波_29(	Male	101	779	HVS	太湖微波	Null	2020/7/4 13:05	0	0	0
482	J9aog	苏州园林研究	Male	295	41796	Exhibition	苏州园林	Null	2020/7/1 12:04	195	176	45
490	J8rkw	吴中博物馆官	Male	572	6468	Exhibition	吴中博物	Null	2020/6/26 17:21	3	0	0
501	J71lh6	游浪地球	Male	65	11388	HVS	游浪地球	Null	2020/6/17 9:21	0	0	0
507	J6cyR	1994摄影	Male	604	15603	HVS	1994摄影	Null	2020/6/12 0:05	2	0	3
533	J2Oj6	苏州图书馆	Male	219	5666	HVS	苏州图书	Null	2020/5/20 16:49	0	0	0
542	J1MT	苏州地产零售	Male	758	11991	Archive	苏州地产	Null	2020/5/13 23:22	3	0	4
544	J1tNF	苏州商业荟	Female	166	15472	HVS	苏州商业	Null	2020/5/11 22:46	5	1	0
545	J1n8rv	suyu184	Male	876	549	Complaint	suyu184:	http://t.cn/R	2020/5/11 5:48	2	0	2
564	J0uHI	江苏青木香	Male	201	332	OA	江苏青木	Null	2020/5/5 11:14	20	0	0
567	J0pq8	苏州新闻	Male	1003	128919	Archive	苏州新闻	Null	2020/5/4 21:47	2	0	2

568	J0oHq	丿闪红叶丶	Male	20	25	Archive	丿闪红叶	Null	2020/5/4 19:57	0	0	0
571	J0b45	从护国军师到	Male	9003	165153	HVS	从护国军	Null	2020/5/3 9:14	0	1	0
584	IF0zm	2087311487_2	Female	526	435700	HVS	20873114	Null	2020/4/25 23:09	1	0	0
587	IELFC	从护国军师到	Male	9003	165153	HVS	从护国军	Null	2020/4/24 9:14	0	0	0
612	IBAtp	huouting	Male	80	411	HVS	huouting:i	Null	2020/4/3 11:12	0	1	0
616	IAZJQ	苏州园林	Male	269	37931	HVS	苏州园林	Null	2020/3/30 13:41	23	4	0
617	IAXys	苏州博物馆	Male	427	489801	Lecture	苏州博物	Null	2020/3/30 8:08	73	70	12
626	IzUAr	忽远又忽近sa	Male	307	145	HVS	忽远又忽	Null	2020/3/23 10:44	0	0	0
629	IzNjq2	鱼与淤	Male	355	37	HVS	鱼与淤:苏	Null	2020/3/22 16:13	0	0	0
632	Izo9w	倚窗听雨5672	Female	2024	58	HVS	倚窗听雨	Null	2020/3/20 0:10	1	0	1
638	Iyij9yt	苏州生态环境	Male	357	90676	Lecture	苏州生态	Null	2020/3/12 19:27	4	1	3
643	Ixl249	泰州新鲜事	Male	5053	145445	HVS	泰州新鲜	Null	2020/3/6 12:32	36	4	12
658	IssLEr	苏州全方位	Male	159	171549	HVS	苏州全方	Null	2020/2/3 11:02	3	4	0
659	Is2kB	江南律师杂谈	Male	120	1783	HVS	江南律师	Null	2020/1/31 15:44	0	0	0
664	IqsZng	从护国军师到	Male	9003	165153	HVS	从护国军	Null	2020/1/21 7:56	0	0	0
666	IpRzp	从护国军师到	Male	9003	165153	HVS	从护国军	Null	2020/1/17 8:40	1	0	0
667	IpLQq	文化苏州云	Male	333	3357	HVS	文化苏州	Null	2020/1/16 18:06	0	0	0
672	IoNz3	苏州新闻	Male	1003	128919	Archive	苏州新闻	Null	2020/1/10 8:38	1	0	0
675	IobVd	苏州新闻	Male	1003	128919	Archive	苏州新闻	Null	2020/1/6 8:48	2	1	0
676	InT1T	熊熊苏州70	Male	3102	730	Complaint	熊熊苏州	Null	2020/1/4 8:42	2	4	2
696	Jzaeov	苏州园林研究	Male	295	41796	HVS	苏州园林	Null	2020/12/19 11:28	59	27	8
701	JyMEl	苏州水墨青禾	Male	137	69	HVS	苏州水墨	Null	2020/12/16 23:27	1	1	1
716	JwJhQ	苏州胜浦新鲜	Male	1188	497211	HVS	苏州胜浦	http://t.cn/R	2020/12/3 11:11	3	0	1
718	JwsSV	苏茶网	Female	192	48	HVS	苏茶网:苏	Null	2020/12/1 17:26	0	0	0
719	Jwsy8	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/12/1 16:35	2	0	1
720	JwqAs	太阳上的蚊子	Male	278	688	HVS	太阳上的	Null	2020/12/1 11:34	3	0	0
728	JvHLf	苏茶网	Female	192	48	HVS	苏茶网:斜	Null	2020/11/26 17:28	0	0	0
747	JtyqW	焦点苏州	Male	127	51374	Exhibition	焦点苏州	Null	2020/11/12 14:03	1	0	0
758	JsGcS	江南紫云英	Male	637	20810	HVS	江南紫云	Null	2020/11/6 20:00	19	0	14
760	JsvwV	江南紫云英	Male	637	20810	HVS	江南紫云	http://t.cn/R	2020/11/5 16:49	19	1	24
765	Js5eE	苏州大学	Male	223	380258	HVS	苏州大学	Null	2020/11/2 21:52	365	4	0
768	Jru95v	苏州地产零售	Male	758	11991	Exhibition	苏州地产	Null	2020/10/29 23:27	0	0	0
769	JrsNH	焦点苏州	Male	127	51374	Exhibition	焦点苏州	Null	2020/10/29 20:02	0	0	0
777	JqRaK	jsc08061一	Male	273	69	HVS	jsc08061-	Null	2020/10/25 20:14	0	0	0
779	Jqloes	倚窗听雨5672	Female	2024	58	HVS	倚窗听雨	Null	2020/10/22 11:19	0	0	0
782	Jqat37	離弦·	Female	374	2328	HVS	離弦·:一	Null	2020/10/21 7:31	67	1	71
813	JnCwl	墨雨沁蓍	Female	302	1215	HVS	墨雨沁蓍	Null	2020/10/4 13:25	1	0	0
816	JnsP2	新闻夜班车	Male	413	193895	OA	新闻夜班	Null	2020/10/3 12:44	1	0	1
830	Jnbux	广陵听潮客	Male	34	27	HVS	广陵听潮	Null	2020/10/1 16:36	0	0	0
841	Jm5ml	苏州姑苏发布	Female	268	36890	Workshops	苏州姑苏	Null	2020/9/24 11:10	0	1	0
851	JkAxT	苏州地产零售	Male	758	11991	HVS	苏州地产	Null	2020/9/14 14:52	0	0	0
856	Jk7eG	苏州地产零售	Male	758	11991	HVS	苏州地产	Null	2020/9/11 12:15	2	0	1
864	Jj4TV	苏州姑苏发布	Female	268	36890	Collaboration	苏州姑苏	Null	2020/9/4 16:29	0	0	0
865	JiTab7	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/9/3 10:36	1	0	0
866	JiT98I	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/9/3 10:33	1	0	0
867	JiT6q0	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/9/3 10:26	1	0	0
868	JiT3sv	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/9/3 10:19	1	0	0
869	JiT227	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/9/3 10:16	1	0	0
870	JiSZG	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/9/3 10:10	2	0	0
876	Jiqei0	苏州理池景观	Male	475	717	HVS	苏州理池	Null	2020/8/31 8:56	0	0	0
882	JhRxX	苏州姑苏发布	Female	268	36890	Workshops	苏州姑苏	Null	2020/8/27 16:38	1	0	0
883	JhJEx	老王摄影7201	Male	120	112	HVS	老王摄影	Null	2020/8/26 20:33	1	0	0
884	JhJCB	老王摄影7201	Male	120	112	HVS	老王摄影	Null	2020/8/26 20:28	1	1	0
891	JgxeQ	苏州地产零售	Male	758	11991	Workshops	苏州地产	Null	2020/8/18 23:06	3	1	1
897	Jge5B	soloist2003	Male	510	320	HVS	soloist200	Null	2020/8/16 22:21	0	0	0
907	JeHkV	阿蘇綺羅	Female	389	196	Complaint	阿蘇綺羅	Null	2020/8/6 21:08	0	0	0
908	JeDXj	内个谁cs	Male	1362	14885	HVS	内个谁cs	Null	2020/8/6 12:32	11	3	12
915	JdIYu	木子木木木	Male	233	158	HVS	木子木木	Null	2020/7/31 11:28	0	0	0
916	Jds2tB	苏州地产零售	Male	758	11991	Workshops	苏州地产	Null	2020/7/29 16:21	3	0	0
919	JcXXd	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/26 11:46	1	0	0
920	JcXVy	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/26 11:41	0	0	0
921	JcXRx	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/26 11:32	0	1	0
930	Jc2UC	苏州地产零售	Male	758	11991	HVS	苏州地产	Null	2020/7/20 10:33	1	1	1
932	JbYth	亲爱的凯文同	Male	120	84	HVS	亲爱的凯	Null	2020/7/19 23:14	2	0	0
933	JbT4o	二得沉默	Male	100	169	HVS	二得沉默	Null	2020/7/19 9:29	2	0	0
934	JbPsx	高明伊、	Female	349	283	HVS	高明伊、	Null	2020/7/19 0:18	0	0	0
937	JbtnU	苏州姑苏发布	Female	268	36890	Archive	苏州姑苏	Null	2020/7/16 16:06	2	0	0
943	Jbc3A	6六时时时时	Male	187	2138	HVS	6六时时时	Null	2020/7/14 19:59	0	0	0
954	Ja73C	用户摄影艺术	Male	129	4	HVS	用户摄影	Null	2020/7/7 17:25	4	0	0
958	J9KD	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 8:19	0	0	0
963	J9ec6I	苏州地产零售	Male	758	11991	Archive	苏州地产	Null	2020/7/1 21:45	6	1	3
980	J6NbF	苏州微博房产	Female	496	394876	HVS	苏州微博	Null	2020/6/15 21:20	1	2	0
988	J6kp6	苏州发布	Male	840	2520370	Lecture	苏州发布	Null	2020/6/12 20:03	18	3	11
989	J6jcdj	苏州新闻	Male	1003	128919	HVS	苏州新闻	Null	2020/6/12 16:58	4	2	0

1011	J6bOV	荔枝新闻	Male	1026	2306234	Interviews	荔枝新闻	Null	2020/6/11 22:12	3	2	0
1026	J6aqC	苏州姑苏发布	Female	268	36890	Feedback	苏州姑苏	Null	2020/6/11 18:39	0	0	0
1033	J5ODI	苏州胜浦新鲜	Male	1188	497211	HVS	苏州胜浦	http://t.cn/R	2020/6/9 11:09	95	34	23
1038	J5veo	常熟记忆	Male	98	2563	Archive	常熟记忆	Null	2020/6/7 9:46	2	0	3
1040	J5el72	小渔育儿	Female	175	5484	HVS	小渔育儿	Null	2020/6/5 14:46	0	0	0
1045	J4vgE	下涯吴彦祖	Male	409	1094	Archive	下涯吴彦	Null	2020/5/31 20:01	10	1	5
1047	J4r7m	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/5/31 9:27	0	0	0
1064	J1Uuq	游云摄影	Male	525	690	HVS	游云摄影	Null	2020/5/14 18:43	0	0	0
1069	J0DO	苏州市姑苏区	Female	1564	8346	OA	苏州市姑	Null	2020/5/6 10:26	0	0	0
1076	IFQF6	毋同STUDIO	Female	751	6301	HVS	毋同STU	Null	2020/5/1 11:46	5	0	0
1078	IFGln	国网江苏电力	Male	397	264085	Lecture	国网江苏	Null	2020/4/30 9:30	107	0	100
1081	IFqo2	金陵蚊子包	Male	272	521215	HVS	金陵蚊子	Null	2020/4/28 16:53	5	2	2
1099	IDBG	苏州姑苏发布	Female	268	36890	HVS	苏州姑苏	Null	2020/4/16 17:57	0	0	0
1101	IDlc5a	苏州地产零售	Male	758	11991	OA	苏州地产	Null	2020/4/14 23:59	6	0	1
1103	ID6i7z	苏州趣江南	Male	336	124	HVS	苏州趣江	Null	2020/4/13 10:03	0	0	0
1104	ICOkr	_别动我的火	Male	123	13731	HVS	_别动我的	Null	2020/4/11 12:19	1	0	0
1111	IBOhE	鱼头Peggy	Female	107	168	HVS	鱼头Pegg	Null	2020/4/4 22:22	0	0	0
1114	IBvt7r	大牛牛超级N	Male	231	1198	HVS	大牛牛超	Null	2020/4/2 22:28	2	0	0
1116	IB2cw	晚风雪梨	Male	2727	358	HVS	晚风雪梨	Null	2020/3/30 19:57	0	0	0
1122	IAeM	苏州博物馆	Male	427	489802	HVS	苏州博物	Null	2020/3/25 14:10	71	71	38
1125	IAcLe	苏州姑苏发布	Female	268	36890	HVS	苏州姑苏	Null	2020/3/25 9:00	0	1	0
1136	IzAqn	苏城融媒体	Female	10836	3406	HVS	苏城融媒	Null	2020/3/21 7:24	2	0	0
1137	Izxk7t	超级超级不爱	Female	125	22	Complaint	超级超级	Null	2020/3/20 23:31	0	0	0
1140	Izaj0s	常熟记忆	Male	98	2563	HVS	常熟记忆	Null	2020/3/18 12:55	1	0	14
1143	Iyqmy	中国昆曲博物	Male	361	27960	OA	中国昆曲	Null	2020/3/13 15:57	4	1	1
1144	Iyexl2	苏州发布	Male	840	2520370	OA	苏州发布	Null	2020/3/12 9:51	20	4	9
1152	IvDrJI	掌上常熟CS	Male	54	178	OA	掌上常熟	http://t.cn/E	2020/2/24 7:45	6	1	0
1153	IvzyX	常熟记忆	Male	98	2563	Archive	常熟记忆	Null	2020/2/23 21:51	0	2	13
1154	Ivzr9p	今日常熟	Male	991	396947	OA	今日常熟	Null	2020/2/23 21:32	13	7	2
1161	IrjBhf	苏城融媒体	Female	10836	3406	HVS	苏城融媒	Null	2020/1/26 21:52	1	1	1
1164	IqtGLi	苏城融媒体	Female	10836	3406	HVS	苏城融媒	Null	2020/1/21 9:43	3	0	2
1165	IqmaC	苏州地产零售	Male	758	11991	HVS	苏州地产	Null	2020/1/20 14:35	2	0	0
1184	InsbR	苏州平江历史	Female	92	97550	HVS	苏州平江	Null	2020/1/1 12:23	0	0	0
1185	InsaiD	苏州平江历史	Female	92	97550	Exhibition	苏州平江	Null	2020/1/1 12:19	0	0	0
1196	JzUA2	穿ECCO的PA	Male	1293	2510	HVS	穿ECCO	Null	2020/12/24 9:27	2	0	2
1200	JzuSS	随缘遇见顺水	Male	99	126	HVS	随缘遇见	Null	2020/12/21 16:02	0	0	1
1214	JyAxe	刘荣群高级工	Male	3981	734	HVS	刘荣群高	Null	2020/12/15 16:35	0	0	1
1217	JynPt3	施琼诗メ自卑	Male	12	2	HVS	施琼诗メ	Null	2020/12/14 8:14	0	0	0
1224	JxHj1l	煤桶骑士	Male	451	1360	HVS	煤桶骑士	Null	2020/12/9 19:59	10	16	12
1250	Jvyfas	苏茶网	Female	192	48	HVS	苏茶网:江	Null	2020/11/25 17:14	0	0	0
1299	JsZIvv	夏晖anday	Male	456	157	HVS	夏晖anda	Null	2020/11/8 21:40	0	0	0
1312	Jsb0P	穿ECCO的PA	Male	1293	2510	HVS	穿ECCO	Null	2020/11/3 12:35	2	0	1
1328	Jr8VM	吴中博物馆官	Male	572	6468	HVS	吴中博物	Null	2020/10/27 17:27	30	13	3
1374	JoOC2	苏州发布	Male	840	2520370	HVS	苏州发布	Null	2020/10/12 10:04	32	36	34
1386	Jo7eqx	岩画之苏州情	Male	103	262	HVS	岩画之苏	Null	2020/10/7 19:36	2	0	3
1390	JnWoI	曾住云城	Male	10	379	HVS	曾住云城	Null	2020/10/6 16:01	2	0	2
1400	Jnjdgf	自如弘萌飞L	Female	143	17	HVS	自如弘萌	Null	2020/10/2 12:16	0	0	1
1408	Jmqqv	苏州趣江南	Male	336	124	HVS	苏州趣江	Null	2020/9/26 16:47	0	0	0
1418	JllJw9	姑苏八点半官	Female	24	10164	HVS	姑苏八点	Null	2020/9/19 15:00	2	2	3
1420	JleHM	我的爱情你的	Male	61	131	HVS	我的爱情	Null	2020/9/18 21:07	0	0	0
1422	Jl0Wp	苏州姑苏发布	Female	268	36890	Archive	苏州姑苏	Null	2020/9/17 10:04	0	0	0
1430	Jkh53I	小李子King20	Male	330	760	HVS	小李子Ki	http://t.cn/R	2020/9/12 13:19	0	0	0
1438	JjcZJ1	走的印记	Male	580	62164	HVS	走的印记	http://t.cn/z	2020/9/5 13:05	7	1	7
1443	Ji6H3	从护国军师到	Male	9003	165154	HVS	从护国军	Null	2020/8/29 7:12	0	0	0
1450	JhCmv	股海秃鹰	Female	3186	293	HVS	股海秃鹰	http://t.cn/8	2020/8/26 1:59	0	0	1
1452	JhAvc	从护国军师到	Male	9003	165154	HVS	从护国军	Null	2020/8/25 21:15	0	0	0
1456	Jhwnn	Deshine建筑景	Male	334	222	HVS	Deshine建	Null	2020/8/25 10:45	2	0	0
1511	JdM6y	北极测向站	Male	51	35	HVS	北极测向	Null	2020/7/31 19:26	0	0	0
1520	Jdq8cn	水韵江苏	Female	169	1090	Exhibition	水韵江苏	Null	2020/7/29 11:30	0	0	0
1529	Jd5jvE	用户6330014	Male	2592	2927	HVS	用户6330	http://t.cn/R	2020/7/27 6:30	90	14	34
1547	JbAG	苏州趣江南	Male	336	124	Exhibition	苏州趣江	Null	2020/7/17 10:40	0	0	0
1585	J8JPN	yangyu1122	Female	950	406	Complaint	yangyu11	Null	2020/6/28 16:28	2	0	0
1590	J8ej8w	穿ECCO的PA	Male	1293	2510	HVS	穿ECCO	Null	2020/6/25 8:12	3	0	1
1593	J7VBI	穿ECCO的PA	Male	1293	2510	HVS	穿ECCO	Null	2020/6/23 8:35	0	0	0
1595	J7NnE	精彩徐州	Male	1809	799403	HVS	精彩徐州	Null	2020/6/22 11:39	9	0	0
1598	J7ygO	苏州大学	Male	223	380258	HVS	苏州大学	Null	2020/6/20 21:11	41	4	13
1611	J6VG	恶心的庞以淼	Female	724	13	HVS	恶心的庞	http://t.cn/z	2020/6/16 18:58	0	1	0
1619	J5ZbR	苏州趣江南	Male	336	124	HVS	苏州趣江	Null	2020/6/10 14:02	0	0	0
1638	J4Blt4	南京生物医药	Male	62	873	HVS	南京生物	Null	2020/6/1 11:30	0	0	0
1642	J4bED	苏州博物馆	Male	427	489803	HVS	苏州博物	Null	2020/5/29 18:06	221	77	70
1653	J3i7lsr	Deshine建筑景	Male	334	222	HVS	Deshine建	Null	2020/5/23 20:42	0	0	0
1657	J2VM	苏茶网	Female	192	48	HVS	苏茶网:#	Null	2020/5/21 11:50	2	0	0
1690	J0kfrt	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/5/4 8:37	1	0	0
1691	J0keF	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/5/4 8:35	7	0	2

1706	IF7Ptl	工业名人许	Male	309	297903	HVS	工业名人	Null	2020/4/26 17:38	176	10	120
1733	ID9hN	海创东哥	Male	374	349	HVS	海创东哥	Null	2020/4/13 17:40	0	0	0
1764	Iz29V	米糊安吉儿	Male	145	780	Complaint	米糊安吉	Null	2020/3/17 16:10	0	0	1
1772	Ixw13	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/3/7 16:30	1	0	0
1775	IwKG	苏茶网	Female	192	48	HVS	苏茶网:#	Null	2020/3/2 16:01	0	0	0
1779	Iwsd5	紫艺0916	Female	126	55	HVS	紫艺0916	Null	2020/2/29 16:59	0	0	0
1788	IuLY2	你好我是舒	Female	173	41336	HVS	你好我是	Null	2020/2/18 15:36	3	0	4
1790	Iu2Ae	太湖微波_296	Male	101	779	HVS	太湖微波	Null	2020/2/13 20:04	0	0	0
1795	IpJFgI	苏州发布	Male	840	2520370	HVS	苏州发布	Null	2020/1/16 12:33	24	7	13
1819	IpwoR	毛毛商旅	Male	89	397	Lecture	毛毛商旅	Null	2020/10/17 1:31	0	0	0
1821	Ipq4ct	苏州微博房产	Female	496	394877	OA	苏州微博	Null	2020/10/16 9:23	1	0	0
1836	IiKbA	说苏CestSooc	Male	198	1115	Complaint	说苏Cest	Null	2020/9/2 11:44	0	0	0
1850	IdMJC	苏州姑苏发布	Female	268	36890	Interviews	苏州姑苏	Null	2020/7/31 21:03	1	0	4
1854	IdgOj	房天下昆山	Male	1600	20256	OA	房天下昆	Null	2020/7/28 11:46	0	0	0
1874	I66A0	土联社	Female	420	31959	OA	土联社:	Null	2020/6/11 8:51	1	0	0
1876	I2Hw	苏州地产零售	Male	758	11991	OA	苏州地产	Null	2020/5/19 23:32	6	1	3
1877	I2vQj	江苏建设	Male	145	54034	OA	江苏建设	Null	2020/5/18 17:49	0	0	0
1878	I0YqA	苏州地产零售	Male	758	11991	Archive	苏州地产	Null	2020/5/8 14:54	2	0	5
1881	IBJ3fI	苏州地产零售	Male	758	11991	Archive	苏州地产	Null	2020/4/4 9:03	6	0	1
1883	IA35Y	苏州地产零售	Male	758	11991	OA	苏州地产	Null	2020/3/24 8:24	10	3	9
1884	IyqFT	双塔市集	Female	103	5400	HVS	双塔市集	Null	2020/3/13 16:45	13	0	2
1885	IuWcu	黄族蛋蛋	Female	401	108	Lecture	黄族蛋蛋	Null	2020/2/19 17:39	1	0	1
1891	IobY6	苏州新闻	Male	1003	128919	OA	苏州新闻	Null	2020/1/6 8:55	2	2	0
1901	Inucox	不思議Washic	Male	385	728	HVS	不思議W	http://t.cn/R	2020/1/1 17:30	7	0	1
1925	Jz5oK	苏州加菲猫	Male	38	33	HVS	苏州加菲	Null	2020/12/18 23:09	0	0	0
1984	JvoW4	苏茶网	Female	192	48	HVS	苏茶网:博	Null	2020/11/24 17:32	0	0	0
2051	Jrq0W	苏州博物馆	Male	427	489803	HVS	苏州博物	Null	2020/10/29 12:56	176	3	1
2055	Jr8Uf2	blucoral66	Female	94	15	HVS	blucoral66	Null	2020/10/27 17:23	1	0	0
2056	Jr5Q9	花花家的懒懒	Female	206	112	HVS	花花家的	Null	2020/10/27 9:34	34	2	16
2089	JprkbI	苏州江水平装	Female	190	1500	HVS	苏州江水	Null	2020/10/16 12:35	0	0	0
2090	JppXV	苏州江水平伯	Female	709	729	HVS	苏州江水	http://t.cn/R	2020/10/16 9:08	0	0	0
2093	Jpbd2	岩画之苏州情	Male	103	262	HVS	岩画之苏	http://t.cn/R	2020/10/14 19:34	0	0	0
2100	Jodyj4	不喜欢姜	Female	896	129	Suggestions	不喜欢姜	Null	2020/10/8 11:42	0	0	0
2117	Jnhkfr	苏州园林研究	Male	295	41796	HVS	苏州园林	Null	2020/10/2 7:28	51	5	2
2123	Jm07u	小清河边涮涮	Female	3356	745	HVS	小清河边	Null	2020/9/23 21:49	0	0	0
2126	JlUoH	苏州地产周刊	Male	50	55925	HVS	苏州地产	Null	2020/9/23 7:15	9	0	5
2129	JlFRU	苏州新闻	Male	1003	128919	Archive	苏州新闻	Null	2020/9/21 18:16	0	0	0
2147	JjEses	今日相城	Male	58	23494	Exhibition	今日相城	Null	2020/9/8 10:59	0	0	0
2148	JjrJrxq	太湖微波_296	Male	101	779	Exhibition	太湖微波	Null	2020/9/7 2:36	2	0	0
2164	JiiOkS	说苏CestSooc	Male	198	1115	HVS	说苏Cest	Null	2020/8/30 14:03	1	0	1
2169	Ji0UrI	乐居网苏州	Female	1564	170915	Exhibition	乐居网苏	Null	2020/8/28 16:28	0	0	1
2179	Jhfbzy	龙马亲子游	Male	244	26	HVS	龙马亲子	Null	2020/8/23 14:59	0	0	1
2204	JeUqC	苏州地产零售	Male	758	11991	HVS	苏州地产	Null	2020/8/8 6:28	4	0	0
2206	JeHHi	苏州园林研究	Male	295	41796	HVS	苏州园林	Null	2020/8/6 22:03	35	38	21
2208	JexF8	南京工程学院	Female	3	4	HVS	南京工程	Null	2020/8/5 20:30	0	0	0
2257	Jar0W	苏州地产零售	Male	758	11991	HVS	苏州地产	Null	2020/7/9 20:14	2	0	3
2267	J8JkfE	苏州规划	Male	68	304	Archive	苏州规划	Null	2020/6/28 15:10	0	0	0
2293	J60k3	苏州图书馆	Male	219	5666	HVS	苏州图书	Null	2020/6/10 16:55	1	0	1
2312	J3B6U	苏州姑苏发布	Female	268	36890	Archive	苏州姑苏	Null	2020/5/25 21:04	2	0	0
2316	J2XUI	苏州理池景观	Male	475	717	HVS	苏州理池	Null	2020/5/21 17:16	0	0	0
2325	J1Iquz	MoreFunAsia	Male	100	541	HVS	MoreFun	Null	2020/5/13 12:00	1	1	1
2326	J1G2n	游云摄影	Male	525	690	Suggestions	游云摄影	Null	2020/5/13 5:55	0	0	0
2332	J0PM1	苏州理池景观	Male	475	717	HVS	苏州理池	Null	2020/5/7 16:52	0	0	0
2338	J0eQw	lpzjf静心	Female	65	4	HVS	lpzjf静心:	Null	2020/5/3 18:52	2	0	0
2341	J01Be	ARTS—Jen	Female	251	1727	HVS	ARTS—J	Null	2020/5/2 9:08	12	4	0
2357	IEP3J1	今苏州	Male	14	830	HVS	今苏州:苏	Null	2020/4/24 17:51	3	0	0
2369	IDBw	苏州理池景观	Male	475	717	HVS	苏州理池	Null	2020/4/16 17:33	1	0	0
2381	ICkoU	苏州博物馆	Male	427	489803	HVS	苏州博物	Null	2020/4/8 8:08	52	6	27
2382	ICgnN	南来北往768	Male	116	681	HVS	南来北往	Null	2020/4/7 21:54	0	0	0
2400	IAwIV	龙艺术	Male	584	17901	HVS	龙艺术:#	Null	2020/3/27 11:49	0	0	0
2427	Iw6JQ	苏州商业荟	Female	166	15472	HVS	苏州商业	Null	2020/2/27 10:19	12	0	6
2431	IvTkw	Deshine建筑景	Male	334	222	HVS	Deshine建	Null	2020/2/26 0:11	1	0	0
2435	IuLqA	Deshine建筑景	Male	334	222	HVS	Deshine建	Null	2020/2/18 14:13	1	0	1
2454	IprMji	南京玄武城管	Male	65	4492	HVS	南京玄武	Null	2020/1/14 15:00	0	0	0
2465	JdLaB	苏茶网	Female	192	48	HVS	苏茶网:水	Null	2020/7/31 17:03	0	0	0
2473	JAfD3	湖苑洪舟	Male	2094	11161	HVS	湖苑洪舟	Null	2020/12/26 15:02	2	0	0
2477	JzPkM	苏州大学	Male	223	380258	HVS	苏州大学	Null	2020/12/23 20:06	507	2	3
2481	JzsmY	南通发布	Male	356	745809	HVS	南通发布	Null	2020/12/21 9:38	2	0	0
2488	JyJR4	太仓博物馆官	Male	322	1319	OA	太仓博物	Null	2020/12/16 16:19	1	0	1
2493	JxZwS	葵啊queena	Female	60	19	HVS	葵啊quee	Null	2020/12/11 18:23	0	0	1
2495	JxPza	走的印记	Male	580	62164	HVS	走的印记	http://t.cn/R	2020/12/10 17:01	4	1	1
2501	JxCW	王景韩	Male	601	10050	HVS	王景韩:看	Null	2020/12/9 8:53	36	24	14
2530	Jx4gm	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/12/5 16:35	1	0	0
2535	Jx3kzu	安澜_LAN	Female	599	292	HVS	安澜_LA	http://t.cn/z	2020/12/5 14:13	3	0	4

2554	JwnOs	吉普悍马	Male	8412	10523	HVS	吉普悍马	Null	2020/12/1 4:31	5	0	5
2559	Jw5V1	恐惧明亮馨	Female	2631	1136	HVS	恐惧明亮	Null	2020/11/29 6:59	0	0	0
2589	JuJKu	大苓哥哥619	Male	72	101	HVS	大苓哥哥	Null	2020/11/20 8:41	2	0	1
2595	JusE0	焦点苏州	Male	127	51374	Exhibition	焦点苏州	Null	2020/11/18 13:09	0	0	0
2617	JsW1t	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/11/8 12:15	1	1	0
2618	JsVPZ	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/11/8 11:47	3	0	0
2619	JsVOI	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/11/8 11:44	1	0	0
2620	JsVN2	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/11/8 11:42	1	0	0
2621	JsVM	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/11/8 11:40	1	0	0
2622	JsVM	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/11/8 11:37	1	0	0
2623	JsVLC	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/11/8 11:36	1	0	0
2624	JsVK4	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/11/8 11:33	1	0	0
2625	JsVIfU	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/11/8 11:28	1	0	0
2626	JsVHI	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/11/8 11:27	1	0	0
2627	JsVGr	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/11/8 11:23	1	0	0
2634	JslgGy	三三得久V	Male	376	1684	Lectures	三三得久	Null	2020/11/4 14:41	0	0	0
2643	JrtU6v	苏州水墨青禾	Male	137	69	Complaint	苏州水墨	Null	2020/10/29 22:50	0	2	0
2652	JqYlW	苏州市文物保	Male	52	408	Exhibition	苏州市文	Null	2020/10/26 14:31	1	0	0
2658	JqHsC	苏州大学	Male	223	380258	HVS	苏州大学	Null	2020/10/24 19:31	646	3	4
2664	Jq4HX	苏州地产零售	Male	758	11991	HVS	苏州地产	Null	2020/10/20 16:51	0	0	0
2665	Jq0MI	大苓哥哥619	Male	72	101	HVS	大苓哥哥	Null	2020/10/20 6:52	2	0	0
2666	JpWQ	禾三春护士	Female	1152	18	HVS	禾三春护	Null	2020/10/19 20:51	0	0	0
2670	JpTQ2	苏州市文物保	Male	52	408	Workshops	苏州市文	Null	2020/10/19 13:13	1	0	0
2683	JolUct	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/9 8:57	1	0	0
2684	JolQb	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/9 8:48	1	0	0
2685	JolNT	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/9 8:42	1	0	0
2686	Jolzhg	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/9 8:06	2	0	0
2687	Jolwo	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/9 7:59	1	0	0
2688	JolugI	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/9 7:54	2	0	0
2689	Jolsvh	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/9 7:49	0	0	0
2693	JnK6X	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/5 8:44	2	0	0
2694	JnK5Y	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/5 8:42	2	0	0
2695	JnK4A	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/5 8:39	0	0	0
2696	JnK47	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/5 8:37	1	0	0
2697	JnK30	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/5 8:35	0	0	0
2698	JnK02	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/5 8:30	0	0	0
2699	JnJZC	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/5 8:26	0	0	0
2700	JnEAj	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/4 18:40	0	0	0
2701	JnEzH	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/4 18:39	0	0	0
2702	JnEzh	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/4 18:38	0	0	0
2703	JnEyR	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/4 18:37	0	0	0
2704	JnEytf	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/4 18:36	0	0	0
2705	JnEx3	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/10/4 18:32	1	0	0
2707	JnnYV	小浪仙666	Male	54	116	HVS	小浪仙66	Null	2020/10/3 0:24	1	0	0
2715	Jmz9e	江南紫云英	Male	637	20810	OA	江南紫云	Null	2020/9/27 15:00	5	0	0
2732	JlClQc	颜子樂	Male	911	1836	HVS	颜子樂:#	Null	2020/9/21 9:19	11	18	0
2738	JldgQ3	苏州博物馆	Male	427	489803	Lecture	苏州博物	Null	2020/9/18 17:28	7	2	0
2739	JkBxa	苏州市考古研	Male	66	11056	OA	苏州市考	Null	2020/9/14 17:23	1	2	2
2740	JkBkV	苏州市考古研	Male	66	11056	OA	苏州市考	Null	2020/9/14 16:53	1	2	0
2741	JkzPih	苏州发布	Male	840	2520370	HVS	苏州发布	Null	2020/9/14 13:03	2	1	2
2742	Jk88zp	苏州市文物保	Male	52	408	OA	苏州市文	Null	2020/9/11 14:33	0	0	0
2746	Jjx1bE	王旻昊先森	Male	76	484	HVS	王旻昊先	Null	2020/9/7 16:03	0	0	0
2755	Ji9xkI	消夏言者	Male	99	144	HVS	消夏言者	Null	2020/8/29 14:26	1	0	1
2756	JhSsm	苏州水墨青禾	Male	137	69	Complaint	苏州水墨	Null	2020/8/27 18:57	1	0	2
2760	Jh5YH	王旻昊先森	Male	76	484	Archive	王旻昊先	Null	2020/8/22 15:32	0	0	0
2762	JgVPN	苏州市文物保	Male	52	408	Workshops	苏州市文	Null	2020/8/21 13:43	0	1	0
2769	JgDRI	王旻昊先森	Male	76	484	HVS	王旻昊先	Null	2020/8/19 15:59	2	0	0
2770	JgBev	苏州市考古研	Male	66	11056	OA	苏州市考	Null	2020/8/19 9:16	2	2	0
2785	JgksJs	苏州发布	Male	840	2520370	OA	苏州发布	Null	2020/8/17 14:35	21	8	25
2789	JgiP6i	苏州市文物保	Male	52	408	OA	苏州市文	Null	2020/8/17 10:24	0	0	0
2790	JgiOv	苏州市文物保	Male	52	408	OA	苏州市文	Null	2020/8/17 10:23	0	0	0
2792	JgiFV	名城苏州网	Female	579	1335324	OA	名城苏州	Null	2020/8/17 10:02	5	0	3
2802	Jg9r07	江苏微旅游	Male	1204	538794	HVS	江苏微旅	Null	2020/8/16 10:30	11	6	0
2816	JfpMC	吴中太湖文旅	Male	754	594785	HVS	吴中太湖	Null	2020/8/11 14:18	0	1	1
2826	JeVQI	吴中太湖文旅	Male	754	594785	HVS	吴中太湖	Null	2020/8/8 10:05	3	3	3
2831	JeO0C	苏州博物馆	Male	427	489803	Lecture	苏州博物	Null	2020/8/7 14:08	18	13	0
2834	JeCMi	水韵江苏	Female	169	1090	Lecture	水韵江苏	Null	2020/8/6 9:32	0	0	0
2850	Je1rU	苏州姑苏发布	Female	268	36890	Archive	苏州姑苏	Null	2020/8/2 10:30	0	0	0
2854	JdTkH	苏州状元博物	Male	42	58	HVS	苏州状元	Null	2020/8/1 13:50	0	0	0
2865	Jdj9x0	榕17岁小Male	Male	2105	1529	HVS	榕17岁小	Null	2020/7/28 17:44	0	0	0
2880	JcGO0	苏州市文物保	Male	52	408	OA	苏州市文	Null	2020/7/24 16:08	0	0	0
2881	JcG12	苏州博物馆	Male	427	489803	HVS	苏州博物	Null	2020/7/24 14:06	15	3	0
2891	JbXmI	苏州水墨青禾	Male	137	69	Suggestions	苏州水墨	Null	2020/7/19 20:25	0	1	0
2893	JbVfq	苏州水墨青禾	Male	137	69	Suggestions	苏州水墨	Null	2020/7/19 15:02	0	0	0

2894	JbTxu	苏州大学学生	Female	88	716	HVS	苏州大学	Null	2020/7/19 10:41	7	0	0
2897	JbEBq	江南紫云英	Male	637	20810	HVS	江南紫云	http://t.cn/A	2020/7/17 20:39	9	3	7
2898	JbrnG	江南紫云英	Male	637	20810	HVS	江南紫云	http://t.cn/z	2020/7/16 11:00	17	18	13
2902	JbcEH	Yayap2000	Male	151	715	HVS	Yayap200	Null	2020/7/14 21:31	0	0	1
2903	Jbauw	下涯吴彦祖	Male	409	1094	HVS	下涯吴彦	Null	2020/7/14 16:00	9	0	8
2910	JarjDe	江南紫云英	Male	637	20810	HVS	江南紫云	http://t.cn/A	2020/7/9 21:00	17	11	9
2911	Jap6ut	苏州市文物保	Male	52	408	Lecture	苏州市文	Null	2020/7/9 15:22	0	0	0
2917	J9L9D	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 9:40	0	0	0
2918	J9L8l	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 9:36	0	0	0
2919	J9L72	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 9:33	0	0	0
2920	J9L4M	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 9:28	0	0	0
2921	J9L3b	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 9:24	0	0	0
2922	J9L0w	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 9:17	0	0	0
2923	J9KW	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 9:07	0	0	0
2924	J9KTv	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 9:00	0	0	0
2925	J9KS8	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 8:56	1	0	0
2926	J9KQ	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 8:52	1	0	0
2927	J9KO	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 8:49	0	0	0
2928	J9KJn	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 8:35	0	0	0
2929	J9KFv	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 8:25	0	0	0
2930	J9KC	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 8:18	0	0	0
2931	J9KB	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 8:14	0	0	0
2932	J9KzF	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 8:11	0	0	0
2933	J9Kyr	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 8:08	0	0	0
2934	J9KxJ	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/5 8:06	0	0	0
2941	J9kwI	广陵韶华	Male	634	815	HVS	广陵韶华	Null	2020/7/2 13:52	5	1	0
2942	J9ikhE	广陵韶华	Male	634	815	HVS	广陵韶华	Null	2020/7/2 8:16	2	0	1
2946	J9dIrb	广陵韶华	Male	634	815	HVS	广陵韶华	http://t.cn/z	2020/7/1 20:32	4	1	5
2947	J9cOc	广陵韶华	Male	634	815	HVS	广陵韶华	http://t.cn/R	2020/7/1 18:13	6	1	6
2949	J936W	广陵韶华	Male	634	815	HVS	广陵韶华	http://t.cn/R	2020/6/30 17:32	7	3	0
2950	J8VD	苏州姑苏发布	Female	268	36890	Exhibition	苏州姑苏	Null	2020/6/29 22:30	4	0	0
2953	J8JDV	苏州市考古研	Male	66	11056	Archive	苏州市考	Null	2020/6/28 15:58	1	0	0
2954	J8HFh	苏州市考古研	Male	66	11056	Archive	苏州市考	Null	2020/6/28 10:56	3	3	0
2976	J71Qt	苏州市文物保	Male	52	408	Exhibition	苏州市文	Null	2020/6/17 10:38	2	0	0
2981	J6iHct	苏州丝绸博物	Female	82	835	Interviews	苏州丝绸	Null	2020/6/12 15:42	1	0	0
2983	J5Ptfd	葵啊queena	Female	60	19	HVS	葵啊quee	Null	2020/6/9 13:18	0	0	0
2986	J5yFN	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/6/7 18:32	2	0	0
2987	J5yEil	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/6/7 18:28	1	0	0
2988	J5yDa	太湖绿水	Male	2960	989	HVS	京杭大运	Null	2020/6/7 18:25	2	0	0
2989	J5yB9	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/6/7 18:20	0	0	0
2990	J5yzhs	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/6/7 18:16	1	0	0
2991	J5ywY	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/6/7 18:10	0	0	0
2992	J5yvD	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/6/7 18:07	0	1	0
2993	J5ytof	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/6/7 18:01	0	0	0
2994	J5ypIc	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/6/7 17:52	0	0	0
2995	J5yp1	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/6/7 17:51	0	0	0
3002	J5bVI	苏州新闻	Male	1003	128919	OA	苏州新闻	Null	2020/6/5 8:38	0	3	0
3010	J4CcZ	苏州市考古研	Male	66	11056	Archive	苏州市考	Null	2020/6/1 13:42	2	2	0
3015	J3XFx	挡不住的岑庭	Male	1485	809	Suggestions	挡不住的	Null	2020/5/28 6:29	0	0	0
3017	J3J4R	广陵韶华	Male	634	815	HVS	广陵韶华	http://t.cn/R	2020/5/26 17:20	4	0	1
3028	J1rgpy	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/5/11 16:19	2	0	0
3038	J0kdrF	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/5/4 8:32	1	0	0
3039	J0kaB	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/5/4 8:25	3	1	1
3040	J0k91	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/5/4 8:21	1	0	0
3044	IFxTe	走看苏州	Male	694	1023	HVS	走看苏州	Null	2020/4/29 11:59	6	1	0
3045	IFqMI	korenluo	Male	45	21	HVS	korenluo:	http://t.cn/z	2020/4/28 17:54	1	3	0
3049	IFeEH	苏州市文物保	Male	52	408	Archive	苏州市文	Null	2020/4/27 11:01	2	0	0
3053	IF7O9	苏州姑苏发布	Female	268	36890	HVS	苏州姑苏	Null	2020/4/26 17:35	1	1	0
3055	IF5Hj	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/4/26 12:13	1	0	0
3056	IF5Fo	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/4/26 12:08	1	0	0
3057	IF5Fe	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/4/26 12:07	1	0	0
3058	IF5E2	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/4/26 12:04	0	0	0
3066	ICSf1	铁骑行者917	Male	119	16	HVS	铁骑行者	Null	2020/4/11 22:17	0	0	0
3067	ICEGI	从护国军师到	Male	9003	165154	HVS	从护国军	Null	2020/4/10 11:47	1	2	0
3070	IBrnyI	守艺苏州	Male	225	185	HVS	守艺苏州	Null	2020/4/2 12:03	2	0	0
3077	IA5Uv	苏州发布	Male	840	2520370	OA	苏州发布	Null	2020/3/24 15:34	13	1	8
3079	IzWp1	苏州市文物保	Male	52	408	Archive	苏州市文	Null	2020/3/23 15:23	2	1	3
3080	IzUW	方少山518	Male	1038	392	HVS	方少山51	Null	2020/3/23 11:38	1	0	0
3083	IzkcM	苏州市考古研	Male	66	11056	OA	【吴中区	Null	2020/3/19 14:07	3	3	0
3085	IzaM5	苏州市考古研	Male	66	11056	OA	苏州市考	Null	2020/3/18 14:06	3	0	0
3088	IxYrZ	你好我是舒	Female	173	41336	HVS	你好我是	Null	2020/3/10 16:53	2	1	2
3092	IwULt	王景韩	Male	601	10050	HVS	王景韩:西	Null	2020/3/3 17:39	25	12	14
3100	IvJexa	斗笠斜阳2018	Male	359	366	HVS	斗笠斜阳	Null	2020/2/24 22:29	0	0	0
3104	IuzQA	斗笠斜阳2018	Male	359	366	HVS	斗笠斜阳	http://t.cn/R	2020/2/17 8:45	2	0	0

3107	IsELB	王景韩	Male	601	10050	HVS	王景韩:宝	Null	2020/2/4 17:35	13	1	1
3110	Isdokj	在路上的顾	Male	495	709	HVS	在路上的	Null	2020/2/1 19:54	0	0	0
3113	IrRbLj	斗笠斜阳2018	Male	359	366	HVS	斗笠斜阳	Null	2020/1/30 11:22	3	0	0
3114	IromD	苏州姑苏发布	Female	268	36890	HVS	苏州姑苏	Null	2020/1/27 10:00	6	1	0
3115	IqXjP	苏州市文物保	Male	52	408	HVS	苏州市文	Null	2020/1/24 13:08	1	0	0
3118	IpLwd	苏茶网	Female	192	48	HVS	苏茶网:#	Null	2020/1/16 17:16	0	0	0
3119	IpA1L	苏州姑苏发布	Female	268	36890	HVS	苏州姑苏	Null	2020/1/15 12:01	3	1	1
3131	IoyvH	苏茶网	Female	192	48	HVS	苏茶网:#	Null	2020/1/8 18:18	0	0	0
3137	JmqfE	静虚斋董昆	Male	8	170	HVS	静虚斋董	Null	2020/9/26 16:21	1	0	0
3146	JvII0w	新华日报	Male	486	10026700	Archive	新华日报	Null	2020/11/26 19:53	1	1	0
3154	JollIe9	岩画之苏州情	Male	103	262	HVS	岩画之苏	http://t.cn/R	2020/10/9 7:32	2	0	1
3157	Jmzu4	苏州公交出行	Male	23	2651	OA	苏州公交	Null	2020/9/27 15:51	1	0	0
3158	JmnEC	教授来了都N	Male	432	217	HVS	教授来了	http://t.cn/R	2020/9/26 9:44	3	0	0
3161	Jk6yW	名城苏州网	Female	579	1335324	HVS	名城苏州	Null	2020/9/11 10:33	7	3	2
3174	JbFPjc	天落雨_不打	Female	177	263	Complaint	天落雨_不	Null	2020/7/17 23:46	0	0	0
3185	J35KI	橘涂初四	Male	126	862	HVS	橘涂初四	http://t.cn/R	2020/5/22 13:14	3	3	1
3195	IoenR	没有咸蛋的超	Male	287	417	HVS	没有咸蛋	Null	2020/1/6 15:04	1	0	1
3228	JxvWu	涧河岸边笑笑	Male	5943	8533	HVS	涧河岸边	Null	2020/12/8 15:03	1	0	7
3236	JwSxZ	画家吴高龙	Male	1599	1140493	HVS	画家吴高	Null	2020/12/4 10:46	5	0	6
3238	JwJTs	苏州胜浦新鲜	Male	1188	497211	HVS	苏州胜浦	Null	2020/12/3 12:44	1	0	1
3291	JsGoN	十九姑娘在奔	Female	2022	383	HVS	十九姑娘	Null	2020/11/6 20:29	1	0	0
3300	Jry9U	水沉静sunny	Female	66	77	Complaint	水沉静su	Null	2020/10/30 9:40	0	0	0
3304	JrhmW	苏州地产零售	Male	758	11991	Suggestions	苏州地产	Null	2020/10/28 14:55	1	0	0
3329	JoGZl	自驾游天下大	Male	1411	76101	HVS	自驾游天	Null	2020/10/11 14:38	33	4	12
3335	JoeyO	抱着GF2的天	Female	390	4654	Complaint	抱着GF2	Null	2020/10/8 14:16	1	0	4
3337	Jo8P4	岩画之苏州情	Male	103	262	HVS	岩画之苏	Null	2020/10/7 23:39	1	0	1
3370	JlodOI	Null锡eTV全	Female	174	8834	Collaboration	Null锡eT	Null	2020/9/19 21:20	0	1	0
3373	Jlc1N4	苏州胜浦新鲜	Male	1188	497211	HVS	苏州胜浦	http://t.cn/R	2020/9/18 14:18	1	0	0
3376	JkSz6	月半蓝	Female	2116	591	Complaint	月半蓝:z	Null	2020/9/16 12:45	2	0	0
3402	JhRzn	常熟普法	Female	270	1601	Lecture	常熟普法	Null	2020/8/27 16:42	4	0	1
3453	JdIUi	mistymistymis	Female	239	221	Complaint	mistymist	Null	2020/7/31 11:18	0	0	0
3483	Jb1DC	苏州地产零售	Male	758	11991	HVS	苏州地产	Null	2020/7/13 17:28	6	0	0
3496	JaeK4	缘中秀苏州	Male	420	2543	HVS	缘中秀苏	Null	2020/7/8 12:59	0	0	0
3499	Ja5Js9	一米爱拍照	Male	2219	27463	HVS	一米爱拍	Null	2020/7/7 14:03	1	0	0
3539	J5f8Tt	SHARONKY	Female	184	879148	Complaint	SHARON	Null	2020/6/5 16:49	1	0	2
3561	J1aWI	Pure-Hormone	Male	420	34	HVS	Pure-Hor	Null	2020/5/9 22:46	3	1	2
3590	IDJVz	西小姐家长	Female	399	727	HVS	西小姐家	Null	2020/4/17 14:57	0	0	0
3630	IwtOy	狐掌柜的玉	Female	261	5421	HVS	狐掌柜的	Null	2020/2/29 21:04	2	1	0
3639	IuAM	尚蘇手绘	Male	85	1431	Lecture	尚蘇手绘	Null	2020/2/17 11:07	6	0	0
3649	IsXHp	半文幸福导师	Female	161	63	Complaint	半文幸福	Null	2020/2/6 17:47	2	0	1
3657	IrkYK	新园园丁	Female	24	208	HVS	新园园丁	Null	2020/1/27 1:23	2	0	0
3663	IpuC8	海盐的盐	Female	400	397	HVS	海盐的盐	Null	2020/1/14 22:14	0	0	0
3666	IpgeA	DOMZYX	Male	142	38	HVS	DOMZY	Null	2020/1/13 9:37	3	0	2
3679	IorPJg	品珍古玩	Male	885	22662	Complaint	品珍古玩	Null	2020/1/8 1:19	2	0	2
3681	IobQK	苏州城楼	Male	578	2064	Suggestions	苏州城楼	Null	2020/1/6 8:37	2	0	0
3690	JAQo2	芷兰976	Female	34	1	Complaint	芷兰976:	Null	2020/12/30 12:37	2	12	1
3730	Jrf0v6	苏州江水平伯	Female	709	729	Lecture	苏州江水	http://t.cn/R	2020/10/28 8:55	0	0	2
3731	Jqwnh	大木DA-MU	Female	133	669	Collaboration	大木DA-	Null	2020/10/23 15:17	3	0	7
3865	JgMK	卡奇_屋栗家	Male	2708	72824	Collaboration	卡奇_屋栗	http://t.cn/z	2020/8/20 14:34	4	0	2
3867	Jgqz3j	她心永存一人	Female	1000	2	Lecture	她心永存	Null	2020/8/18 6:07	0	0	0
3886	Jbi9mt	卡奇_屋栗家	Male	2708	72824	Archive	卡奇_屋栗	http://t.cn/A	2020/7/15 11:30	6	101	1
3887	JbbKq	中庸之道2015	Male	2080	590	HVS	中庸之道	Null	2020/7/14 19:12	0	0	0
3888	JayfR	正月ZHU	Female	356	102	Complaint	正月ZHU	Null	2020/7/10 14:39	0	0	2
3890	Ja2hk4	心上莲花A8	Female	371	304	Complaint	心上莲花	Null	2020/7/7 5:15	1	0	2
3894	J9oQJ	苏州江水平装	Female	190	1500	Lecture	苏州江水	Null	2020/7/3 0:53	1	0	1
3895	J9b2H	潘小希wink	Male	2426	4623	HVS	潘小希wi	Null	2020/7/1 13:44	4	0	4
3897	J8pYq	福禄中古行	Female	203	953	Collaboration	福禄中古	Null	2020/6/26 13:54	12	0	7
3905	J4AV2	穿ECCO的PA	Male	1293	2510	HVS	穿ECCO	Null	2020/6/1 10:27	3	0	3
3907	J3K2N	苏州江水平伯	Female	709	729	Archive	苏州江水	Null	2020/5/26 19:48	0	0	0
3909	J2Zs6	Hi咻酱	Female	878	152	HVS	Hi咻酱:录	Null	2020/5/21 21:11	1	0	0
3917	J0PFtt	喵天与橘	Female	841	135	Suggestions	喵天与橘	Null	2020/5/7 16:36	0	0	0
3921	J0mlB	苏州园林研究	Male	295	41796	HVS	苏州园林	Null	2020/5/4 13:58	190	72	45
3922	J0lD3	苏州微博房产	Female	496	394881	HVS	苏州微博	Null	2020/5/4 12:08	9	8	3
3923	J0lzQ2	苏州装修施工	Male	222	57	HVS	苏州装修	Null	2020/5/4 12:00	0	0	0
3938	IyAHp	苏州江水平伯	Female	709	729	HVS	苏州江水	Null	2020/3/14 18:16	0	0	0
3997	IucwG	菲首富Female	Female	20000	3321	Complaint	菲首富Fe	Null	2020/2/14 21:22	2	0	0
3998	Iu9Su	苏州伊诺尔拆	Male	84	651	Lecture	苏州伊诺	Null	2020/2/14 14:38	0	0	0
3999	ItZo4k	苏州伊诺尔拆	Male	84	651	Lecture	苏州伊诺	Null	2020/2/13 11:55	0	0	0
4006	Iozjp7	爱吃鸡的刘叔	Male	229	378	HVS	爱吃鸡的	Null	2020/1/8 20:21	0	0	0
4012	JAcTS	苏州发布	Male	840	2520371	HVS	苏州发布	Null	2020/12/26 8:04	39	6	14
4038	JwMC	行者sp407	Male	380	474	HVS	行者sp40	Null	2020/12/3 20:09	1	0	0
4041	JurNG	吴中博物馆官	Male	572	6469	HVS	吴中博物	Null	2020/11/18 11:00	24	23	4
4044	JtQ5E	吴中博物馆官	Male	572	6469	HVS	吴中博物	Null	2020/11/14 11:00	1	1	0

4046	JsCQV	吴中博物馆官	Male	572	6469	HVS	吴中博物	Null	2020/11/6 11:27	9	1	0
4049	Jrj1D2	南来北往768	Male	116	681	HVS	南来北往	Null	2020/10/28 19:08	0	0	0
4050	Jr66O	苏州江水平伯	Female	709	729	Lecture	苏州江水	http://t.cn/R	2020/10/27 10:15	1	0	1
4052	JqVW	江南家具研究	Female	74	321	Lecture	江南家具	Null	2020/10/26 8:22	1	0	0
4055	JppX4	苏州江水平伯	Female	709	729	Lecture	苏州江水	http://t.cn/R	2020/10/16 9:06	0	0	0
4059	Jn1R0	岩画之苏州情	Male	103	262	HVS	岩画之苏	Null	2020/9/30 16:04	1	0	1
4062	JhzoE	新浪江苏旅游	Female	2504	2183847	HVS	新浪江苏	Null	2020/8/25 18:26	9	7	7
4066	JgTAr	国网江苏电力	Male	397	264085	Archive	国网江苏	Null	2020/8/21 7:59	3	0	0
4070	JfHqQ	苏州姑苏发布	Female	268	36890	Lecture	苏州姑苏	Null	2020/8/13 11:13	0	0	0
4074	JcXZC	太湖绿水	Male	2960	989	HVS	太湖绿水	Null	2020/7/26 11:52	3	0	0
4076	Jcbzq2	寻找的靴子	Female	730	309	HVS	寻找的靴	Null	2020/7/21 8:35	2	2	1
4078	JbrF1I	苏州园林研究	Male	295	41796	HVS	苏州园林	Null	2020/7/16 11:43	286	125	54
4084	J6q5v	苏州姑苏发布	Female	268	36890	OA	苏州姑苏	Null	2020/6/13 10:31	0	3	0
4085	J6kBC	苏州姑苏发布	Female	268	36890	OA	苏州姑苏	Null	2020/6/12 20:33	2	2	0
4088	J4zYP	岭上梦溪	Female	260	352	HVS	岭上梦溪	Null	2020/6/1 8:01	1	0	0
4089	J2FaH	苏州发布	Male	840	2520371	Exhibition	苏州发布	Null	2020/5/19 17:34	18	1	5
4092	J06U5	Mystage_QIN	Male	6	8	HVS	Mystage_	Null	2020/5/2 22:39	1	0	2
4097	IEnUH	苏州趣江南	Male	336	124	HVS	苏州趣江	Null	2020/4/21 20:45	1	0	0
4105	IzL8A	苏州发布	Male	840	2520371	HVS	苏州发布	Null	2020/3/22 10:41	18	12	16
4107	IzK5e	苏州园林研究	Male	295	41796	HVS	苏州园林	Null	2020/3/22 8:00	42	24	11
4108	IyqYL	梓人HL	Male	1012	136	HVS	梓人HL:2	http://t.cn/R	2020/3/13 17:31	2	0	0
4110	IwgdP	苏州地产零售	Male	758	11991	OA	苏州地产	Null	2020/2/28 10:27	2	0	0
4116	Ip1Pk	立新的茶生活	Male	1931	95770	HVS	立新的茶	Null	2020/1/11 20:57	2	0	0

Appendix B. The Label Detection of Acquired Images from Weibo

Duration: 01 Jan 2020 -31 December 2020

Platform: Google Vision

The Selected Result of Image Identification in English

Table 30 The list of obtained labels and its total amount (minimum 50)

No.	label	Total Amount
1	Building	2950
2	Plant	2731
3	Sky	2624
4	Tree	2069
5	Window	1244
6	Wood	1178
7	Leisure	1075
8	Water	1054
9	Facade	962
10	Temple	959
11	Cloud	931
12	Font	855
13	City	819
14	Urban design	747
15	Art	729
16	House	675
17	Travel	636
18	Natural landscape	605
19	Architecture	597
20	Event	593
21	Chinese architecture	582
22	Road surface	566
23	Landscape	557
24	Tints and shades	555
25	Property	510
26	Food	478
27	Grass	464
28	Interior design	463
29	Rectangle	441

30	Ingredient	430
31	World	416
32	Tableware	393
33	Flooring	392
34	Lake	384
35	Neighbourhood	376
36	Cuisine	362
37	Table	357
38	Recipe	348
39	Wall	348
40	Fixture	346
41	Infrastructure	338
42	Daytime	332
43	Flower	309
44	Vegetation	309
45	Botany	306
46	Dish	303
47	Shade	303
48	Watercourse	292
49	Nature	285
50	Door	280
51	Lighting	261
52	Vehicle	261
53	Water resources	254
54	Symmetry	247
55	Chair	243
56	Wheel	242
57	Tower block	239
58	Tire	234
59	Light	231
60	Furniture	225
61	Floor	224
62	Flowerpot	224
63	Line	224
64	Blue	223
65	Road	219
66	Residential area	215
67	Skyscraper	215
68	Asphalt	212
69	Street fashion	207
70	Leaf	201
71	Public space	198

72	Body of water	197
73	Roof	192
74	Photograph	191
75	Landmark	190
76	Houseplant	186
77	Ceiling	184
78	Gas	181
79	Azure	178
80	Composite material	176
81	Branch	175
82	Brick	171
83	Biome	167
84	Yellow	166
85	Electricity	165
86	Twig	165
87	Real estate	159
88	Pagoda	158
89	Tower	158
90	Glass	156
91	Terrestrial plant	155
92	Dishware	154
93	Motor vehicle	151
94	Metal	150
95	Produce	150
96	Pattern	147
97	Condominium	143
98	Flash photography	143
99	Green	140
100	Shrub	140
101	T-shirt	139
102	Plate	138
103	Bank	136
104	Hat	135
105	White	135
106	Fun	134
107	Retail	132
108	Electric blue	131
109	Sleeve	131
110	Land lot	129
111	Happy	126
112	Automotive lighting	125
113	Market	122

114	Sculpture	120
115	Material property	116
116	Petal	115
117	Room	115
118	Mountain	113
119	Woody plant	113
120	Car	112
121	Textile	112
122	Trunk	112
123	Automotive design	111
124	Entertainment	108
125	Advertising	106
126	Boat	104
127	Midnight	104
128	Streetlight	104
129	Orange	103
130	Brickwork	102
131	Recreation	102
132	Signage	102
133	Staple food	101
134	Slope	100
135	Darkness	99
136	Groundcover	99
137	Gesture	98
138	Crowd	96
139	Morning	95
140	Parallel	95
141	People in nature	94
142	Sunlight	93
143	Dusk	91
144	Product	91
145	Circle	90
146	Hardwood	90
147	Visual arts	90
148	Cityscape	89
149	Concrete	87
150	Stairs	87
151	Purple	86
152	Picture frame	84
153	Red	84
154	Black	82
155	Engineering	82

156	Handwriting	82
157	Serveware	81
158	Automotive tire	80
159	Japanese architecture	80
160	Plant community	80
161	Drinkware	79
162	Cooking	78
163	Dress	78
164	Mode of transport	78
165	Shorts	78
166	Statue	78
167	Atmosphere	77
168	Watercraft	77
169	Fashion design	76
170	Building material	75
171	Comfort	75
172	Thoroughfare	75
173	Magenta	74
174	Paint	74
175	Eyewear	72
176	Smile	72
177	Waterway	72
178	Bedrock	71
179	Artifact	70
180	Sidewalk	69
181	Suit	68
182	Arch	67
183	Organism	67
184	Painting	67
185	Selling	67
186	Decoration	66
187	Space	66
188	Standing	66
189	Natural foods	65
190	Fence	64
191	Hall	64
192	Metropolitan area	63
193	Horizon	61
194	Machine	61
195	Fast food	60
196	Technology	59
197	Cottage	58

198	Fashion	58
199	Grey	58
200	Human	58
201	Adaptation	57
202	Clothing	57
203	Ecoregion	57
204	Screenshot	56
205	Fluvial landforms of streams	55
206	Pink	55
207	Rural area	55
208	Alley	54
209	Natural environment	54
210	Publication	54
211	Street	54
212	Wedding dress	54
213	Flowering plant	53
214	Luggage and bags	53
215	Commercial building	51
216	Customer	50
217	Number	50

Appendix C. The Online Questionnaire: Public Participation and Investigation of Kulangsu Cultural Heritage

Duration: Sep 2021-Nov 2021

Platform: Wechat

The Translated Result of the Survey: English Version

Introduction

Public Participation and Investigation of Kulangsu Cultural Heritage Survey is an important part of a doctoral study conducted by the Department of Architecture and Design, Politecnico di Torino, Italy. It aims to understand the participation and understanding of the local residents of Kulangsu Island, Xiamen in the protection process of cultural heritage, so as to better develop China Cultural heritage protection strategy, improve the residents' participation experience. The questionnaire is set to be anonymous, and the participant's information will be kept strictly confidential and used only for data analysis.

Section 1: The Memory and Perceptions

1. Do you think the Kulangsu Heritage Site maintains **the local characteristics**? Does it carry your **memory of hometown**? [Matrix Multiple Choice]

Option	Very dissatisfied	Dissatisfied	Average	Satisfied	Highly satisfied
Completeness of appearance	7(4.52%)	5(3.23%)	26(16.77%)	77(49.68%)	40(25.81%)
Functionality	6(3.87%)	6(3.87%)	66(42.58%)	46(29.68%)	31(20%)
Accessibility	10(6.45%)	13(8.39%)	58(37.42%)	44(28.39%)	30(19.35%)
Features of the landscape	7(4.52%)	2(1.29%)	21(13.55%)	69(44.52%)	56(36.13%)
Local customs	9(5.81%)	10(6.45%)	35(22.58%)	60(38.71%)	41(26.45%)
Intangible heritage and traditional crafts	9(5.81%)	12(7.74%)	65(41.94%)	41(26.45%)	28(18.06%)

2. Which is your **favourite renovation project**? [Fill in the blanks]

Shuzhuang Garden (9), World Construction (7), Piano museum (5), Sanluo Girl Building (5), Bagua Building (4), Lin Yutang's Former Residence (4), Trinity Hall (4), Gulangyu Foreign Heritage Museum (3), Huang Rongyuan's Former Residence (2), The old site of HSBC Mansion (2), The site of the trial court (2), The site of the British consulate (2).

3. What are the **keywords** in your mind that **represent it**? [Multiple Choices]

Option	Tot	Proportion
With typical local architectural features	132	85.16%
Carrying the collective memory	115	74.19%
Recalling your memories of such places	72	46.45%
Architectural details are handled well	74	47.74%
Perfect functionality/practicality	57	36.77%
Obtaining higher economic benefits	48	30.97%
Clear restoration process	31	20%
Easy to participate into decision-making	30	19.35%
Meet your other psychological needs	1	0.65%
Other	12	7.74%
Number of valid entries in this question	**155**	

4. Which **method** should be mainly used **to protect** the urban/architectural heritage of Kulangsu Island? [Multiple Choices]

Option	Tot	Proportion
Demolition and reconstruction	4	2.58%
Large-scale reconstruction: destruction of building structure and main features	7	4.52%
Partial renovation: focus on the improvement of the internal environment and retain the external characteristics of the building	136	87.74%
Completely preserve the interior, structure and facade of the building	61	39.35%
Number of valid entries in this question	**155**	

Section 2: The Way to Communicate with Authorities

1. What approaches do you know to **obtain notices** from government regarding the historic building restoration projects? [Multiple Choices]

Option	Tot	Proportion

Reposted by relatives and friends	62	40%
Read the notice announcement on the government affairs website	75	48.39%
Social media platforms (Wechat, Weibo, etc.)	103	66.45%
Door-on-door notification by sub-district office or neighbourhood committee	31	20%
Lectures/Exhibitions	36	23.23%
Notice from civil organizations or heritage preservation associations	37	23.87%
Others	19	12.26%
No way to know	15	9.68%
Number of valid entries in this question	**155**	

2. What methods do you know to **communicate with the government** regarding the improvement of the building reconstruction projects? [Multiple Choices]

Option	Tot	Proportion
Reposted by relatives and friends	28	18.06%
Submit comments and suggestions on the government affairs website	96	61.94%
Social media platforms (Wechat, Weibo, etc)	90	58.06%
Through sub-district office or neighborhood committee	48	30.97%
By phone (Mayor's Hotline)	66	42.58%
Through some civil organizations or heritage conservation associations	59	38.06%
Others	15	9.68%
No way to know	18	11.61%
Number of valid entries in this question	**155**	

3. Do you know the way to **express suggestions** (to the government)? [Scale question] (Average score of this question: 5)

Option	Tot	Proportion
No idea at all	8	5.16%

1	5	3.23%
2	11	7.1%
3	18	11.61%
4	24	15.48%
5	33	21.29%
6	9	5.81%
7	17	10.97%
8	19	12.26%
9	2	1.29%
I know very well	9	5.81%
Number of valid entries in this question	**155**	

4. How likely is residents' **opinion to be adopted** (by the government)? [Scale question] (Average score of this question: 5.29)

Option	Tot	Proportion
Totally impossible	3	1.94%
1	5	3.23%
2	6	3.87%
3	18	11.61%
4	21	13.55%
5	41	26.45%
6	20	12.9%
7	18	11.61%
8	10	6.45%
9	2	1.29%
Most likely	11	7.1%
Number of valid entries in this question	**155**	

5. Do you think it is **necessary to collect public proposals** for the Housing Reconstruction Project in Kulangsu? [Single choice question]

Option	Tot	Proportion
Yes	144	92.9%
No	11	7.1%
Number of valid entries in this question	**155**	

6. Have you submitted your proposal to any reconstruction Project? [Single choice question]

Option	Tot	Proportion
Yes	5	3.23%
No	150	96.77%
Number of valid entries in this question	**155**	

7. Name of the participated project: _____; Time: _____ [Fill in the blanks]

Trial Court Reconstruction Project, 2020; Lijiazhuang Hotel Renovation Project, 2017; Personal housing renovation project, 2021.

Section 3: The Willing to Participate

1. How much do you know about **the protection and renovation process** of public/private buildings? [Matrix Scale] (Average score of this question: 3.31)

	1	2	3	4	5	Average score
Time consumption	17 (10.97%)	13 (8.39%)	49 (31.61%)	45 (29.03%)	31 (20%)	3.39
Cost	17 (10.97%)	14 (9.03%)	38 (24.52%)	52 (33.55%)	34 (21.94%)	3.46
Declaration process	22 (14.19%)	15 (9.68%)	45 (29.03%)	38 (24.52%)	35 (22.58%)	3.32
Department involved	18 (11.61%)	16 (10.32%)	49 (31.61%)	34 (21.94%)	38 (24.52%)	3.37
Relevant policies and regulations	18 (11.61%)	16 (10.32%)	46 (29.68%)	36 (23.23%)	39 (25.16%)	3.4
Total	**92(11.87%)**	**74(9.55%)**	**227(29.29%)**	**205(26.45%)**	**177(22.84%)**	**3.39**

2. Is the construction declaration, construction and renovation **process** of Kulangsu **clear and easy** to understand? [Scale question] (Average score of this question: 4.67)

Option	Tot	Proportion
Completely opaque	10	6.45%
1	7	4.52%
2	19	12.26%
3	21	13.55%
4	16	10.32%
5	25	16.13%
6	15	9.68%
7	19	12.26%
8	9	5.81%
9	6	3.87%
Very transparent	8	5.16%
Number of valid entries in this question	**155**	

3. Are you **willing to participate** in the opinion solicitation/decision-making process of a certain building/urban reconstruction in Kulangsu? [Scale question] (Average score of this question: 7.53)

Option	Tot	Proportion
I am unwilling to participate	4	2.58%
1	0	0%
2	2	1.29%
3	2	1.29%
4	4	2.58%
5	18	11.61%
6	17	10.97%
7	16	10.32%
8	31	20%
9	24	15.48%
I am very much willing to participate	37	23.87%
Number of valid entries in this question	**155**	

4. Do you think it is **easy for residents to participate** in the process of building renovation? [Scale question] (Average score of this question: 4.37)

Option	Tot	Proportion
Very difficult	10	6.45%
1	7	4.52%
2	23	14.84%
3	24	15.48%
4	23	14.84%
5	26	16.77%
6	11	7.1%
7	18	11.61%
8	3	1.94%
9	3	1.94%
Very easy	7	4.52%
Number of valid entries in this question	**155**	

Section 4: The Willing to Pay

1. Are you **willing to pay** for the protection of the cultural heritage of Kulangsu Island? [Scale question] (Average score of this question: 4.85)

Option	Tot	Proportion
It is impossible for me to pay	19	12.26%
1	10	6.45%

2	11	7.1%
3	21	13.55%
4	10	6.45%
5	20	12.9%
6	14	9.03%
7	20	12.9%
8	7	4.52%
9	4	2.58%
I'm very likely to pay	19	12.26%
Number of valid entries in this question	**155**	

2. Which **type of building** protection are you willing **to invest** in? [Multiple Choice Questions]

Option	Tot	Proportion
Museum/Art Gallery	51	76.12%
Commercial building renovation	12	17.91%
Residential building renovation	22	32.84%
Landscape renovation	39	58.21%
Other	1	1.49%
Number of valid entries in this question	**67**	

3. **Why** are you **unwilling to invest** in the renovation of construction projects? [Scale question]

Option	Tot	Proportion
It matters only to the government and has nothing to do with me.	17	15.89%
I have no way to participate in the project	71	66.36%
Restricted by policies and regulations	10	9.35%
I don't agree with the current way of protecting cultural heritage	6	5.61%
Other	23	21.5%
Number of valid entries in this question	**107**	

4. **How much** are you **willing to spend** on the protection of local cultural heritage? [Single choice question]

Option	Tot	Proportion
Below 5000 CNY (≈ 650 Euro)	68	79.07%
5000-10000 CNY (≈ 650-1300 Euro)	13	15.12%
10000-50000 CNY (≈ 1300-6550 Euro)	2	2.33%
More than 50000 CNY (≈6550 Euro)	3	3.49%
Number of valid entries in this question	**86**	

Section 5: The Concept of Public and Private

1. Which of the following options do you think is **"public housing"**? [Multiple Choice Questions]

Option	Tot	Proportion
Liao's Villa (Former Residence of Lin Yutang)	108	69.68%
Trinity Hall (A famous Christian church)	106	68.39%
The former site of the World Club[60]	132	85.16%
Concord Chapel (Used to be an expatriate church)	115	74.19%
A famous bar or cafeteria	21	13.55%
Kulangsu Repin Art Museum	115	74.19%
A resident's own house or Airbnb homestay	12	7.74%
A tourist souvenir shop	15	9.68%
Number of valid entries in this question	**155**	

2. In the **Public Housing** Reconstruction Projects, is it **necessary** for the public **to collect proposals?** [Scale question] (Average score of this question: 8.37)

Option	Tot	Proportion
Not necessary at all	1	0.65%
1	1	0.65%
2	0	0%
3	3	1.94%
4	2	1.29%
5	14	9.03%
6	6	3.87%
7	6	3.87%
8	36	23.23%
9	23	14.84%
Absolutely necessary	63	40.65%
Number of valid entries in this question	**155**	

3. Do reconstruction projects of public buildings and streets are **in line with the wishes** of most residents? [Scale question] (Average score of this question: 5.54)

[60] It was a place for foreigners, Chinese dignitaries, and senior employees of foreign companies in Kulangsu at that time to entertain and communicate.

Option	Tot	Proportion
Totally inconsistent with the resident's wishes	1	0.65%
1	3	1.94%
2	4	2.58%
3	12	7.74%
4	24	15.48%
5	38	24.52%
6	27	17.42%
7	22	14.19%
8	12	7.74%
9	6	3.87%
Fully meet the wishes of residents	6	3.87%
Number of valid entries in this question	**155**	

4. Do you think that reconstruction projects of public buildings, streets, and landscapes meet **the vital interests** of most residents? [Scale question] (Average score of this question: 5.89)

Option	Tot	Proportion
Completely dissatisfied with the interests	0	0%
1	2	1.29%
2	3	1.94%
3	10	6.45%
4	16	10.32%
5	42	27.1%
6	26	16.77%
7	26	16.77%
8	14	9.03%
9	8	5.16%
Fully meet the vital interests of residents	8	5.16%
Number of valid entries in this question	**155**	

5. Has your **quality of life** improved in the ten years after Kulangsu, as a state-owned property, was listed as a world cultural heritage? [Scale question] (Average score of this question: 5.57)

Option	Tot	Proportion
Has not been improved at all	15	9.68%
1	4	2.58%
2	6	3.87%
3	14	9.03%
4	8	5.16%
5	29	18.71%
6	21	13.55%

7	21	13.55%
8	19	12.26%
9	5	3.23%
Has been improved significantly	13	8.39%
Number of valid entries in this question	**155**	

6. If not, what areas do you think **should be improved?** [Multiple Choice Questions]

Option	Tot	Proportion
Building exterior	20	26.32%
Function	26	34.21%
Transportation accessibility	45	59.21%
Landscape	20	26.32%
Local customs	47	61.84%
Intangible heritage and traditional crafts	38	50.00%
Other	7	9.21%
Number of valid entries in this question	**76**	

Section 6: The Concept of Value

1. Which of the blow do you think is **part of the cultural heritage**? [Multiple Choice Questions]

Option	Tot	Proportion
Residents living in architectural/urban heritage	91	58.71%
Tourists	9	5.81%
History carried on ancient buildings	147	94.84%
Ancient building	146	94.19%
Streets	113	72.9%
Landscape	111	71.61%
Urban settlements	120	77.42%
Others	4	2.58%
Number of valid entries in this question	**155**	

2. Which aspect of cultural heritage **value** Kulangsu presents? Please score by importance. [Matrix multiple choice]

Option	None	Some	Average	Very Important	Extremely Important
Social value	2(1.29%)	3(1.94%)	18(11.61%)	64(41.29%)	68(43.87%)
Historical Value	1(0.65%)	0(0%)	7(4.52%)	47(30.32%)	100(64.52%)
Cultural Value	1(0.65%)	0(0%)	9(5.81%)	47(30.32%)	98(63.23%)
Economic Value	2(1.29%)	2(1.29%)	48(30.97%)	59(38.06%)	44(28.39%)

Scientific value	5(3.23%)	5(3.23%)	59(38.06%)	50(32.26%)	36(23.23%)
Archaeological value	4(2.58%)	5(3.23%)	43(27.74%)	51(32.9%)	52(33.55%)
Art value	0(0%)	1(0.65%)	18(11.61%)	59(38.06%)	77(49.68%)
Environmental Value	0(0%)	1(0.65%)	20(12.9%)	66(42.58%)	68(43.87%)

Section 7: Personal Information

1. Gender [Single choice question]

Option	Tot	Proportion
A Male	77	49.68%
B Female	78	50.32%
Number of valid entries in this question	**155**	

2. Age [Single choice question]

Option	Tot	Proportion
A Under 25	47	30.32%
B 26-35	84	54.19%
C 36-45	11	7.1%
D 46-55	12	7.74%
E 56-65	0	0%
F Over 65	1	0.65%
Number of valid entries in this question	**155**	

3. Your highest education: [Single choice question]

Option	Tot	Proportion
A Without Diploma	10	6.45%
B Junior College	15	9.68%
C Bachelor's Degree	100	64.52%
D Master's Degree	30	19.35%
Number of valid entries in this question	**155**	

4. Where is your long-term residence? [Single choice question]

Option	Tot	Proportion
Kulangsu	49	31.61%
Xiamen (Out of Kulangsu)	106	68.39%
Number of valid entries in this question	**155**	

5. Your occupation? [Single choice question]

Option	Tot	Proportion
Architectural Students/Professors	27	17.42%

Professionals: Architect/Urban planner/Landscape architect	22	14.19%
Staff related to cultural heritage protection	3	1.94%
Real estate professionals	4	2.58%
Government Officials	15	9.68%
Others	84	54.19%
Number of valid entries in this question	**155**	

Appendix D. The Interview with Prof. Shaosen WANG, Dean of School of Architecture and Civil Engineering, Xiamen University; Member of Xiamen City Planning Committee

Time of the interview: 19 July 2021
Location: Siming Campus, Xiamen University

Record of the Interview in Original Language: Chinese Version

厦门的市民的整体文化素养非常高，大家对历史建筑的保护都很有热情。我本人作为厦门文化遗产保护学术界的代表，主导、组织拟定、并最终发布了**《鼓浪屿风貌建筑保护条例》**。这些法规条例的细化，在一定程度上促成于鼓浪屿于 2017 年被列入世界文化遗产名录的成功。鼓浪屿能够被给予资格，依靠的是从**民间到政府的自下而上**的共同努力。厦门当地的老百姓非常关心自己的建筑遗产，他们强烈希望能够拆除违章建筑，保护好的建筑。

从政府的宣传角度来看：厦门市政府给鼓浪屿专门的设置了信息监控中心。政府投资作为基础，对历史建筑实行**“活化再利用”的政策**，并建立了专门的专家库。鼓浪屿的被认定的遗产建筑不是政府和老百姓想修就修，而是要通过专门的专家评审才能决定。专家团要进行文化遗产的价值评估，以及“活化”的可能性分析。

厦门又有很多文化遗产保护的社会组织，他们自发组成了很多兴趣小组，比如，**鼓浪屿国际研究会、厦门旧城保护协会**等，成员全是当地人，不是建筑师等从业人员，是纯粹的民间自发组织。他们的主要活动是通过做展览等活动，对更广泛的社会群体起到宣传教育的作用。

就文化遗产的价值而言，当地居民更多的在意是**情感价值**和**历史价值。**他们更加关注的是**建筑和环境的关系**，之前的历史建筑修复都是点式的、局部的，现在民众更多呼吁的是**让历史建筑镶嵌在城市景观环境中。**与之相对的是，经济价值并不是民众最主要的关注点。鼓浪屿作为旅游目的地，如何营造更好的环境、展示和传播出当地有特色的文化历史价值，是当地人最关心的话题之一。**可惜的是，**西方人很难看到中国文化遗产地中的民众创造的这些价值。

历史建筑的所有权很难界定。很多住宅洋房原来是属于华侨的房子，后来华侨跑了，真正居住的是保姆及后代。虽然产权问题不可考证，但是现在属于私有产权。 还有一类房子叫做“公管房”，指产权不清楚的房子，这种房子涉及到更多利益相关者的协商和拉锯，要维修就会比较麻烦。

一般情况下的历史建筑改造工程需要先政府公示，现在也同时在网络平台发布公。如果存在异议，可以在公示期间提出投诉。鼓浪屿文化遗产的投诉平台，非常直接 非常有效率，依法行政全国第一。在建筑改造项目中，鼓浪屿本地的民众大部分都有强烈的出资意愿，会对居住的房屋（列入历史建筑的）自行改建，并会将改造方案等材料有意识的提交给给地方政府审核。

我认为作为研究者而言，必须把中国的故事说清楚说明白。我们的中央政府非常重视保护文物文化遗产，同时在发展和再利用的角度提出了“活化遗产”“社区营造”“ 文脉/文化的精髓”等概念。保护的路线主要是：针对城市历史风貌，通过城市环境和景观的改善，而建筑的外貌则通过技术来实现保护和提升。

The Translated Record of the Interview: English Version

The people of Xiamen have a very high cultural literacy, and they are passionate about the protection of historic buildings. As a representative of Xiamen cultural heritage protection, I initiated, formulated, and issued the Kulangsu Landscape Building Protection Regulations[61]. The high refinement of these regulations contributed in part to Kulangsu's inclusion in the World Heritage List in 2017. The success of Kulangsu was a result of the joint efforts of the people and the government. Xiamen people care about their architectural heritage very much. They strongly hope that the illegal buildings could be demolished, and their historic buildings could be well protected.

[61] Kulangsu Landscape Building Protection Regulations, adopted at the 22nd meeting of the Standing Committee of the Eleventh Xiamen People's Congress on 13 January, 2000.（ https://baike.baidu.com/item/%E5%8E%A6%E9%97%A8%E5%B8%82%E9%BC%93%E6%B5%AA%E5%B1%BF%E5%8E%86%E5%8F%B2%E9%A3%8E%E8%B2%8C%E5%BB%BA%E7%AD%91%E4%BF%9D%E6%8A%A4%E6%9D%A1%E4%BE%8B/18563117?fr=aladdin

From the perspective of government propaganda, Xiamen government set up a special information monitoring centre for Kulangsu. Based on government investment, the "activation and reuse" policy[62] of historical buildings was issued, and a dedicated thinktank of experts was established. Whether a historic building in Kulangsu should be repaired is not decided by Kulangsu government and people, but through a special expert review. The thinktank will assess the value of cultural heritage and analyse the possibility of "activation".

Xiamen also has a lot of social organizations dedicated to cultural heritage protection. They spontaneously form a lot of interest groups, such as Kulangsu International Research Association[63], Xiamen Old Town Protection Association, etc. The members are all locals, not architects or other practitioners. There are dedicated to informing and educating the wider community through activities such as exhibitions.

In terms of the value of cultural heritage, local residents care more about the emotional value [64] and historical value. They are more concerned with the relationship between architecture and the environment. While previous restoration of historical buildings is mostly dot-based and partial, now the public prefer to integrate historical buildings into the urban landscape environment. Economic value, by contrast, weighs much less. Actually, how to create a better environment, display and disseminate the unique cultural and historical values of Kulangsu as a tourism spot is the major concern of the local people. Unfortunately, it is difficult for Westerners to see the value created by the people in China's cultural heritage sites.

[62] Government ownership of historical guardianship is a historical building in which the government holds property rights and conducts the rating. Since such historic buildings are public property, social interests need to be taken into account in the protection process. It is the government's responsibility to protect these social assets so that they can be preserved for future generations. The protection of historical buildings in the past generally focused on preserving the appearance. In recent years, the concept of "revitalization and reuse" has been introduced. Apart from refurbishing the buildings, the government is also looking for suitable methods to reuse them in order to demonstrate their cultural significance and vitality while expanding their social functions. This allows the public to access and enjoy government-owned historic buildings.

[63] Kulangsu International Research Center was co-founded by College of Humanities of Xiamen University, Xiamen Social Science Association, and Xiamen City Academy of Social Sciences on 2 July 2017. It breaks the disorganized status quo of Kulangsu research by integrating the relevant government departments and academic representatives and other Kulangsu cultural heritage research resources, setting a good example of cooperation between local governments and universities.

[64] Collective memory and sense of belonging as defined in the western world.

Ownership of the historic buildings in Kulangsu is difficult to define. After the overseas Chinese who originally owned the residential bungalows ran away, the constant residents were the nannies and their descendants. Although the issue of property rights is untraceable, it is commonly recognized that the constant residents own the private property rights. Besides these buildings, there is another kind of house called "public house"[65] of undefined property rights. Since this kind of houses involve a lot of stakeholder consultation and tug-of-war, repairing them will be much more troublesome.

In general, a historical building renovation project needs to be publicly announced by the government, and now it is also published on the network platform. If there is any objection, a complaint may be filed during the publicity period. Kulangsu has a highly accessible and efficient cultural heritage complaint platform, and it tops the platforms of its kind for law-based administration. Most Kulangsu people are willing to pay for the construction renovation projects. If their houses are rated as historical buildings and they find it necessary to repair their houses, they will submit their plan and related documents to the government for review.

As a researcher, I feel obliged to tell the story of China clearly. Our central government attaches great importance to the protection of cultural heritage. It puts forward such concepts as "living heritage", "community engagement" and "cultural context" for the sake of development and reuse. The main route of protection is to preserve the historical profoundness of the city by improving the urban environment and landscape and protect and upgrade the appearance of the building with technology.

Appendix E. The Interview with Mr. Songrong CAI, Director of Kulangsu World Heritage Centre, Xiamen Kulangsu-Wanshishan

[65] Public house, i.e. state-owned house, is generally divided into self-managed public house and state-managed public house. Among them, self-managed public house refers to state-owned real estate operated by various departments, organizations, enterprises and institutions. State-managed public house is directly managed by housing management departments at all levels, including welfare houses built by state-owned and large collective enterprises and institutions as part of the planned economic welfare system. However, the distinct welfare purpose makes it difficult to identify the property rights of such kind of houses. In the past two decades, with the acceleration of urban construction and transformation of the old city, the vast majority of early rental public houses have been or are still facing the problem of demolition, which has triggered a variety of management disputes.

Scenic Area Management Committee, Siming District Government, Xiamen City

Time of the interview: 19 July 2021
Location: Zhonghua Road, Kulangsu, Xiamen

Record of the Interview in Original Language: Chinese Version

问：政府主导的鼓浪屿的历史建筑修缮过程是怎样的？

答：鼓浪屿的老房子有两类，一种是普通民房，令一种被定为历史风貌建筑。不管是公房、私房，我们首先是第一个确保它安全。我们政府部门会主动去排险，来检查可能会危害公共安全的建筑。居民也可以主动报告有危险的建筑，政府会介入并妥善修缮。另外一个就是有规划的留着历史风貌建筑，特别是重点历史风貌区。修缮前会跟居民沟通，大部分的居民愿意的情况下才可以进行建筑改造。但是我们政府不是全包，就是主要对结构加固，线路改造，建筑细部修复，比如闽南传统的一个装饰纹样，尽可能地使其符合原样，大概是这样一个基本原则。

第二个就是根据这些房子的一些特点，每年安排一个修缮的计划。出资情况是这样，如果是做建筑的加固，绝大多数由政府经费出；如果内部的装修就是由居民自己负担。如果是文物级的建筑，比如说省一级的或者国家级的，这个建筑修复经费绝大多数是由政府出。业主也可以自己出资修缮，但是可以把相应的财务统计整理出来，这些账目可以来申请补贴，最高补贴可以达到百分之八十。因为如果政府从头来负责的话，要走工程招投标的流程。这个流程就会比较长、也比较复杂。所以有些业主就决定自己来修，这个流程更加简单，但是改造方案一定要按照政府的批准的来，起到对建筑具有历史风貌的外观、结构的保护和监管作用。

问：我刚才也采访了几个居民，问了如下几个问题：“你们通过什么途径能来了解到这种呃改造项目的？了解这些申报过程吗？可以参与到保护项目中来吗？”他们说：“我们参与不到的，这些都是政府说了算的”。您觉得这个情况是真实的吗？

答：这是根据居民的意见决定的，如果住户不同意对其所居住的建筑进行修复，政府是不会强行进行的。有些时候，大规模修缮必须要腾退居民，就需要做很多的沟通工作。政府会给危房腾退的居民提供补贴，这部分属于生活的过渡费用，在原有的房屋改造期间，可以让居民用以租房。

问：如果政府和民众进行沟通的话，它更多的是自上而下的下达通知？在欧洲国家，比如意大利,会有这样的机制，会列出保护区需要保护的建筑，并征求民众的意愿，有一个公众沟通的过程. 我们会有这个过程吗？

答：不是，还有一个自下而上的一个反馈的活动。下达通知的主要途径是通过管委会的官网，还有居委会的入户通知等。如果是整个片区的改造，或者是牵涉到沿街立面的那部分建筑，就会面向公众集体征集方案。如果是独栋的住宅那就跟其他的居民没有产生联系，不会产生额外的沟通。前几年我们做了一次沿街地面的改造，是具有历史建筑特征的商业街区，由于各户要统一风格，就会挨家挨户进行协商。具体风格的选定要集体协调，召开讨论会，这跟意大利的方式是相似的。讨论会的成员主要有业主的代表、相关的专家、以及持有不同意见的各户。讨论会上，专家要公布设计方案给大家看，并向公众征求修改意见。方案的细节（比如颜色、防盗网的选择等）是大家一起讨论、一起选择的，而且是可以修改的。最终达成共识后，再去实施。比如说有一些业主觉得这个方案不行，也会拉拢其他的业主来反对。总之是一个互相理解、共同沟通的过程，大部分情况都是所有业主要达成共识，如果没有达成共识是没办法施工的。

问：那一般情况下，历史建筑改造的施工时间基本上我们要控制在多长时间？

答：要看建筑的体量，有时候半年、一年、甚至有两年。其实是很快，在西方，他们动不动就修个几十年、一百年这样子。政府的预算经费都是按年度的，而且财政要求还是比较严格。如果一年内建筑工程没有完成，要重新提出申请，并且说明是什么原因导致的工程滞后。所以，我们不会像西方那样，一栋楼修好多年。

问：我们跟居民沟通的主要途径就是通过管委会、街道办这些人工的方式来沟通。那我们社交媒体在这里面扮演的角色，占的比重大不大呢？还

是您认为因为鼓浪屿并不大，很多居民中国人办事就觉得见面的时候更好沟通。

答：在历史建筑被列入政府修缮名单之前，政府会有专门的人员（大部分为街道办事处和社区中心的工作人员）跟所住的居民进行私下沟通。主要是为了确定居民的意愿，同时居民可以提出自己的问题和需求。确定被列入修缮名单后，建筑改造工程的实施都是由管委会组织专业的施工队来修缮。所需资金的协调也是由管委会负责。有的老房子是一栋房子里好几户住在一块，其中一户就觉得某些建筑上的问题很严重，一定要改，有些住户则认为无所谓。这种情况下，居民会主动来反馈，我们工作人员会去现场评估，并做出判断。

居委会的每个负责人都会专门负责辖区之内的几栋建筑。这些负责人常年住在当地，很了解谁家房子比较旧了，会主动询问居民要不要修缮。平时工作中跟居民建立起的这种关系，是有感情的，中国人讲究见面三分情嘛，由这些工作人员去沟通会更容易一些。另外，鼓浪屿的这个人口构成，是老年人多一点，老龄化严重。有些居民年纪也比较大，不擅长使用社交媒体。

问：数字媒体对于我们这个文化遗产保护进程现在的影响占到一个多大的比重？

社交媒体方面，主要是使用微信，建立了鼓浪屿的公众号，来发布鼓浪屿的动态消息和数字景区建设。这个舆情监控的部分，主要是我所在的单位负责的。我们每天都会利用各类社交平台，主动去搜索有关鼓浪屿的议论，主要观察是负面的信息。我们就会主动去回应发布这个话题/帖子的用户，并且提供帮助，比如就他做反映的问题可以跟政府的哪个部门直接沟通。管委会的官方网站上还可以发送站内信，这个可以是匿名的，民众可以更直接的、没有负担的反映出他们的困境。

我们现在也还在完善城市遗产的数字化建设，比如说数字导览、数字博物馆、在线购票等，甚至还有一个是公厕地图啊。我们也正在建一个数字沙盘，但因为受限于这个经费（我们一年只能投几十万），只能慢慢做，最终成果是做成一个在线的数字虚拟的鼓浪屿，而且也是真实的鼓浪屿。我们对一些核心的历史建筑进行三维扫描，做成一个可以三百六十度观赏的模型。

但是没有建筑内部，因为有一些房子是私人的空间，我们不想展示在公众面前。但是建筑的外观是文化遗产和历史街区的重要组成部分，是大家都关注的，可以公开的。

问：有关文化遗产的保护的价值方面，会有历史价值、文化价值，教育价值、经济价值等等，您觉得哪些价值是您认为最重要的？

答：我个人认为，鼓浪屿最重要的是**文化价值**。鼓浪屿具有特别的异域风情，有很明显的有西方的建筑痕迹。很多天主堂都是活态的，依然有居民在里面做弥散，也有神父。另外，就是鼓浪屿有比较好的**经济价值**，因为它是厦门的的一个金牌景区。很多人了解到鼓浪屿就知道在厦门，甚至比厦门的名声还响，这带来的直接就是经济效益的提高。还有，鼓浪屿的本地社区是经过百年的演化而形成，所以他有很强烈的历史空间感，就跟意大利的老城区一样。不像有些现代化的城区，车水马龙很喧闹。而且是可以走进来体验的，好像从一个时尚的空间穿越到一个历史的空间。鼓浪屿这个遗产地是有机生长出来的，自然形成的，而不是特意人工规划的。很多房子都是依山而建的，有些建在海边，有些建在悬崖峭壁上，只要你符合当时的规定，都可以建。是经过了上百年的历史，一层一层的积累形成。所以，这个地方就有非常好的人文旅游的价值，所以我讲它经济价值比较高。鼓浪屿的居民有一个比较有特色的人文传统，这里人爱音乐跟爱踢足球。我们刚拍了一个纪录片，用来宣传这里的**人文价值**。

问：我刚才有听您说到“活态”这个词，这是在中国的文化遗产保护里面很新的一个词。同时，还衍生出来另一个事情，我们保护遗产不只是保护这些建筑而已，不只是保护这些街区而已，我们居住在里边的人也是遗产的一部分。因为人身上承载着当地的文化并传承着当地的历史。但是，鼓浪屿岛上的居民老龄化先现象可能已经在慢慢严重，年轻人也在流失。我们这些历史建筑里会不会慢慢地变得没有人住？会不会出现这样的问题？

答：我非常认可你说的，如果这里没有人，他们承载的文化就会消失，激活社区是非常重要的一部分。鼓浪屿岛上的老龄化严重，主要是年轻人不太喜欢住在这样的环境，虽然清净，但是休闲、娱乐的场所太少了，外卖服务、网上购物也没有那么方便。而且，鼓浪屿在一百年前是很先进，现在这个配套肯定是落后一些的。另外就是，这里的学校也有限，医疗资源、教育

资源都相对稀缺。就业机会也不是很多，所以年轻人的流失，是社会的发展的一个必然。

我们政府在努力通过一些政策来吸引更多的家庭和年轻人来岛上生活。现在就是有岛上有一些中小学校，我们当地政府就抓住中国人非常重视教育的传统，给予幼儿园、小学、初中学校一些特殊的政策，比如提高教师的补贴，学校可以招一些特长班、班级容量更小一点。很多家长就会认为这个学校比较好，适合孩子健康成长，被吸引过来。很多家长就会搬到岛上来住。那这样慢慢的岛上的人气就旺起来了。而且这个举措会让吸引来的家庭至少住三年，相当于固定居民，年轻的父母和小孩在这里生活，会给整个社区注入一股活力。这个效果已经逐渐体现出来了，因为我们已经这样尝试了三年。我们的招生计划是每年就是个学生，第一年我们有九百个人来报名，第二年就有一千五百多人来报名，可以说明这个政策对有小孩的家庭吸引力是非常大的。另外，我们还出台了政策让居民的生活成本降低。因为被列为了文化保护遗产的缘故，居民可以发展的产业很少。从厦门市将燃气等生活物资等运送过来也会无形中增加居民的生活成本。政府为了改善居民的生活状况，向居民提供了诸如燃气补贴、交通补贴、运输补贴等。比如，从厦门市请家政服务人员是很困难的，因为要坐船过来，有时间成本，这个差价也可以由政府来补的。还有，户籍在鼓浪屿岛上所有的居民的往来厦门的交通费用，全年免费。进入岛上的所有的国有景区也全年免费，就当作是你自己家的一样。

The Translated Record of the Interview: English Version

Q: How does the government lead the renovation of historic buildings in Kulangsu?

A: There are two types of historic houses in Kulangsu, one is ordinary houses and the other is defined as historic heritage. Whether it is public or private houses, ensuring safety is our top priority. The government regularly checks the buildings to eliminate potential dangers. Residents can also report dangerous buildings, and the government will step in and properly repair them. The government also designates some featured historic heritage areas, and it will communicate with the residents about the renovation plan and seek the agreement of the majority before

construction. But that does mean the government takes over every issue. It mainly directs the structure strengthening, line transformation and architectural detail repair, such as a traditional decorative pattern in southern Fujian. The major principle is to make the building as it used to be without changing the appearance.

Secondly, the government organizes annual renovation plans according to the characteristics of the houses. The funding goes like this: if the building needs reinforcing, most of the bill goes to the government budget; if the house owner wants some interior decoration, he or she pays the bill; If it is a heritage building, such as provincial or national one, the government pays the majority of the cost. There is another situation where the house owner conducts the reconstruction, pays for the repair and applies for subsidies on account of the corresponding financial statistics. The subsidy counts for 80 percent of the total cost at most. Generally, personal conduct is easier and more efficient than the government-led construction plan, which usually takes time-consuming, complicated bidding procedures. In such cases, the government plays the role of approver, protector and supervisor to ensure the appearance and structure of the buildings are not changed.

Q: I just had a quick interview with a couple of local residents. My questions were: "From what approaches do you understand the renovation projects? Are you aware of the declaration process? Are you part of the protect project?" Their answer was "I seldom participated in such projects. It is all the government's work." What do you think?

A: That is not true. The innovation projects are only approved when the residents agree. If there are objections, the government will not conduct any forced intervention. Sometimes, we need to initiate some large-scale renovation projects, and the original residents have to move out temporarily. The government will reach the residents, communicate with them, and put forward a series of measures such as offering subsidies for the rental during the construction.

Q: How does the government communicate with the public? Is it through the notifications? Some European countries, for instance Italy, have such a mechanism to list the buildings in need of protection and collect the opinions of the public. They communicate a lot in this process. Does Kulangsu have a mechanism like this?

A: There is also a bottom-up feedback mechanism. The main ways to issue notice are through the official website of the Management Committee[66] and the door-to-door visits of the community committee. If it is the transformation of the whole area, or if it involves the part of the building along the street façade, public opinions will be collected and considered. If it is a single-family house that has nothing to do with other residents, there will be no need to negotiate. A few years ago, we conducted a street-by-street renovation project in a commercial block with historical architectural features. Since we planned to unify the style of each household, so we went door-to-door to negotiate. The selection of specific styles was coordinated collectively, similar to the Italian approach. The seminar was attended by the management committee, house owners and their representatives, experts and stakeholders with different views. At the seminar, experts presented the plan and solicited the public's views. The details of the scheme (e.g. colour, choice of anti-theft net, etc.) were discussed and modified together. Finally, we reached a consensus and then started the renovation. Some owners did not agree with the scheme and called for other owners to oppose it. Then we had another round of discussions. In short, it was a process of mutual understanding and common communication. The reconstruction would not start without the consensus of all stakeholders.

Q: In general, how long does a renovation project take?

A: One year or two, depending on the size of the building. It is pretty fast, actually. Projects of the same size may take dozens and even a hundred years in western countries. The government budget is strictly checked on a yearly basis. If a project is not finished within one year, the project must be refiled, and the reasons of delay must be explained. Therefore, in Kulangsu, it is impossible to spend many years renovating a building like the western countries do.

Q: I understand that the residents mainly receive notice from and give feedback to the community committee. Is social medial involved in this process? What kind of role does social media play? Or do the residents prefer communicating face to face since Kulangsu is such a small place?

A: Before historic buildings are added to the government’s repair list, the government designates personnel (mostly neighbourhood committee members and community centre staff) to communicate privately with the residents. The main

[66] Kulangsu-Wanshi Mountain Management Committee (http://gly.xm.gov.cn/)

purpose is to determine the wishes of the residents, while the residents can express their concerns and needs. After a building is included in the repair list, the construction is done by the professional team organized by the management committee. Coordination of the required funds is also the responsibility of the management committee. There are some houses where a couple of families inhabit. Some think the house needs repairing and the others do not agree. In such cases, the residents will report the situation, and our staff will go there and check on the house.

Every member of the community committee is responsible for several buildings. They live in the local area all year round, so that they know very well the conditions of the houses within their jurisdiction and would timely communicate with the house owners about the need to repair. The committee members are so acquainted with the local residents that communicating with them is much easier. As to social media, the majority of the population in Kulangsu are the elderly who are not good at using social media.

Q: What is the impact of digital media on the cultural heritage conservation process today?

A: In terms of social media, we have a public WeChat account to post the news and construction of digital scenic spots in Kulangsu. Our staff of the Kulangsu World Heritage Center keep a close eye on the public opinions. Every day, we search for comments, mainly the negative ones, about Kulangsu on various social platforms. Once we pinpoint a negative message, we will reach for the poster and see what we can do, such as communicating directly with related department about the issue he/she complains about. The public can also send messages through the committee's official website anonymously, so that they can freely and directly express their concerns.

We are also working on the digital construction of urban heritage, including digital tours, digital museums, online ticket purchases, and a map of public toilets. Besides, we are trying to build a digital sand tray, but it goes slowly because of the limited funding (we can only invest hundreds of thousand yuan a year). We are expecting to present a digital view of Kulangsu, both virtual and real. In our plan, we will scan some of the core historic buildings to make a 3D model that can be viewed from all angles. But the interiors of the buildings will not be displayed for the sake of the privacy of the house owners. We hope to present the appearance of the building as an important part of the cultural heritage that the public cares about.

Q: What value do you think is most important when it comes to the value of cultural heritage preservation? Is its historical value, cultural value, educational value, economic value, or others?

A: Personally, I think the cultural value matters most to Kulangsu. Kulangsu boasts a special exotic atmosphere with distinct signs of Western architecture. Many old churches are stilled used. There are priests, and people go to mass. Kulangsu shows good economic value, too, because it is a signature scenic spot in Xiamen. People know Xiamen after they know about Kulangsu. The popularity of Kulangsu brings direct economic benefits. Also, Kulangsu's local community has evolved over the centuries. It provides a strong sense of historical space, like the old town in Italy, which is distinctively different from the modern noisy urban areas. I would also highlight Kulangsu's humanity value. As a heritage site, Kulangsu is organically grown and naturally formed, rather than deliberately man-made. Many houses were built on the mountain, some by the sea, and some by cliffs. People in old times could build all kinds of houses anywhere as long as they met the regulations. The historic profoundness accumulated year by year, creating a great spot of humanity tourism. Most Kulangsu people love music and soccer, which is a tradition of the place. We've just made a documentary to promote the human values here.

Q: I just heard you say the word "living", which is a new word in China's cultural heritage protection. It enlightens me that we do not just protect the buildings and neighbourhoods, but also the people living there, which is also an important part of the heritage. Because people carry the history and pass on the local culture. However, the ageing problem of Kulangsu becomes increasingly serious, and young people are moving out as well. Will the historic buildings become empty in the end?

A: I very much agree with you. If people do not live here, the culture they carry will disappear. Therefore, activating the community is very important. Kulangsu's aging problem is serious, mainly because it cannot satisfy young people's need of leisure, entertainment, takeaway services, and online shopping. Although Kulangsu was very advanced a hundred years ago, now it seemed a bit old compared with the modern world. In addition, given the limited medical resources, education and employment here, it is inevitable that young people will move out.

The government has launched a series of policies to attract more families and young people to live on the island. In terms of education, we have some favourable

policies for kindergartens, primary and secondary schools, such as increasing teacher subsidies, recruiting some elite classes, reducing class size, etc. Parents will be attracted by the quality education and move to the island, and then they become constant residents. We have tried for three years, and the effect is obvious. The first year we had more than 900 students signing up, and the number jumped to 1,500 in the second year. Apparently, the policy has successfully attracted families with children. In addition, the government is seeking to reduce the cost of living on the island from different aspects. Kulangsu as cultural heritage does not boast industries of high profit, and the living supplies such as gas are mostly transported from Xiamen, which causes extra cost. Therefore, the government provides subsidies for gas, transportation, logistics, and the extra shuttling cost of household service from and to Xiamen. Besides, Kulangsu people enjoy free transportation to and back from Xiamen, and they can access all the state-owned scenic spots on the island without needing to buy tickets.

Appendix F. The Interview with Prof. Yuan LI, Professor and PhD supervisor, School of Architecture and Civil Engineering, Xiamen University; Member of the Big Data Committee of China Urban Science Research Association

Time of the interview: 20 July 2021
Location: Siming Campus, Xiamen University

Record of the Interview in Original Language: Chinese Version

问：数字技术如何帮助文化遗产修缮？

答：第一，就是站在政府层面上来看，鼓浪屿政府文保处正在试图将鼓浪屿历史城区的遗产管理中引入数字技术“BIM[67]”的运营、管理和报建。这个全新的记录这个是很重要一块，就是说数字技术对于文化遗产的记录。第二，站在居民的角度。有的居民他是自家的房子，他要来自己提供报建、修缮的文件。目前来看，我认为国外的行政效率、审批效率是比国内要快的，具有一定的先进性。我认为需要利用数字工具加快这个历史建筑改建的审批

[67] Building Information Modeling (BIM) is a digital representation of physical and functional characteristics of a facility.

过程，促进鼓浪屿的居民和政府之间的沟通。最后，我比较关注的是相关学者如何用建立数字平台发出声音

问：我觉得还有一点值得关注，就是老百姓该如何发声，比方说他的这些意见该如何反馈给学者、反馈给政府？这个平台应该是双向的。利用社交媒体、数字技术，可以摆脱空间的限制，即使海外华人也是完全可以参与到这个事情当中.

答：因为鼓浪屿是全世界人民所有的共同遗产，所以不仅仅是专家需要介入，全世界各地的文化遗产爱好者都可以参与到保护中来。鼓浪屿的当地居民成立了“家庭民宿管理协会”. 民宿是鼓浪屿的主要产业。这个协会能够很强烈的代表当地 local stakeholder 的意愿。当地居民要营生、医疗、小孩子要上学，要买菜，而海岛的局限造成了很多居民生活和工作上的不便。 因此，鼓浪屿作为遗产地不能大拆大建，这也形成了一定程度上的困扰。

你可以把民众在数字平台上发声理解为数字驱动设计，你可以用数字协商平台，甚至有数字资产。我们最重要的项是要营建 BIM 管理平台，来管理建筑修缮的全生命周期和进度。通过网上信息的共享，促进专家、游客和当地居民知道历史建筑的故事、文化信息，最终目的是让公众可以进行交互式的点评，并标签。比如，最近福州数字峰会中，华为展示了和某遗产研究院的合作项目，非常令人震撼，传统的城市设计方式被信息技术颠覆了。

我们国家早期更加关注就规划管理，跟建筑保护是脱节的，当时国内是没有社区共同参与规划的概念的。最近二十年，我国的城市建设极具扩张，对“协同式规划”和“规划支持系统”的引入有了强烈的需求。从某些方面来看，我们的城市硬件发展很快，但是我们国家政府的管理思维仍然有些落后。因此，用数字技术增强遗产的环境的改善和提升，做一个社区规划的这个数字系统平台是很有必要的。我的设想是，只需要规划师、设计师把建筑设计方案的数据输进去，比如建筑的耗能多少，垃圾多少，就都能显示出来。

问：鼓浪屿文化遗产主要具有哪些方面的价值？2. 您认为居民的 willingness to pay 是什么程度？他们愿意为历史建筑的修复买单吗？3. 您了解什么是公房吗？您认为公房是公共建筑还是私有建筑？

答：第一个问题从大的方面来说有社会价值，经济价值，文化价值，历史价值。第二个问题需要分情况对待，这涉及到顶层的制度设计，反补机制，

以及后续效益的可能性让居民自己能够在建筑遗产修复方面做出价值判断。第三个问题是公房和私房的问题，如果从产权属性来讲，这个区分是明显的，但是私房存在很大的管理和治理问题，比如家族内部之间的产权纠纷，利益关系，等等。这种情况在很多遗产地都有，私人产权的建筑是个人财产没有错，但是营造的城镇景观是 public interests，所以如何协调各方又回到第一个问题的答案：顶层设计，反补机制，后续效益等等。公共建筑这个概念是空间属性，不同尺度的公和私都有。

The Translated Record of the Interview: English Version

Q: How can digital technology facilitate cultural heritage conservation?

A: Firstly, at the government level, Kulangsu Cultural Protection Office is trying to introduce "BIM"[68] into the operation, management and reporting of the heritage management of Kulangsu's historic heritage. Digital technology is a new and important part of the cultural heritage record. Secondly, from the residents' point of view, residents who own and live in the historic buildings shall provide necessary documents[69] for construction and repair. Speaking of this, I think the western countries have a more efficient and advanced administration and approval system. I think it is important to use digital tools to speed up the approval process for the renovation of historic buildings and to facilitate the communication between the residents of Kulangsu and the government. Lastly, I am also thinking how scholars can use digital platforms to better express their opinions.

Q: I am also curious how the public express their opinions to scholars and the government. This should be a two-way platform. Relying on social media and digital technology, all people, including overseas Chinese can participate in this matter exempt from the limit of space.

A: Kulangsu is the common heritage wealth of all people on earth. It's not just experts who need to step in, cultural heritage enthusiasts around the world can also participate in the conservation. For example, local residents in Kulangsu set up an

[68] Building Information Modeling (BIM) is a digital representation of the physical and functional characteristics of a facility.

[69] Including the status of the building, the reasons for alteration, purpose, etc.

Airbnb Management Association[70]. Airbnb is the main industry in Kulangsu. The association can strongly represent the will of the local stakeholders. Local people need living supplies, groceries, medical care, and education resources. However, the limited conditions on the island have caused a lot of living and working inconvenience. On the other hand, Kulangsu as a historic heritage site does not allow large-scale renovation, which also forms a certain degree of distress.

You can understand public digital platforms as digital-driven design. You can use digital negotiation platforms and even digital assets. Our most important project is to build a BIM platform to manage the entire life cycle and progress of building reconstruction. Through the sharing of information online, experts, tourists and local residents can access the stories and cultural information of historic buildings, with the ultimate aim of encouraging interactive reviews and tagging for the public. For example, at the recent Digital China Summit in Fuzhou[71], Huawei demonstrated a collaborative project with a heritage research institute, which showed a brand-new urban design method with the support of information technology. It was amazing!

Our country's early focus on planning management was out of touch with building protection, when there was no concept of community participation in planning. In the last two decades, China's urban construction expanded dramatically, and there was a strong need for the introduction of "collaborative planning" and "planning support system". Our urban hardware is developing very fast, but our government's management thinking is somewhat backward. Therefore, it is necessary to use digital technology to enhance the improvement and upgrading of the heritage environment, and to make a digital system platform for community planning. My idea is that planners and designers can input the data of architectural design into the system, such as energy consumption and garbage production, and then they will be displayed clearly.

[70] Founded in 2008, Kulangsu Airbnb Association is the first social group in Xiamen with family hotels as its main members. An official website is also established to create a collective brand of Kulangsu Airbnb.

[71] From 25 to 26, April 2021, the 4th Digital China Summit was held in Fuzhou with the theme of "Inspire new dynamics in data elements and start a new journey for digital China". Huawei, as an active participant in digital China construction, has participated in several summits. Huawei was invited to participate in all parts of the summit on the theme of "Understanding and Building Urban Intelligence" and presented its vivid practice and latest achievements in urban intelligence and industry digitalization. (http://finance.people.com.cn/n1/2021/0428/c432208-32090705.html).

Q: Where do you think the value of Kulangsu cultural heritage lie? 2. How do you see the residents' willingness to pay for the renovation projects? Or are they willing to pay? 3. What's your understanding of public houses? Do you think public houses are public buildings or private buildings?

A: I think the significance of Kulangsu cultural heritage lies in its social, economic, cultural and historic values. The second question is kind of complicated. It depends on multiple factors, such as the management system, the allowance system, and whether the residents think the subsequent benefits are worth their investment. As to the issue of private and public houses, from the perspective of ownership, the distinction between them is obvious. However, there are big coordination problems in the management of private houses, such as interest disputes between family members, the balance of interest relations. It is a problem of not only Kulangsu, but also other heritage sites. On one hand, private buildings are admittedly personal wealth. On the other hand, the urban landscape to which these buildings belong is of public interest. Then it goes back to the first question: the coordination of private ownership and public interests depends on the management system, the allowance system, the subsequent benefits, and so on. As to public houses, it is a matter of spatial attribute.

Appendix G. The Interview with an Anonymous Resident in the City of Xiamen

Time of the interview: 19 July 2021
Location: Siming Campus, Xiamen University

Record of the Interview in Original Language: Chinese Version

由于我们希望实现鼓浪屿作为旅游景区的持续性，不希望鼓浪屿在短短的一段时间内就被破坏，失去了原有的特色。我们当地居民也因此非常关注建筑改造项目。我认为最值得强调的是居委会的重要性。在文化保护遗产方面，社区居委会是很重要的一环，是政府机构最远的触角和细胞。比如如果我们的住宅需要增建电梯，我们要先找到社区居委会反映，进过他们的调解各住户的意见达到一致才能建. 如果无法实现统一，我们也可以直接投诉到市长热线，寻求其他部门的介入。再比如，由于修建地铁破坏了城市的水管线路，造成了漏水，我们也都可以通过市长热线反映，一般都能很快速的得

到回复和处理。还有一个例子，是厦门实验中学的创始人林云梯的旧宅，在鼓浪屿的前铺区域，大概有 1000 多平米。在改造的过程中遇到了资金问题. 我们协调到市政府，政府出资 400 万进行了这个建筑的修缮。这种在历史建筑保护中的资金问题，我们可以直接联系厦门古建筑保护协会（民间组织）寻求帮助，也可以通过直接民间集资的形式获得资金。对公共和私有的判断主要是根据使用性质、使用主体和产权来判断，比如学校、医院、体育馆等公共类的建筑，都是公房，个人的住宅则为私人的，但是两者的产权都归属国家。

在我看来，鼓浪屿文化遗产主要具有的是历史价值，艺术价值，科学价值这三个方面，也有一部分人文价值。因为鼓浪屿的城市形态是经过一定的年代形成的，整个演变过程也非常具有历史意义。在租借地/殖民地的时期，形成了一些异国风情的建筑形制，同时和本地建筑风格相结合，具有独特的艺术特色，在某种程度上说，人文价值是超过科学价值的。清晨的鼓浪屿是最有本土气息的鼓浪屿，会有原住民进行打渔等活动。现在鼓浪屿作为旅游区，自然景观的部分有所退化。当地的风土人情，比如一些传统迷信的活动仍然留存，成为了人文遗产不可分割的一部分，并赋予了建筑不同的功能和形式。

The Translated Record of the Interview: English Version

I hope that Kulangsu could remain a sustainable tourist attraction instead of losing its original characteristics in a short period of time. Therefore, our local residents are very concerned about the renovation projects in Kulangsu. I think the most important thing to emphasize is the role of community committee. Community committee is an important part of cultural heritage protection as well as an extension of government agencies. For example, if a house needs an additional elevator, we shall first report to the community committee. Then the committee will mediate the views of all residents to reach a consensus. If an agreement is not possible, we can also go directly to the mayor's hotline and seek the intervention of relevant departments. For example, because the construction of the subway damaged the city's water lines, which resulted in leakage, we complained through the mayor's hotline. Most of the time, our opinions can get prompt replies and treatment. Another example is the reconstruction of the old house of Lin Yunti, founder of Xiamen Experimental Middle School, which is about 1000 square meters located

in the front paving area of Kulangsu. When we ran short of finance, we coordinated with the municipal government, which invest four million in the repair. We can get this kind of funding for the protection of historical buildings from Xiamen Ancient Building Protection Association (a non-governmental organization) or through direct private fund-raising. Whether a building is private, or public depends on its purpose of use, subject of use, and property rights. For example, schools, hospitals, gymnasiums and other public buildings are public, and residences are private. No matter whether it is public or private, the property rights belong to the country.

In my opinion, the most important values of Kulangsu cultural heritage are its historical value, artistic value and scientific value. Also, there is humanistic value. The urban form of Kulangsu was formed over a long time. Therefore, the entire evolution process is also of great historical significance. During the colonial period, some exotic architectural forms were introduced and combined with local architectural style to form the unique artistic characteristics of Kulangsu. To some extent, the humanistic value outweighed the scientific value. The unique beauty of Kulangsu was best presented in the early morning when the local people begin fishing and other daily activities. After Kulangsu became well-known as a tourism spot, part of the natural landscape has deteriorated. Local customs, such as some traditional superstitious activities, still remain, becoming an integral part of the humanistic heritage and equipping the buildings with different functions and forms.

Appendix H. The Interview with Qinong DONG, Local Resident for 67 Years on Kulangsu Island

Time of the interview: 28 July 2017
Source: "Heritage Bridge" media salon, sponsor and organizer: China Cultural Heritage Research Institute; China World Cultural Heritage Center and Beijing Cultural Heritage Protection Center
(http://m.cyol.com/content/2017-08/03/content_16358025.htm)

Record of the Interview in Original Language: Chinese Version

绝大部分老百姓对申遗成功都感到非常高兴和欣慰，因为我们认为老祖宗开拓创造下来的这么一个历史国际社区，它的文化价值得到了国际社会认可。但是，并不是所有人都为鼓浪屿申遗感到兴奋，有人认为原住民的迁出是在“逃离鼓浪屿”。在岛上生活了 67 年的他，见证了厦门政府落实华侨私

房政策后，华侨们纷纷搬到政府建设的安置房。当房屋得到合理使用时，才能起到保护作用，所以发动居民力量扶持家庭旅馆是很正确的做法，让老百姓在使用这些房屋的时候修旧如旧，保持它的历史风貌。

有人把家庭旅馆看做洪水猛兽，完全不是这回事。如果有一两家出现问题，那就加强监管嘛，叫他整改嘛，发现什么问题就及时解决掉。我们还成立了鼓浪屿家庭旅馆商家协会，这也是全国第一家。历史国际社区的精神是包容、博爱。迅猛发展的旅游业，也吸引了很多外乡人来这里工作，吸引更多的人爱护小岛、融入小岛，共同建设小岛。申遗专家上岛考察前一天，恰巧赶上了莫兰蒂台风来袭。17 级的台风啊，把百年大榕树都连根拔起，倒了 3000 多棵，有 2000 多人参加救灾工作，很快就把满街的垃圾全部清理干净。很多旅馆在台风来袭时都打开大门，让住在危楼里的居民进来躲避。

The Translated Record of the Interview: English Version

The majority of the public are very happy with the success of Kulangsu being included in the World Heritage List. We take pride in the cultural value of such a historical international community created by our ancestors, and we are more than delighted that it has been recognized by the international community. But not everyone is excited about Kulangsu's success. Some think that the relocation of local residents is “fleeing Kulangsu”. I witnessed how overseas Chinese moved to government-built houses under the call of Xiamen government’s private housing policy. Only when houses are used rationally can they be protected sufficiently, and that it is a good thing to mobilize local residents to support Airbnb. People are guided to repair the houses without damaging the original appearance.

Some people see Airbnb as total damage to their houses. That’s not the case at all. A few owners may not do so well as regulated. Just strengthen the supervision, drive them to improve, and solve problems in time. We have also set up the Kulangsu Airbnb Association, which is the first one of its kind in China. The spirit of the historical international community is tolerance and fraternity. The rapid development of tourism not only attracts labour inflow, but also drives more people to jointly protect the island and make it a better one. The day before the experts visited the island, they happened to catch up with super Typhoon Meranti. Level 17! The hundred-year-old eucalyptus trees were uprooted, and more than 3000 trees were blown down. Gratefully, we got 2000 people in the disaster relief work. All

the garbage was cleaned up overnight, Airbnb owners opened their doors and provided shelter for residents living in dangerous buildings.