

## Digital Humanities Projects Supporting Marginalized Groups: A Panorama of Practices and Implications—A Survey Study Based on 78 Representative Support Cases

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### Abstract

**Purpose/Significance:** This study examines practical cases of digital humanities projects supporting marginalized groups, aiming to provide experiential insights for China's exploration in this domain. **Methods/Process:** Through case analysis methodology, practical elements were extracted from 78 domestic and international digital humanities projects focused on marginalized group support. The effectiveness of support initiatives was tracked and experiential lessons analyzed across four dimensions: diverse stakeholder participation and collaborative co-creation; support targets addressing both explicit and implicit needs while advancing with the times; support measures combining establishment and abolition through multi-pronged approaches; and diverse outcome forms with steady progress. **Results/Conclusions:** The study derives implications for developing marginalized group support digital humanities projects in China: leveraging social institutional advantages to unleash governmental agency; orienting toward target group needs for precise targeted support; aligning practical measures to facilitate digital dividend realization; and constructing lightweight outcome clusters to promote sustainable compound benefits of collective wisdom.

### Full Text

## Practical Panorama and Insights from Digital Humanities Projects Supporting Marginalized Groups: An Investigation Based on 78 Typical Cases

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**Abstract:**

**[Purpose/Significance]** This study analyzes practical cases of digital humanities projects supporting marginalized groups, aiming to provide experience and insights for China's exploration in this domain. **[Method/Process]** Employing case analysis methodology, we extracted practical elements from 78 domestic and international digital humanities projects focused on marginalized group assistance. We tracked assistance effectiveness across four dimensions: diverse participation of assisting subjects for collective creation; consideration of both visible and invisible assisted objects, keeping pace with the times; implementation of assistance measures that combine establishment and deconstruction, employing a multi-pronged approach; and diverse forms of assistance outcomes, seeking stability while pursuing progress. **[Result/Conclusion]** The study derives the following insights for constructing China's digital humanities projects for marginalized group assistance: leverage social system advantages to unleash governmental driving force; target the needs of assisted objects to carry out precise, targeted assistance; unify pragmatic measures to facilitate the realization of digital dividends; and build lightweight outcome clusters to promote the sustainable compounding of collective intelligence.

**Keywords:** Digital Humanities, Marginalized Groups, Digital Assistance

Marginalized groups, as a constructed cultural conceptual system, refer to social subjects that are neglected, less attended to, or even excluded by mainstream culture [1]. Their emergence and transformation constitute a long-standing and pervasive social phenomenon within social entities [2], and their development and evolution directly concern social stability and individual rights [3]. Digital humanities, as an important vehicle that leverages digital technology to fully excavate, extract, integrate, and release cultural resources, has attracted considerable attention for its assistance to marginalized groups through its participatory characteristics regarding identity and social justice issues [4]. According to statistics, the Alliance of Digital Humanities Organizations (ADHO) and the Digital Humanities Awards (DHA) have collectively facilitated the implementation and exhibition of 78 digital humanities projects involving marginalized group assistance, achieving certain effectiveness in alleviating cultural oppression such as sexism, xenophobia, and linguistic or religious coercion [5]. This demonstrates that organizing forces and identifying appropriate methods to conduct concrete, quality assistance work for marginalized groups represents an important direction in contemporary digital humanities practice.

Research in this area has already yielded preliminary results. At the practical dimension, scholars have introduced assistance measures from foreign digital humanities projects targeting marginalized groups from multicultural perspectives [6][7], while others have discussed digital humanities' effectiveness in traditional village construction [8], gender rights protection [9], racial discrimination resistance [10], and war trauma memory restoration [11] from the perspective of specific target groups. At the value dimension, existing research has not only

clarified digital humanities' value orientation of promoting cultural equality and social fairness [12], but also revealed its practical functions in information transmission and interactive communication among marginalized groups [13]. At the ethical dimension, studies have affirmed the ethical dimension of digital humanities projects' participation in marginalized group assistance that highlights social responsibility, while also reflecting on the ethical guidance of "adhering to truth, safeguarding dignity, and non-violence" that digital humanities must maintain during the assistance process [14].

In summary, existing research has confirmed the effectiveness and value of digital humanities' participation in assisting diverse types of marginalized groups, yet the overall research strength remains relatively weak, and thematic studies and research synergy have not yet been formed. This study attempts to conduct a more comprehensive and holistic observation of digital humanities projects for marginalized group assistance, extracting practical elements and tracking assistance effectiveness from four dimensions—assisting subjects, assisted objects, assistance measures, and assistance outcomes—to analyze assistance experiences. The aim is to summarize assistance strategies that can serve as references for China' s digital humanities developers, collectively helping marginalized groups obtain substantive digital dividends.

## 2 Research Design

This study selected all Digital Humanities Awards (DHA) winning projects involving marginalized group assistance since its establishment in 2012 as the research foundation, for the following reasons: (1) DHA balances public participation and scientific authority. Nominated through global public voting, DHA has involved nearly 70 countries or regions, generating over 18,000 valid votes and supervised by the Digital Humanities International Nomination Committee, which includes authoritative experts such as James Cummings from Oxford University and Craig Bellamy from the University of Melbourne. (2) DHA cases are abundant and distinctive. Between 2012 and 2023, there were 68 digital humanities projects involving marginalized group assistance, encompassing categories such as datasets, digital visualizations, and digital tools.

Due to the limited perspective of a single platform and the fact that some cases competed for other international awards in the same year, some typical cases were not included in the survey. Therefore, according to research needs, we conducted further screening in the world' s largest digital humanities organization—the Alliance of Digital Humanities Organizations (ADHO)—supplementing 10 representative cases, for a total of 78 projects. Some investigated cases are shown in .

**Figure 1** [Figure 1: see original paper]: Comprehensive Analytical Framework for the Practice of Digital Humanities Projects Supporting Marginalized Groups

This study employs qualitative text analysis to parse information from the aforementioned 78 projects, conducting individual examinations of target cases and

extracting key points of digital humanities-based marginalized group assistance practice. We then constructed an analytical framework based on four nodes: assisting subjects, assisted objects, assistance measures, and assistance outcomes, as detailed in [Figure 1: see original paper], focusing particularly on the advantages that digital humanities possess compared to traditional cultural assistance methods in practical work.

### 3.1 Assisting Subjects: Diverse Participation, Collective Creation

To realize the vision of a diverse, equitable, and harmonious global digital community, digital humanities professionals and academics have consciously engaged in marginalized group assistance practices with sustained attention, fully demonstrating the core development concept of digital empowerment for society and technological care for humanity. The main actors involve four types of construction subjects: (1) **National Cultural Institutions**. Organizations such as the Social Sciences and Humanities Research Council of Canada and the Irish Folklore Commission have organized or directly participated in digital humanities projects for marginalized group assistance, with substantial construction strength and significant assistance effectiveness. For instance, the Irish National Folklore Collection digitization project [15], hosted by the Irish Folklore Commission with its outcomes included in the Memory of the World Register, has collected, preserved, and developed various Irish cultural heritage assets, forming a massive digital archive of over 2 million manuscript pages, 80,000 photographs, 12,000 hours of audio recordings, and 1,000 hours of video materials, providing effective solidification carriers and activation pathways for the continuation of cultural memory in numerous traditional villages and tribal cultures across Ireland. (2) **University Groups**. University groups constitute the backbone of assistance, with nearly half of the selected cases established by top Chinese and international university groups such as Nanjing University and Oxford University. These groups primarily consist of university colleges, research centers, institutes, as well as university libraries and museums, with close collaboration among groups. For example, the AILCA project [16] established by Nanyang Technological University, which claims to be “the first digital archive of endangered languages to be established in Asia,” was collaboratively developed by six groups including the university’s School of Humanities and Social Sciences, National Institute of Education, Institute for Media Innovation, and museum, leveraging their respective advantages and collaborative potential in language archiving and natural language processing, educational interface construction, communication and interaction interface design, and cultural collection supporting services. (3) **Community Organizations**. In marginalized group assistance, a development model that gathers momentum based on geographical scope, interest orientation, and problem focus has formed a cohort of community organization assistance forces. Examples include the Mexican Feminist Discourse Research Affective Community and the Syrian Language Research Organization dedicated to protecting endangered Syrian culture, vividly

reflecting digital humanities' pursuit of social participation and collective creation. (4) **Public Individuals.** Among the 78 projects, 14 cases developed by public individuals were retrievable, with 10 projects completed by university faculty such as Professor Celia E. Naylor from Columbia University' s Department of History and Associate Professor A. Naomi Paik from the University of Illinois Chicago' s Department of Criminology, and 4 projects constructed by digital humanities enthusiasts such as Montserrat Aguilar Ayala and Guillaume Deprez. The 14 developers primarily have backgrounds in history, covering multiple disciplines including sociology, art history, law, and literature. Developers are predominantly female, with 10 being women; among the 4 men, 1 identifies as LGBT.

### 3.2 Assisted Objects: Balancing Visibility and Invisibility, Keeping Pace with the Times

Through clustering existing practice themes, we found that digital humanities projects have adequately attended to relatively visible marginalized groups. Among the 78 selected cases, 66 involved assistance to visible marginalized groups, including 20 for traditional villages (tribes), 14 for war trauma groups, 13 for racial minority groups, 12 for sexual minority groups, 10 for feminist cultural groups, and 6 for disaster trauma groups. Since some projects involve multiple assisted objects—for instance, “Afromexart: Decoding Colonial Violence” [17] encompasses both traditional tribal colonial culture and women' s rights, while “Archive of Malian Photography” [18] focuses not only on Black community history but also depicts endangered cultural memory in the Malian region through traditional villages, female images, and religious rituals—the sum of these figures exceeds 66. Through case analysis, we discovered that digital humanities projects' selection of assisted objects is influenced by specific years and major events, which tangibly reflects digital humanities developers' timely response to and consideration of social issues and social responsibility. For example, 2014 marked the 100th anniversary of World War I, and the number of projects with this background increased significantly that year. Among the Best Digital Humanities Public Engagement Awards selected that year, 4 works on this theme won awards, accounting for 19% of the total. *The American Yawp* and *Encyclopedia of the First World War* won the championship and third place respectively in this category, with both projects conducting detailed research on racial opposition, women' s rights, and post-war psychological trauma among the masses during WWI. Similarly, in 2020 and 2021, facing the COVID-19 pandemic, 6 projects directly addressed the survival predicaments of marginalized groups during the pandemic. For instance, the *Living with Covid-19 in SEA* project used oral history as an entry point to reveal the survival difficulties of some disabled individuals in Southeast Asia during the pandemic and the discrimination facts faced by marginalized groups such as migrant workers in the region.

Beyond this, digital humanities projects also attend to objects that are rela-

tively difficult to care for in traditional cultural assistance, such as geek groups, urban marginal workers, and prisoners suffering from unfair treatment. These marginalized groups either remain “voiceless” due to their small and relatively hidden numbers, or find it difficult to speak out due to long-term living in unequal environments, urgently requiring strong social support. Consequently, current digital humanities projects have focused on the predicaments of marginalized groups that have long lacked attention and provided grounds for their assistance. For example, the American VFC community conducted online interviews with 311 campus workers across the United States, Canada, and Mexico, and visualized the interview content in dynamic maps and statistical tables, clearly conveying the marginal situation of American campus workers who “feel abandoned” [19]. Based on this evidence, not only did mainstream foreign media such as *The Chronicle of Higher Education* focus their attention, but it also formed a higher education mutual assistance force including the Wisconsin Teaching Assistants Association to participate in assistance. Similarly, the University of California’s *Prison Pandemic* digital humanities project [20] conducted data visualization of 88,000 case reports and over 250 death reports from prisoners in 172 California prisons, allowing prisoners to personally share their real experiences with online users through voice interviews. This not only intuitively demonstrated the objective predicaments of these previously less-attended prisoners during the pandemic, such as “zero protective measures” and “inability to communicate with families,” but also effectively reflected on the objective capabilities of government emergency management.

### 3.3 Assistance Measures: Combining Establishment and Deconstruction, Employing Multiple Approaches

Centered on the concept of digital inclusion and rooted in the application of digital technology, digital humanities projects for marginalized group assistance have formed diversified assistance measures, using precise and quality service supply to help marginalized groups obtain substantive digital dividends. (1) **Creating Web Portals.** Through the establishment of website Web terminals and mobile application APP terminals, developers are provided with integrated carriers for implementing other assistance functions, marginalized groups are provided with platform environments to find belonging communities in digital networks for assistance allocation, and other groups are provided with channels to understand marginalized group culture and participate in assistance work such as donations and supervision. Among these, website Web terminal construction is conventional work in digital humanities assistance, with 75 of the 78 selected cases independently building assistance websites, while the remaining projects primarily exhibited through third-party platforms such as tweets and papers. Among the selected cases, projects such as *Decoding the Civil War* and *Native Land Digital* have developed APP terminals matching the projects, enabling users to more conveniently participate in marginalized group assistance. (2) **Establishing Curriculum Education.** Some digital humanities projects for marginalized group assistance offer specialized curriculum education, aiming

to leverage the dissemination advantages of digital platforms to help users understand marginalized group culture through systematic curriculum design, thereby promoting intercultural understanding and communication. For example, the “Plateau Peoples’ Web Portal” project [21] developed by Washington State University offers characteristic cultural courses for six tribes including the Spokane and Yakama, unfolding from perspectives such as tribal dances, languages, and legends. The Yakama tribe’s course consists of 6 traditional dance sections including their unique Feather Dance and Butterfly Dance, promoting the memory continuation and living utilization of tribal culture through online teaching by tribal dance inheritors and personal introductions by tribal elders. Similarly, the “American Soldier in World War II” project [22] developed by Virginia Tech addresses issues such as soldiers’ physical and mental trauma, racial differences, and women’s contributions during the war. According to learning needs and with the purpose of understanding, comprehending, and exploring, it offers three course models lasting one day, one week, and one semester (16 weeks). In teaching, learners further focus on marginalized groups among war soldiers and refine their understanding of racial and gender conflicts in war by learning and using the independently developed SCIM-C (Summarizing, Contextualizing, Inferring, Monitoring, and Corroborating) historical investigation method through various forms including courses, projects, seminars, and presentations. (3) **Breaking Physical Dependency to Assist Cultural Continuity.** Assistance for the cultural continuity of marginalized groups is crucial, as some marginal cultures such as traditional villages (tribes) find it difficult to break away from dependency on physical space and the body, making cultural resources hard to solidify. Moreover, marginalized group cultures are mostly diverse, span long time periods, update rapidly, and have long been unstudied by mainstream culture, resulting in large information stock and increments. Digital humanities, with its technological advantages and characteristics of diverse collaboration, possesses inherent advantages in the orderly integration, systematic utilization, and living development of massive data [23]. First, it can better solidify and restore group culture. For instance, the Moseley Homestead Digital Heritage Protection Project uses 3D scanning and modeling technology to achieve digital twinning and reproduction of cultural heritage sites in high-precision digital models. Second, it can coordinate and unify assistance outcomes scattered across different construction subjects for storage, leveraging digital platform aggregation advantages and cloud computing storage advantages to form considerable cultural continuity scale. For example, the Queer Digital History Project [24] not only incorporates archival outcomes from early online digital community construction by LGBTQ+ groups but also further crawls and stores all group documents related to LGBTQ+ scattered on the Yahoo portal. Beyond this, the project introduces social participation, relying on the power of online “donors” to collectively build a massive data network spanning over 40 years with continuously updated materials. (4) **Breaking Information Silence to Provide Voice Assistance.** Influenced by mainstream culture, some governments or other organizations often use information manipulation to exclude marginalized groups, forcing them into silence. For instance, numerous foreign traditional villages or

tribes remain continuously voiceless during the process of forced cultural integration due to mainstream colonial culture constraints. The diversity, scale, and the convenience and flexibility of online voice expression in digital humanities assistance can effectively provide voice and assistance platforms for marginalized groups silenced by policy centers. For example, the Ojibwe tribe's language and culture are on the verge of extinction due to American and Canadian colonial cultural oppression. The Ojibwe People's Dictionary project [25] not only establishes a sustainable, easily expandable, and exhibitable corpus containing 17,000 Ojibwe language entries but also restores the original sound characteristics of Ojibwe people through audio and video, giving them opportunities to personally tell and record little-known tribal stories and cultural memories in digital space. The project has received technical and financial support from the University of Minnesota and the Minnesota Historical Society, successfully attracting substantial public attention and winning international recognition as the Best Public Engagement Award in digital humanities, alleviating cultural voicelessness to a certain extent. Similarly, the Mapping Memories of Africville project [26] spans nearly 60 years of history, clearly restoring the indisputable fact that the Canadian government repeatedly forced the Black community to relocate beginning in 1964, causing their displacement. Using GIS technology, the project authentically compares significant differences in community construction policies through combined text and interactive maps, effectively reflecting the economic losses and emotional harm caused to marginalized groups by policy biases and providing important evidence for subsequent assistance to Black groups seeking compensation.

(5) **Breaking Offline Barriers to Secure Psychological Assistance.** Some marginalized groups suffer long-term psychological trauma from war and natural disasters, or endure psychological stress from gender and racial discrimination. However, due to broad coverage and numerous venue limitations, as well as pandemic-related risk considerations, convenient, efficient, and easily controllable online psychological assistance is also urgently needed. Digital humanities projects for marginalized group assistance actively respond to this social demand, enabling marginalized groups to feel and obtain certain social support through diverse digital assistance forms. For example, digital humanities projects such as the Aceh Tsunami Archive, Boston Bombing Digital Archive, and Digital Holocaust Memory provide psychological comfort to victims through regularly organized digital curation commemorations and online collective counseling activities. Additionally, facing pandemic isolation difficulties and medical injustice against Black people, the Covid Black project [27] specially established the digital memorial HomeGoing section, holding electronic mourning ceremonies for 630 Black individuals who died during the pandemic in digital form to alleviate the spiritual pain of their families and friends who could not mourn offline. Beyond this, leveraging digital platform communication advantages enables more timely and systematic provision of psychological assistance to marginalized groups. For instance, the Center for Solutions to Online Violence project [28] developed for women suffering from online violence offers three psychological assistance plans based on the actual degree of online violence and psychological pressure experienced by women: the Heart Mob online

safety plan formulation, the Crash Override Network online counseling hotline, and the 24/7 online suicide prevention platform Suicide Prevention Lifeline. By sharing specific cases of other women overcoming online violence, the project provides comprehensive psychological assistance to women. (6) **Other Support**. For example, the Black Alliance for Just Immigration (BAJI) project [29], facing the issues of unfair immigration detention and deportation of Black immigrants in American society, specially established a virtual legal clinic section providing online legal aid from professional legal teams. Similarly, the aforementioned Covid Black project implemented the COVID Black internship program to promote medical equity for Black people, providing Black students with internship and employment opportunities to obtain support in knowledge, experience, and technical tools. Compared to previous measures, these assistance objects are more specific and focus on particular needs of marginalized groups, better demonstrating digital humanities' more precise service supply during the assistance process and its development pursuit of using digital technology to empower real life and build a harmonious society.

### 3.4 Assistance Outcomes: Diverse Forms, Pursuing Stability Through Progress

#### (1) Diverse Project Outcome Forms

**Content Browsing Type**. By constructing interactive web pages for users, this basic form of digital humanities projects exhibits and disseminates cultural memory resources of marginalized groups and allows users to compliantly utilize and develop some digital content. **Short Publication Type**. This mainly includes blogs, tweets, papers, and short videos that introduce marginalized group culture, reflect their situations, and research their issues. For example, "How the *New York Times* Covers Black Writers" [30] exposes racial discrimination in media discourse through tweet form. **Dataset Type**. This includes text corpora, data tables, or searchable databases for researching marginalized group culture, such as the "IMP Language Resources for Historical Slovene" [31]. **Visualization Exhibition Type**. Through data processing, this online exhibition form establishes or employs 3D digital models, digital twinning technology, spatiotemporal distribution exhibitions supported by GIS technology, and VR/AR exhibitions, aiming to digitally reproduce marginalized group culture and visually highlight their situations. An example is Nanjing University's "AR Story Map of Japanese Comfort Stations in Nanjing during World War II" project [32]. **Digital Tool Type**. The creation and application of digital humanities tools are important supports for digital humanities projects assisting marginalized groups. According to the characteristics and needs of marginalized groups, a batch of digital humanities tools specially developed for assistance work has emerged. For example, Virginia Tech developed the Civil War Photo Sleuth (CWPS) digital humanities tool [33] for soldiers who "lost their identity" in the Civil War. This tool identifies approximately 17,000 Civil War soldier photos col-

lected by the U.S. National Archives, the Library of Congress, and other institutions, uses Azure AI Vision computer vision technology to complete feature extraction and manually marks special visual features such as facial hair and military rank insignia to train the CWPS model, aiming to rediscover and deeply excavate lost identities and stories in American Civil War soldier photos. Similarly, Digital Alchemy [27] created the dynamic graphic tool Power&Control to help people understand online violence, using interactive games to assist users in vividly understanding different forms of online violence and different self-rescue methods when facing online violence.

## (2) Sustainable Development of Project Outcomes

Sustainable development capability is an important indicator for evaluating digital humanities project outcomes. Especially for marginalized groups, a project's sustainable development is crucial for ensuring stable assistance and continuous care. Research cases demonstrate different sustainable development advantages from three scale dimensions: data, content, and project. **Data Updates and Maintenance.** For example, the “Digital Holocaust Memory” project [34] completed 17 data updates from its launch in 2020 to 2023, summarizing data from the previous year annually. The 2022 summary report referenced 9,369 valid viewpoints from 5,907 visitors from 108 countries, collectively excavating research and educational focuses in contemporary digital Holocaust memory such as digitization of evidence materials and digital intervention in war education. **Content Iteration and Expansion.** For example, after completing version 1.0 of AILCA Asian Indigenous Languages from 2010-2013, the Nanyang Technological University Digital Humanities Intangible Heritage Center [15] launched and has continuously completed content iteration for version 2.0. Compared to version 1.0, which focused on recording and protecting endangered languages, version 2.0 emphasizes the living utilization of endangered languages in multiple scenarios such as school education and language centers. Similarly, the “Cork LGBT Archive” project [35] completed by Orla Egan underwent at least three content expansions in 2014, 2019, and 2020, growing from initially only 2 content sections ( “Home Exhibition” and “External Videos” ) to 7 sections including “Browse Collections,” “Browse Exhibits,” and “Cork Queer People” by 2020. The project was selected for the first community archive program of the Irish Digital Repository (DRI) in 2019 and won third place for the Best Public Engagement Award at the Digital Humanities Awards in 2020. **Project Linking and Aggregation.** For example, the “Our Marathon: The Boston Bombing Digital Archive” project [36] was initially established in April 2013 by faculty and students from Northeastern University's College of Social Sciences and Humanities to commemorate and assist Boston bombing victims. After developing to a certain scale, it was taken over by Northeastern University Library's Digital Scholarship Group in September 2014 for protection, responsible for the project's

s continuous quality operation. Upon project completion, the accumulated 22 data collections, 7,905 memorial objects, 31 oral history archives, and large amounts of data were migrated to Northeastern University's digital repository during 2017-2018, ultimately linking to the university's urban memory research project cluster for continuous protection and utilization. Beyond linking of single projects, digital humanities projects also strengthen assistance synergy through aggregation, thereby enhancing sustainable assistance capability. For example, the Princeton Center for Digital Humanities [37] specially established an anti-racism and indigenous digital humanities thematic project group, including a total of 10 projects. Within the group, these projects can not only exchange experiences and obtain assistance from each other but also directly receive technical support and financial aid from the Princeton Center for Digital Humanities.

#### 4 Implications for Constructing China's Digital Humanities Projects for Marginalized Group Assistance

Reviewing the international practical panorama, the assistance process for marginalized groups led by digital humanities has generally received positive responses. Focusing on China's current practice, 13 excellent projects have emerged sequentially (see ), already expressing Chinese developers' continuous attention to domestic marginalized groups and active response to social responsibility.

**Table 2** : Investigation of Domestic Typical Digital Humanities Projects for Marginalized Groups Assistance

Projects such as "Memory of Gaoqian," "Guizhou Cloud Village," and the "Yunnan Ethnic Minority Languages Database" have unleashed the humanistic charm contained within Chinese civilization and ethnic memory through digital technology empowerment. The "Ming and Qing Women's Writings" project brings the era's talent and thoughts flowing from women's pens to the screen, while the "AR Map of Nanjing Comfort Stations" uses a female perspective to painfully expose the brutal atrocities of invaders. Although Chinese developers started relatively late in using project-based digital humanities to carry out marginalized group assistance, they have initially formed a research pattern that promotes the substantive implementation of digital dividends and social stability as the main line, relies on resources such as traditional villages, ethnic customs, and historical culture, effectively promotes communication between marginal and central cultures, and facilitates exchange between Chinese and world civilizations. These efforts have begun to gain recognition in international digital humanities awards, with two projects (1)-1 and (2)-1 receiving nominations for Best Data Visualization and Best Public Engagement at the 2020 Digital Humanities Awards. In view of this, Chinese developers need to further grasp their own cultural resource advantages, combine national conditions and social system advantages, and construct digital humanities projects

with Chinese characteristics to empower marginalized groups, specifically as follows:

- (1) **Focus on Social System Advantages to Unleash Government Leadership Energy.** Digital humanities development is in the ascendant, with increasingly obvious trends of penetration across multiple fields. As important assistance subjects, national cultural institutions have dual needs to promote social development and optimize their own services. In view of this, China's relevant functional departments should leverage institutional advantages, clarify digital assistance functions, and thereby strengthen their leading role in "digital humanities + public welfare." First, they should enhance policy guidance. This includes actively facilitating the incubation and implementation of digital humanities projects for marginalized group assistance, creating a favorable assistance atmosphere, and providing supporting factor guarantees. It also involves focusing on prominent issues currently facing marginalized groups such as urban marginal workers and people with disabilities in terms of living security and digital incapacity, actively guiding the direction of assistance efforts. Second, they should increase data utilization. With information security as the premise, they can adopt forms such as "open data competitions" and "digital project bidding" to utilize existing government public welfare data, forming a batch of quality, innovative digital humanities cases for marginalized group assistance and establishing models of digital assistance. Finally, they should intensify outcome transformation. Currently, China's digital assistance work such as "grid management" entering communities and "intelligent technology training" entering villages has accumulated certain mature experiences. In the future, digital humanities technology can be used for further in-depth development, deepening data utilization forms through integrating data utilization correlations, excavating high-quality assistance experience patterns, and strengthening exposure of excellent typical cases, thereby promoting user participation and releasing information value.
- (2) **Target Actual Needs to Carry Out Targeted Assistance.** Using digital humanities projects to assist marginalized groups requires establishing a "targeted thinking" approach. First, it is necessary to "set the target" by focusing on key assistance fields. Compared to other countries, China currently faces more prominent contradictions in areas such as protection and utilization of ethnic minority cultures, dynamic information monitoring of low-income populations, and smart health care for the elderly population. The selection of assisted objects must adapt to actual needs and provide orderly services through classification and grading to accelerate the formation of a comprehensive and efficient new pattern of digital assistance in China. Second, it is necessary to "find the bullseye" by not only continuously attending to visible marginalized groups but also strengthening research on correlations among marginalized group information to complete the identification and excavation of potential marginal-

ized groups such as populations on the edge of subsistence allowances and families vulnerable to poverty, as well as their different needs in different scenarios, achieving early intervention, early assistance, and more precise and need-responsive digital service supply.

- (3) **Unify Pragmatic Measures to Facilitate Digital Dividends Landing.** First, achieve the unity of long-term accumulation and timely feedback. Quality project development is not easy and has a long incubation period. Developers must not only maintain focus on resource cultivation but also leverage the advantages of internet digital exhibition and communication to stimulate two-way feedback vitality. Developers can use websites, short videos, and other measures to timely display stage outcomes and assistance processes, maintain communication with project peers and users, and promote cultural understanding through process-based interaction. Second, achieve the unity of cultural “soft” assistance and social “hard” assistance. While maintaining digital humanities’ preservation and dissemination advantages in cultural assistance through portal construction and curriculum design, it is more important to utilize digital humanities’ convenient platforms, collaborative resources, and intelligent technologies to link practical social assistance such as employment, legal aid, and community mutual aid for marginalized groups to meet their real-life needs. Third, achieve the unity of material care and psychological care. Humanistic care is an important pursuit for the sustainable development of digital humanities. Developers should maintain psychological care for marginalized groups. Facing the current psychological needs of trauma groups generated by floods, earthquakes, pandemics, and other disasters in China, as well as special groups such as people with disabilities and empty-nest elderly, developing psychological assistance is increasingly important. Developers should actively leverage digital humanities expert collaboration advantages, unite experts in psychology, communication, and other fields, and provide professional yet accessible psychological care that is conducive to dissemination and easy participation through developing counseling applications, offering soothing online courses, and conducting online consultations.
- (4) **Build Lightweight Outcome Clusters to Promote Sustainable Compounding of Collective Intelligence.** China’ s existing digital humanities projects for marginalized group assistance have relatively good content but fewer projects and relatively single forms, mainly focusing on building databases or visualization exhibitions. This is partly limited by developers’ perception that digital humanities generally have high threshold requirements, high technical difficulty, and high data dependency. However, what distinguishes digital humanities projects for marginalized group assistance from other projects is their greater focus on attention to and insight into marginalized group culture and situations. Compared to requirements for high-quality development or massive data mining, the primary concern should currently be that the needs of marginalized

groups are “seen” and “understood.” Therefore, developers with certain capabilities should be encouraged to actively attempt lightweight development, focusing on developing lightweight digital humanities tools such as mini-programs and micro-applications oriented toward marginalized group needs, and fully utilizing short videos, blogs, and other short publication forms to increase exposure of marginalized group assistance, thereby attracting more social micro-forces to jointly participate in digital micro-governance and actively building a digital humanities assistance reservoir. Beyond this, existing successful assistance cases and current construction experiences can be promptly and deeply studied and excavated for wide promotion and application. A more ideal subsequent approach would be to further stimulate potential information value through data updates and maintenance, content iteration and expansion, and project linking and aggregation, achieving “hard” connectivity among data resources and improving “soft” integration of assistance concepts, thereby assisting digital assistance outcomes in achieving compounding effects.

As an important force driving digital humanities development, the information resource management discipline has, in recent years, centered on digital concepts, technological, and resource advantages, fully demonstrating digital humanities’ powerful functions of empowering with “numbers” and educating with “culture” in storage, exhibition, and even expanding user imagination. However, the more rapid the momentum, the more steady progress is needed. Currently, reflective and critical research on the relationship between digital humanities and society is relatively lagging. This paper attempts to discuss the necessary direction for digital humanities development based on social responsibility through the practical panorama of digital humanities projects assisting marginalized groups. Due to the adoption of a qualitative research paradigm for case analysis, the analysis results may inevitably be subjectively influenced and may contain unscientific or objective factors. Due to differences in objective development levels of digital humanities, the selected cases mostly use foreign typical outcomes as analysis objects, and the transplantability and replicability of experiences require further demonstration. Subsequent research can further expand data sources, track China’s assistance effectiveness, and explore the endogenous logical connection between digital humanities practice and marginalized group assistance at the theoretical level using this paper’s research foundation.

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*Note: Figure translations are in progress. See original paper for figures.*

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