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# Exploring the Construction and Design Value of Digital Image Systems for Intangible Cultural Heritage: A Review of The Theory and Method of Atlas Weaving for Intangible Cultural Heritage

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## KEYWORDS

*Intangible Cultural Heritage; Digitization; Geographic Information System (GIS); Atlas System; Design Value*

## ABSTRACT

The Theory and Method of Atlas Weaving for Intangible Cultural Heritage stands out as a milestone in the development of ICH atlas studies in China. Authored by Professor Cai Fengming and his research team, and published by Shanghai Academy of Social Sciences Press in 2020, this monograph offers foundational academic guidance for universities and professional ICH protection institutions. This book systematically discusses the comparative landscape of atlas systems in China and abroad, the theoretical core and methodology of ICH atlas research, and the significance of digitization in the big data era. By proposing new directions for the transmission and representation of ICH, the book provides a vital reference for the generation, revitalization, and design innovation of China's ICH atlas systems, fostering interdisciplinary academic integration.

## INTRODUCTION: THEORETICAL CONTEXT AND SIGNIFICANCE

The preservation and transmission of intangible cultural heritage (ICH) have become central topics in the contemporary cultural and academic landscapes, especially in the context of digital transformation. The book under review offers a timely and comprehensive theoretical intervention into how digital image systems and atlas methodologies can reframe the understanding, documentation, and dissemination of ICH in China. By bringing together traditional scholarly approaches with state-of-the-art technologies such as GIS and knowl-

edge graphs, the authors chart a path for both theoretical innovation and practical application.

## COMPARATIVE PERSPECTIVES: PRACTICES IN CHINA AND ABROAD

At the very beginning, the book highlights the crucial differences between Chinese and foreign atlas systems, providing a thorough analysis of the essential connotations of the ICH atlas. In China, the construction of the ICH atlas system has evolved from the traditional atlas tradition, which is deeply rooted in bibliographic classifi-

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cation logic and places equal importance on both imagery and textual narrative. The representational fidelity of traditional Chinese atlases underscores their functional value—not merely as records but as tools imbued with cultural meanings, such as the concept of order and orthodox values that define Chinese heritage.

The book delves into representative practices in Europe and Japan. In Europe, the German folklore map is analyzed as a groundbreaking example of incorporating geographic science into the realm of folklore studies. Over decades, Germany has refined a systematic methodology for creating folklore maps, which has influenced other European countries. These maps use visual symbols to record cultural phenomena, offering new perspectives for cultural mapping. In Japan, the development of folklore maps has followed a dual path: “folklore record maps” for documentation and “folklore research maps” for analysis, exemplified by the dialect zone theory. Both the European and Japanese cases emphasize scientific data collection, visualization, and the practical transformation of cultural materials.

The authors then draw a key distinction: While China’s ICH atlas system is broad, comprehensive, and steeped in millennia of cultural continuity, Western systems tend to emphasize technical and disciplinary integration, especially with geography and the use of innovative visualization technologies. From a design perspective, the construction of a digital ICH genealogy system in China requires not only the inheritance of tradition, but also an openness to the strengths of international approaches, balancing artistic aesthetics and scientific design, and fostering cross-disciplinary integration.

## **THEORETICAL FRAMEWORK: ESSENCE AND STRUCTURE OF ICH ATLAS DESIGN**

A significant portion of the book is dedicated to unpacking the theoretical underpinnings of the atlas system. The authors point out that the traditional Chinese atlas is composed of two inseparable elements: “tu” (image) and “pu” (genealogy/record). The essence of constructing a digital image system for ICH is the “atlasization” of knowledge—transforming fragmented or textual information into systematically visualized, interconnected, and accessible forms. Digitization not only facilitates intuitive visualization, but also enables the aggregation and analysis of vast volumes of cultural data.

The book stresses the necessity for a robust and multi-layered methodological system, integrating both research and operational methods, and combining theory with practice. Through in-depth analysis of Chinese and foreign ICH digital genealogies, the authors reveal that the core differences stem from cultural origins and the

deployment of geographical information. The endurance of Chinese civilization has resulted in a vast, all-encompassing ICH atlas system, whereas international approaches, especially in Europe and Japan, often use technology and scientific disciplines to supplement cultural mapping.

The authors argue that the development of digital genealogies must pay attention to the dynamic processes of historical evolution, geographical distribution, and the fluidity of cultural forms. This requires a well-designed system that not only standardizes but also accommodates diversity, innovation, and interdisciplinary cooperation.

## **ATLAS DESIGN AND CONTENT STRUCTURE: FROM THEORY TO PRACTICE**

Chapters Three to Five of the book review the conceptual categories and functions of ICH atlas design, systematically distinguishing between artistic and scientific forms of visualization. The “artistic atlas” emphasizes emotional and aesthetic needs, seeking to evoke the cultural meaning and affective resonance of heritage items. In contrast, the “scientific atlas” aims for objectivity, mapping the inherent patterns and empirical realities of cultural phenomena.

The authors detail several traditional Chinese forms:

- **Tujing (Illustrated Records):** Combining maps and texts, emphasizing both visual and literary elements.
- **Tulu (Atlas/Catalogue):** Organized pictorial records that compile extensive documentation of cultural phenomena.
- **Tuyang (Diagram/Schema):** Explanatory diagrams illustrating the structure or process of ICH.

In addition, the book points out that traditional ICH atlases often lack comprehensiveness and systematicity, particularly in the editing, genealogy, and internal relational mapping of images. Through a genealogy-oriented approach, the book lays the groundwork for subsequent methodological and practical development.

Chapter Five offers a nuanced and detailed classification of ICH atlas structures into four modes:

- **Spatial Structure:** Examines regional diversity, spatial distribution, fluidity, and the integration or comparison of ICH resources, ranging from cross-regional to national scope.
- **Temporal Structure:** Divides ICH resources into four temporal types, such as those with long continuity, those lost over time, those revived after interruption, and those close to contemporary society.

- **Cultural Structure:** Analyzes the complex interplay of ecological, social, and ethnic factors in shaping ICH, referencing Fei Xiaotong's "pluralistic unity" theory.
- **Spatiotemporal Interaction:** Focuses on how the growth of transmission regions and the expansion of timeframes lead to complex, multi-directional developments, reinforcing the diversity and richness of China's ICH.

By analyzing these multifaceted structures, the book reveals the necessity of sophisticated atlas design capable of representing the internal logic and dynamic evolution of ICH.

## TECHNOLOGICAL INTEGRATION: GIS, KNOWLEDGE GRAPHS, AND THE VALUE OF DIGITIZATION

A highlight of the book is its advocacy for integrating modern information technologies, particularly Geographic Information Systems (GIS) and knowledge graphs, into ICH atlas construction. In Chapter Six, the authors present numerous case studies demonstrating how digital atlases can transform physical ICH items into visually accessible and comprehensively organized forms, thereby expanding both their explanatory and organizational functions.

Chapter Seven articulates the multiple values of ICH digitization, including:

- **Documentation and Preservation:** Safeguarding knowledge for future generations.
- **Education and Public Awareness:** Supporting cultural transmission through intuitive and engaging digital tools.
- **Scientific Research:** Enabling quantitative analysis and comparative study.
- **Aesthetic and Artistic Value:** Providing platforms for creative reinterpretation and appreciation.
- **Management and Social Application:** Facilitating cultural management, policy-making, and community involvement.
- Despite the significant progress, the book notes that the practical utilization and design of ICH resources remain in their early stages.

Chapter Eight proposes core principles for digital atlas design: "image-based, category-oriented, progressive reasoning, and a combination of holistic and detailed approaches." This dynamic framework allows for flexibility, adaptation, and systematic expansion. The final chapter introduces the application of knowledge graphs and GIS in the field of atlas studies—technologies that enable the visualization, cross-referencing,

and efficient management of complex cultural information.

The authors emphasize that the digitization of ICH requires the creation of robust databases for information retrieval and sharing. User-centered interface design, system interaction, and the development of cloud-based architectures are vital for supporting large-scale data management in the era of big data.

However, the book also acknowledges challenges such as information security and intellectual property protection, especially for confidential ICH resources. These practical considerations underscore the need for ethical frameworks and technical safeguards as digital platforms expand.

## CONCLUSION: THEORETICAL-PRACTICAL COUPLING AND FUTURE PROSPECTS

The Theory and Method of Atlas Weaving for Intangible Cultural Heritage makes a profound contribution to the emerging field of digital ICH atlas systems. By systematically synthesizing traditional wisdom with cutting-edge technology and cross-disciplinary methodology, the book sets a new standard for both academic research and professional practice in China.

Its influence is expected to grow as China continues to pursue the "digital metaverse" of ICH, empowering the revitalization of traditional culture and supporting the country's quest for cultural confidence. As both a theoretical framework and a guide to practical innovation, this book stands as a model for the integration of design aesthetics and advanced technology in the service of cultural preservation.

### Reference

1. Cai Fengming. *The Theory and Method of Atlas Weaving for Intangible Cultural Heritage*. Shanghai Academy of Social Sciences Press, 2020.