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Space Reconstruction and Prospects of Public Libraries in China in the Post-Print Era

Authors: Du Xilin, Liu Cici

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Abstract

[Purpose/Significance] Based on investigations of both theoretical research and practical implementation of library space reconstruction, this study proposes future development prospects, aiming to promote continuous transformation of space services and exploration of service innovation in public libraries.

[Method/Process] Through literature analysis, this study explicates the current state of research on library space reconstruction; by surveying the nationwide status of space reconstruction in public libraries, it identifies existing problems and future prospects.

[Result/Conclusion] Space reconstruction is an organic growth point for the development of public libraries in the new era, and should adhere to principles such as pursuing diversified cross-boundary integration, focusing on specialized libraries, attaching importance to intelligent construction, and upholding universal and equitable services.

Full Text

Preamble

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Space Reengineering and Prospects of Public Libraries in China

Du Xilin¹, Liu Sisi²

¹Liaoning Provincial Library, Shenyang 110167

²Library of Shenyang Normal University, Shenyang 110034

Abstract:

[Purpose/Significance] Based on an investigation of current research and practical implementation of library space reengineering, this paper proposes

future development prospects for space reengineering to promote continuous spatial service transformation and innovative service expansion in public libraries. **[Method/Process]** Through literature analysis, this paper elaborates on the current state of library space reengineering research; investigates the nationwide status of public library space reengineering; and identifies existing problems and future prospects for public library space reengineering. **[Result/Conclusion]** Space reengineering represents an organic growth point for public library development in the new era, and should follow principles of pursuing multi-dimensional cross-border integration, focusing on characteristic libraries, emphasizing intelligent construction, and adhering to universal and equal service provision.

Keywords: Public Library; Space Reengineering; Historical Investigation; Future Prospects

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In the new era, the library community has launched a wave of “space reengineering” characterized by breaking old conventions and establishing new ones. Both university and public libraries have gradually embraced this movement, undertaking spatial reengineering and functional reorganization from physical and functional perspectives to transform libraries into public cultural spaces for learning, discussion, gathering, and communication—“urban third spaces” that are intimate, free, and inclusive. This unstoppable reengineering wave has sparked brainstorming among library professionals, generating new concepts and ideas through intellectual stimulation, free thinking, and creative methods. Many public libraries have begun bold, transformative renovations of traditional libraries with a “fearless” attitude, evolving a growing organic tradition into new possibilities and demonstrating daring, free-spirited, trendy, and avant-garde approaches to space reengineering.

1. Research Status of Library Space Reengineering

1.1 Application of Research Methods

Through literature analysis, reading screening, and statistical summarization, we found that existing research focuses more on university library space reengineering, summarizing its basic development path: traditional space → information commons → learning commons → makerspace → research space → global open access information commons. Some space forms have been gradually replaced while others coexist. Research perspectives are relatively broad, and theoretical viewpoints are comparatively deep. Public library space reengineering also has traceable origins and justified causes, with theoretical and practical research possessing distinctive characteristics. Public libraries have similarly experienced two developmental transitions: first-generation libraries centered on book storage with clear separation between collection and reading areas; second-generation libraries focused on open services, emphasizing integration of

collection and reading areas while maintaining books at the core. The current third-generation transition places greater emphasis on human activity needs, user-centered design, and audience-dominated spatial service zones—precisely the issue this paper investigates.

1.2 Distribution of Research Themes

To facilitate and enrich research, it is necessary to briefly summarize the domestic research status of public library space reengineering. This paper primarily searched the CNKI “China Academic Journal Network Publishing Database” using terms such as “library space reengineering,” “library space transformation,” “library space expansion,” and “library space renovation” in article titles. After relevance screening, over 180 valid articles were obtained, and literature survey and comprehensive induction methods were applied to analyze these papers on library space reengineering. Research perspectives concentrate on several aspects: **Value of library space reengineering:** Researchers including Liu Wei & Zhou Deming, Wu Xinnian & Li Lingli, Lu Renyan & Li Ming, Li Hesong & Xiong Wei, and Zhang Fengming argue that under the global “Internet+” trend, libraries are shifting from book-centered to knowledge-centered, from reading-focused spaces to open communication-focused spaces, with resources transforming toward diversified reader activities and knowledge services. They propose user upgrading strategies and establish a spatial concept of “place spirit,” whereby not only the appearance of libraries changes but also the value of space is redefined. **Role positioning of libraries:** Researchers such as Gao Feng, Luan Juan & Xiong Wei, Jin Shan & Wu Jianzhong, and Xia Guofeng posit that public libraries have transformed from traditional single-function “book rooms” into “urban third spaces” and “urban offices” that enable knowledge and skill sharing, co-working, and city image promotion and cultural dissemination. Libraries have become “interpersonal communication centers” and “community hearts,” demonstrating library characteristics, displaying library vitality, and ushering in the return of “spatial life.” **Reshaping librarian roles:** Many researchers have conducted micro or macro studies on the impact of library space transformation on librarian role positioning, unanimously agreeing that reengineered library services require enhanced technical capabilities from librarians. Librarians are no longer mere book managers or reader instructors; with new spaces, they should become designers and planners of service innovation. Librarians must first transform their mindset, improve professional competence, provide comprehensive knowledge services, and shift from management service personnel to multi-role librarians such as maker librarians, subject librarians, and subject experts. **Spatial design model research:** Researchers including Huo Jun & Lu Zhangping, Wang Wei, and Wang Yu & Wang Lei argue that spatial design models should pursue humanistic, experiential, autonomous, and proactive physical space design. Research on spatial design is relatively concentrated and mature. **Spatial evaluation exploration research:** Research on spatial evaluation is relatively weak, with most studies lacking holistic and systematic evaluation of reengineered spaces,

either through absence of evaluation or insufficient assessment, requiring further theoretical improvement.

In summary, library space reengineering has become a research hotspot, with theoretical research and practical exploration growing rapidly in recent years, demonstrating burgeoning development momentum that drives increasingly deep transformation of library space reengineering.

2. Investigation of Public Library Space Reengineering

The “third space” theory has become an important guide for the overall physical space reengineering of Chinese libraries, particularly public libraries. Public libraries nationwide have continuously undertaken new construction or renovation of old facilities, innovating spatial layouts and upgrading service methods, integrating various quality resources to provide citizens with learning, research, and social experiences, and continuously expanding the functions of urban “third spaces.” Among China’s numerous public libraries, those in Shanghai, Guangzhou, Shenzhen, and other locations have achieved successful space reengineering. For instance, Shanghai Library and Guangzhou Library have created “urban living rooms” that regularly receive high-level foreign dignitaries; Shanghai’s Xuhui District Library created a new reading experience space called “Bookish Tribe” in 2017; Shenzhen Library’s space reengineering has transformed it into a large comprehensive public library providing quality reading services. These reengineering efforts exemplify new concepts of contemporary library spatial value, emphasizing human needs, accessibility, openness, ecological environment, and resource integration, playing a pivotal role in safeguarding the basic cultural rights of the masses and achieving public cultural services that are public welfare-oriented, basic, equal, and convenient.

By the end of 2020, China had 3,203 public libraries, each in different conditions. Therefore, this paper can only present representative overviews of national public library space reengineering in table form based on urban agglomerations and regional divisions.

2.1 Space Reengineering in the Beijing-Tianjin-Hebei Urban Agglomeration

The Beijing-Tianjin-Hebei urban agglomeration represents China’s political and cultural center and a crucial core economic region, including Beijing, Tianjin, Baoding, and Langfang as central functional areas. In 2015, to implement the “Framework Agreement on Coordinated Development Strategy in the Cultural Field of Beijing, Tianjin, and Hebei,” the Beijing-Tianjin-Hebei Library Alliance was formally established to deepen cooperation in coordinated development mechanisms, models, project planning and docking, resource sharing, and professional talent cultivation, providing information support and intellectual backing for promoting the coordinated development of library services across the three regions. Driven by the alliance, new library construction and old facility

renovation have advanced substantially, as detailed in Table 1 .

Public libraries in the Beijing-Tianjin-Hebei region have actively adapted to urban cultural development, with Tianjin leading in high-quality library construction. The most notable is Tianjin's "Binhai New Area Library," a sci-fi-inspired "most beautiful library" in China, described by readers as "heaven on earth." Tianjin's "Sino-Singapore Friendship Library" implements mobile book borrowing, intelligent shelving robots, and a drive-through book return system outside the library, allowing readers to return books quickly without leaving their vehicles, making it a truly smart library. Additionally, Beidaihe's "Aranya Lonely Library," also known as the Sanlian Seaside Public Library, has become a popular online sensation. These "high-end" public libraries have played a leading role in space reengineering.

In terms of themed branch library construction, Beijing has taken the lead. A December 4, 2003 *Beijing Evening News* report noted: "Beijing is actively developing small themed libraries focused on social hotspots, with Xicheng, Dongcheng, Chongwen, Chaoyang, and Haidian districts already having sizable themed libraries," forming another approach to expanding library space services in the region, primarily through "library within a library" and "library outside the library" models. Beijing has created the most district-level branch libraries. For example, Xicheng First Library has established 12 street-level libraries, all named after street addresses. In 2020, Chaoyang District further optimized cultural service provisions by upgrading the Jinsong and Xiaozhuang branches of Chaoyang District Library to create "night reading spaces," providing more quality, convenient, and efficient cultural services. The district also built 30 "urban book houses," upgraded the Sanlitun "Spring Breeze Library," and collaborated with surrounding bookstores to create Beijing's first "reading life circle."

The space reengineering styles in the Beijing-Tianjin-Hebei urban agglomeration vary significantly: Beijing's district libraries have pioneered community street library models such as "hospital + library," "art district + library," "cultural creative park + library," and "school + library," creating cross-border integrated branches focused on accessible "urban book houses." Tianjin actively invests in building "high-end" new libraries with advanced concepts, pursuing aesthetic appeal, intelligence, and distinctive features. Hebei's public library reengineering is relatively insufficient; the Beijing-Tianjin-Hebei Library Alliance has assisted eight impoverished county libraries in Hebei with space reengineering, signing cultural assistance agreements with libraries in Luanping, Fengning Manchu Autonomous County, Chengde County, and five other counties. The alliance promotes close cooperation among public libraries across the three regions, vigorously publicizing space reengineering and functional reorganization experiences to achieve resource sharing for readers.

2.2 Space Reengineering in the Yangtze River Delta Urban Agglomeration

The Yangtze River Delta urban agglomeration, centered on Shanghai, includes 27 cities and represents not only an economic center and technological innovation hub but also a developed region for China's cultural and educational undertakings. By 2018, the three provinces and one municipality in the Yangtze River Delta had 368 county-level or above libraries, most of which have undertaken varying scales of reengineering, expansion, or new construction, seizing opportunities amid fierce transformation, as detailed in Table 2. To promote library space reengineering development and exchange best practices, the regional alliance held a “Modern Library Space Reengineering and Service Innovation” seminar in Wenzhou in November 2017, combining theory with practice to stimulate and enhance innovative awareness and capabilities in library space reengineering.

Libraries in the Yangtze River Delta embraced the “third space” concept as early as 2008. Shanghai Library began creating its “Innovation Space” area in 2013, including an IC shared space, patent and standards service space, and creative design exhibition space, striving to create an urban “third space” and leading regional libraries in reengineering. Jiading Library has created Shanghai's most aesthetically pleasing library, featuring Jiangnan academy style architecture with a roof resembling open books, perfectly blending classical charm with modern temperament. It was selected by the authoritative design magazine *Interior Design* as a “Global Best Public Library” in 2013, won the 2013 Taiwan Interior Design Award TID, and received the Golden Seat Trophy at the 2011 Shanghai International Interior Design Festival. Anhui Province has nearly 100 county-level or above libraries, all seeking varying degrees of reengineering innovation, with 10 rated as the province's most beautiful public libraries and nine having implemented space reengineering, making important contributions to the province's cultural benefits for the people.

Hangzhou Library serves as the core force in the Yangtze River Delta urban agglomeration. Its transformation development concept and actions are forward-looking, systematically undertaking old library reengineering and themed branch construction in a planned and step-by-step manner. Utilizing social cooperation models, Hangzhou has developed 28 themed branches across the city since creating its first themed branch in 2007, exploring the “Hangzhou model” of library space reengineering (“library within a library”) and branch expansion (“library outside the library”)—a Chinese model for public library service transformation that achieves both scale and layout, quantity and quality, unified standards and branch characteristics.

2.3 Space Reengineering in the Pearl River Delta Urban Agglomeration

The Pearl River Delta urban agglomeration, a more dynamic economic zone, represents a livable, workable, and tourable quality living circle and demonstration area, creating an international first-class bay area and world-class city cluster. The region mainly includes nine cities such as Guangzhou and Shenzhen, and was newly planned as the Guangdong-Hong Kong-Macao Greater Bay Area in 2018, serving as China's main front for nationwide reading. Various public libraries in the Pearl River Delta urban agglomeration have kept pace with the times in space reengineering, actively planning and adapting measures to local conditions and library circumstances, steadily advancing transformations, as detailed in Table 3. Nearly 100 libraries have undertaken space reengineering, all achieving positive results. Each public library in the region serves as a local reading landmark and main front for enhancing civic literacy and nourishing public spirit, creating various new spaces and diverse brand activities to enrich reading experiences.

Shenzhen, listed as a "Global Model City for Nationwide Reading" and "China's Most Innovative City," has taken the lead in urban cultural construction. Municipal and district-level public libraries have actively explored and practiced space reengineering based on the "third cultural space" concept. With limited existing space, they have vigorously undertaken public cultural space construction and innovation through space reengineering, branch expansion, and other approaches, creating Shenzhen scenarios for a new "urban third space" service system. By 2020, Shenzhen had built 959 public libraries and 286 self-service libraries, with one grassroots library for every 15,000 people, extending library services to every corner of urban neighborhoods and providing citizens with comfortable, warm, free, and equal high-level knowledge services.

Guangzhou Library has undertaken large-scale space reengineering, creating expert research spaces, new-era red learning spaces, preview reading spaces, maker spaces, and children's and youth maker spaces. It has introduced social forces to expand service platforms, emphasized children's maker space development, and integrated local cultural characteristics with reading promotion services. Sichuan Provincial Library and Chengdu Library have relatively advanced internal spatial layouts. In January 2020, Sichuan Provincial Library created the Luxi Branch, while district-level libraries show significant inter-library differences. The Pearl River Delta urban agglomeration's grassroots public library space reengineering models generally include: "internal reengineering," "district library + street," "district library + social forces," and "district library + street + social forces."

2.4 Space Reengineering in Central Plains Urban Agglomerations

Broadly defined, the Central Plains urban agglomerations mainly refer to the middle and lower reaches of the Yellow River, the birthplace of Chinese civiliza-

tion. Library transformation development concepts should be advanced, but actual development is unbalanced, as detailed in Table 4 . Due to differences in leadership concepts, cognition, vision, and conditions, space reengineering and service effectiveness vary significantly.

Taiyuan Library in Shanxi has completely overturned traditional spatial layouts, reengineering reading spaces, learning spaces, experience spaces, maker spaces, leisure spaces, shared spaces, and special document spaces, creating entirely new spaces for citizens and planning new reading experience services such as appreciation, performance, painting, production, and inheritance. It has established brands like “Reading Paradise” and “Taiyuan Library Flying Books,” engaging approximately 2 million citizens in reading promotion and scholarly city construction, with service effectiveness ranking among the nation’s top five. In April 2019, Taiyuan, along with Beijing and Hangzhou, was honored as one of the “2018 Top Ten Digital Reading Cities in China.” Professor Li Guoxin from Peking University commented after visiting Taiyuan Library: “In a region that is not first-tier economically but has created a first-class public library, Taiyuan’s experience is worth promoting.”

Nanchang City Library in Jiangxi has been transformed remarkably, featuring red walls and green tiles, flying pavilions, carved railings, and painted pillars, creating an antique beauty that has become a beautiful landscape on Xinzhou Road. The library building was reconstructed in Song Dynasty imitation style, achieving overall integration with the Tengwang Pavilion scenic area in appearance. Beyond architectural features, its space reengineering completely overturns traditional layouts, focusing on characteristic spaces such as the Red Library, Children’s Library, and visually impaired reading room, while creating services like “Red Library Inheriting Red Genes,” “Nanchang Porcelain Plate Painting,” and 24-hour self-service borrowing.

Hunan Library has reengineered its information center, technology center, maker workshop, and youth creativity center. Hubei Provincial Library has comprehensively reengineered third spaces, spiritual and cultural spaces, digital cultural spaces, and modern network spaces, initially establishing a composite network space covering 111 county-level or above public libraries and 2,078 township, street, and community libraries across the province. Hubei Provincial Library has signed a cooperation framework agreement with Hunan, Jiangxi, and Anhui provincial libraries to establish a “Central Triangle” cooperation, serving the people of four central provinces in lectures, exhibitions, training, and online joint reference consultation. It has also reached inter-library cooperation with the Russian State Library to develop multiple joint services through cyberspace toward globalization. Influenced by this, Wuhan has built numerous new libraries at people’s doorsteps.

2.5 Space Reengineering in Northeast Three Provinces Urban Agglomeration

The Northeast region is an important base for industry, agriculture, and forestry in China, but its public libraries are far less numerous and large-scale than those in the aforementioned regions, with nearly 180 county-level or above public libraries across the three provinces. Economic development constraints limit the scope of public cultural undertakings, resulting in fewer cases of “high-end” public library construction. Under pressure from demand, libraries have adopted partial old library reengineering to address the challenges posed by the era to traditional libraries. As detailed in Table 5, technological development and changing user needs have created difficulties for libraries in innovating service models, making space reengineering imperative. Each library has considered space reengineering to varying degrees, adapting measures to local and library conditions, with more extensive transformations where funding permits and addressing urgent needs where funding is insufficient.

Dalian’s library space reengineering is relatively active, comprehensively building a “Scholarly Dalian” by transforming traditional spaces to attract citizen participation in reading and creating a 15-minute cultural benefit reading circle, playing a positive role in cultivating citizens’ reading habits. Although Jilin and Heilongjiang provinces have fewer public libraries, they face similar pressures to reengineer traditional spaces. Many public libraries have no renovation or expansion plans and can only reengineer existing old library spaces as needed, upgrading old equipment while introducing necessary advanced equipment and undertaking corresponding space reengineering. Consequently, nearly all reengineering models involve “internal integration and reengineering.” The actual effects of public library space reengineering in the Northeast Three Provinces have been recognized by the broad audience.

2.6 Brief Situation of Public Library Space Reengineering in Hong Kong and Taiwan

In Hong Kong and Taiwan, university library space reengineering is advanced, and public library space reengineering is also continuously developing. Hong Kong’s public libraries face clear downward pressure in usage. With six major libraries, 31 district libraries, 32 small libraries, and 10 mobile libraries, Hong Kong created the “Basic Law Library” in December 2004—a “library within a library” at the City Hall Public Library jointly organized by the Leisure and Cultural Services Department and the Basic Law Research Institute, serving the general public. Annual budget allocations for resource development seem unable to keep pace with changing user needs, limiting space reengineering and collection development. In recent years, 10 mobile library spaces have been reengineered to serve densely populated areas or remote regions without nearby libraries, with plans to build four new district public libraries in Tin Shui Wai, Tung Chung, Yuen Chau Kok, and Tongzhou Street.

Taiwan's small public libraries generally suffer from aging facilities, insufficient collections, low service levels, and declining utilization rates. Consequently, the "Golden Ideas Program" was launched from 2009-2012 to implement the "Reading Rooted and Space Reengineering Program," which improved the spatial environment of 141 small libraries over four years, completely revitalizing their appearance. The small library renovation movement adopted top-down project-driven approaches, diversified funding sources, standardized space reengineering procedures, and third-party review and evaluation mechanisms, offering valuable lessons for small library reengineering in mainland China.

3. Problems in Public Library Space Reengineering

Across China's vast territory, public library space reengineering has mushroomed, with many libraries currently planning or implementing transformations. This momentum will not cease, meaning existing problems remain unresolved while new issues continuously emerge, making new challenges inevitable in resolving old contradictions.

3.1 Policy Formulation vs. Implementation Issues

All higher-level policies and government regulations are formulated based on real social needs, but implementation inevitably encounters problems. Some stem from complex grassroots situations where leaders lack capacity or execution strength; others result from insufficient implementation of higher-level documents; and some involve lower-level branches' lack of emphasis on cultural work and inadequate construction efforts. Various reasons prevent upper-level policies from taking root and being strictly enforced. For example, in late 2016, the Ministry of Culture and four other ministries jointly issued the "Guiding Opinions on Promoting the Construction of County-level Cultural Centers and Libraries' Main-Branch System," making main-branch system construction centered on district/county public libraries a key task in building public cultural service systems and promoting equalization of urban-rural cultural services. However, many regions have poorly implemented this policy, significantly compromising main-branch system construction. Another example is Jiangxi Province's 2014 "Notice on Themed Library Construction in Provincial Public Libraries," which identified 26 themed library pilot units with specific requirements, but six years later, pilot results have been minimal. Some leaders may consider public libraries non-essential units, marginalizing them, while grassroots library leaders' inaction severely impacts the timely development of library undertakings.

3.2 Series of Problems in Reengineering and Operation

As previously mentioned, public library space reengineering is an inevitable trend in library development, but practical implementation faces numerous difficulties. **Lack of planning and governance:** The public library space reengineering movement lacks unified deployment or specific requirements re-

garding what to transform, how to transform, or the extent of transformation, relying solely on concepts and awareness. **Unreasonable location selection:** Some large new libraries are located far from residential areas with inconvenient transportation, creating difficulties for citizens and limiting reader attraction. Small library locations are often makeshift and unsustainable, sometimes leading to closure. For example, Guangzhou Library's Luopu Street Branch, co-built with Luopu Street in 2014, closed in 2019 when the rented venue lease expired, forcing relocation. **Lack of professional staff management:** Some libraries blindly pursue branch construction, renting venues, hiring social workers, and providing simple services without professional librarians or business supervision and guidance. For instance, Guangzhou Library's Liede Branch, managed by the Zhongda Social Work Service Center, only provided book borrowing and on-line inquiry services for community residents. In its fifth year, when the street service contract expired and the social work center withdrew, the branch faced closure due to the departure of original management personnel. Such issues impact and damage library undertakings.

3.3 Balancing Space Function Expansion and Individual Needs

Grassroots library construction constitutes an important component of public library space reengineering and a key focus and challenge in main-branch system construction. To promote public cultural service system construction and innovate public cultural services, national and local authorities advocate encouraging social forces to participate in public cultural service system construction. In public library space reengineering and main-branch system construction, increasingly more social forces cooperate with public libraries. Cross-border integration partners include publishing groups, enterprises, tourist parks, catering groups, bookstores, coffee shops, and other diverse forces, covering a wide range and inevitably leading to "business mixing." Library service content includes reading salons, special lectures, reading promotion, reference consultation, and work exhibitions. Due to diverse cooperation partners, library public welfare inevitably combines with market entity operations, raising questions about how to coordinate and balance later operation management with individual reader needs to achieve "win-win" outcomes. On one hand, how to satisfy reader demand services; on the other hand, how to ensure cooperation partners' operational benefits presents a "dilemma." This cooperation risk in reengineering involves deep-seated issues of grassroots libraries' social mission if not properly handled.

3.4 Equity and Public Welfare Principles in Spatial Services

Public library equalization services require libraries to not refuse access based on age, class, status, nationality, ethnicity, or other excuses, but to abandon all prejudices and provide fair services to the public, ensuring all members of society can access comprehensive knowledge services. This principle of equality has not been fully realized, as most libraries maintain various systems that

create barriers and obstacles, discouraging public access and preventing truly equal treatment. Additionally, the issue of free services remains ambiguous and poorly implemented. For example, Capital Library charges “membership fees,” “document copying fees,” “reader violation processing fees,” “electronic reading equipment maintenance fees,” and deposits. The “One Card” system has five levels, with deposits ranging from 50 to 500 yuan; the E-level card requires a 500 yuan deposit; readers aged 60 and above, military personnel, people with disabilities, and minors over 13 receive discounted C-level cards with 50 yuan deposits, while children’s cards require B-level 50 yuan deposits. Some fees and deposits seem reasonable but tarnish libraries’ public welfare and free service principles. Since December 2011, all 113 public libraries in Jiangxi Province have implemented free access, causing a surge in visitors, with some libraries experiencing tenfold increases compared to pre-free access levels. This demonstrates that removing even minimal fees eliminates a psychological barrier for readers and becomes an important opportunity to attract them. Whether public library space reengineering strengthens public welfare and adheres to free service principles concerns the effectiveness of spatial services and represents a historical issue for libraries.

4. Future Prospects for Library Space Reengineering

The public library space reengineering movement is burgeoning in China, with a long road ahead for future development. In today’s “Internet+” era, urban libraries as public libraries must transform and reengineer to meet the demands of the times. Pioneers have created various models; later explorers must continue innovating, expanding new functions, and developing new services. Several points merit consideration and exploration.

4.1 Pursuing Multi-Dimensional Cross-Border Integration in “Library+” Forms

“Library+” is a space reengineering concept and service form offering unlimited imagination. It emphasizes exchange and cooperation between libraries and the outside world, mobilizing various social forces to support and participate in library development, extending from self-management to social co-construction. Public library space reengineering mostly proceeds under difficult financial circumstances. Library leaders must abandon “wait, rely, demand” approaches, adopt flexible tactics, strengthen internal resource integration and workflow adjustments, secure government special funding, and proactively seek social co-construction cooperation solutions, introducing external resources to address funding, personnel, and creativity issues in space reengineering and service innovation. Strategies should include social donations, crowdfunding, and multi-dimensional cross-border collaborative construction. Investigations prove that “library +” models are optimal choices, such as “library + public organization,” “library + professional association,” “library + government department,” “library + enterprise,” “library + tourism company,” “library +

commercial institution,” and “library + park.” These should be designed holistically to leverage more private enterprises, corporate consortia, social organizations, and individuals to participate in library construction. Furthermore, in space reengineering and service innovation, libraries should connect with society, actively introducing public organizations, professional associations, and cultural volunteers to jointly plan and carry out cultural activities. Therefore, seeking multi-dimensional cross-border integration and co-construction will be an important pathway for solving space reengineering problems in future public library construction.

4.2 Focusing on Co-Construction, Co-Governance, and Sharing of Characteristic Libraries

Public libraries are important urban cultural facilities and positions for advancing urban cultural construction. Therefore, space reengineering should focus on regional library systems, coverage, and cultural characteristics, advocating co-construction, co-governance, and sharing of “characteristic branches.” **Construct green ecological libraries:** Emphasize optimal selection of themes, locations, architecture, decoration, lighting, facilities, and furniture to create high-aesthetic, environmentally friendly, and warm reading environments that promote sustainable development. **Focus on local cultural inheritance and exchange:** Target development and utilization of local literature, urban memory, oral history, and other resources to preserve and inherit local culture. **Reengineer themed branches centered on traditional culture:** Make traditional culture learning and promotion an eternal theme, reengineering themed branches with traditional culture at their core and innovating various services. **Become local cultural exchange venues:** Aim at cultural popularization activities, building platforms to provide exchange spaces and opportunities for professional groups, professionals, and ordinary citizens. **Nourish public spirit:** Public libraries are important venues for cultivating cultural confidence, nourishing public spirit, and 凝聚奋斗力量. **Cultivate “craftsman spirit”:** Space reengineering should incorporate cultivating the public’s “craftsman spirit,” creating conditions to cultivate the pursuit of excellence, comprehensive qualities, and latent product and technological disruptive spirits. In future space reengineering, characteristic libraries should be the first choice, with traditional culture at the core, nourishing public spirit as the priority, cultivating craftsman spirit as the responsibility, and 凝聚奋斗力量 as the mission.

4.3 Emphasizing “Full-Process Intelligence” in Reengineered Space Services

Although some cases have introduced intelligence in public library space reengineering, they remain at the primary stage of “library space + intelligent technology,” merely stacking intelligent products or using virtual platforms for simple retrieval. Most library space reengineering can meet basic business needs but falls far short of true intelligence. Library intelligence applications are not about

piling intelligent products in library spaces or using virtual platforms for simple retrieval, but achieving deep integration of “intelligence + library” in space reengineering. Currently, the degree of intelligent equipment in library space reengineering varies greatly, with intelligence levels severely affected by regional, cultural, and economic factors. However, library space reengineering should not be taken lightly; it must keep pace with the times and strive to achieve full-process intelligence in reengineered space services. This includes introducing robotic elements, 24-hour self-service libraries, and other intelligent equipment, making intelligent solutions a key focus for future public library space reengineering. Physical space intelligence construction should be strengthened, creating artificial intelligence interactive exchange experience zones, virtual reality and augmented reality experience zones, maker space experience zones, and digital cultural model rooms within libraries, allowing readers to experience digital learning spaces through various digital reading devices and transmitting intelligent concepts to users through spaces. While developing intelligent physical spaces, attention should also be paid to virtual space and virtual-physical integrated space services, strengthening intelligent services such as intelligent retrieval, virtual navigation, online Q&A robots, “One Card” universal borrowing and returning, and facial recognition self-service borrowing.

4.4 Adhering to Principles of Universal Equality and Free Service

Public libraries’ primary function is serving society as social institutions serving readers of all cultural levels. They must fulfill functions of organizing literature and information flow, transmitting literature and information, intellectual development and social education, preserving cultural heritage, and satisfying cultural appreciation and entertainment needs. Libraries are legally established and publicly funded institutions; free service is a fundamental principle. Therefore, libraries must always adhere to public welfare and equality principles, ensuring all local residents—regardless of economic and social status, residence, age, gender, physical condition, race, or religion—can access libraries without barriers and free of charge. Special attention and responsibility should be given to disadvantaged groups such as people with disabilities, the elderly, migrant workers, and children and youth. Achieving universal and equal library access requires sustainable development of universal equality and free service principles. Although the free service principle has been internationally recognized, the global wave of privatization in recent years has significantly impacted library public welfare undertakings, with external environmental turbulence shaking the foundation supporting libraries’ free service principle. For example, four themed libraries created by a Korean credit card company serve through a “library + enterprise + membership card” model, breaking the public welfare principle. In China, cooperation models such as “library + publishing group,” “library + shopping mall,” and “library + bookstore” have emerged. Due to “multi-dimensional cross-border integration,” public libraries’ “free service” bottom line becomes difficult to maintain. While membership-based libraries are not entirely public libraries in the strict sense, they attract citizens with high-end,

beautiful environments that 调剂读书和生活, making reading and learning a part of life through lively creativity and becoming places people most want to visit besides home and work. Even with membership cards, they appeal to young people and serve as beneficial supplements to public libraries that should be accepted by society.

In conclusion, the library is a growing organism, and its “space reengineering” and “service innovation” represent organic growth points for the industry in the new era. Library space reengineering is a scientific project that should emphasize the integration beauty between people and architecture, and between architecture and environment; focus on enhancing library connotations; and deepen and expand library functions and services. By exploring and applying new concepts, theories, ideas, and technologies, public libraries have created new spaces, environments, services, and situations. Space reengineering drives service innovation, while service innovation realizes the value of space reengineering, achieving complementary benefits. The challenges of transformation and rapid growth have been empirically verified, driving public library space reengineering and service innovation to extend deeper. Although the basic elements of public libraries—“people, resources, space”—are undergoing transformation today and will inevitably be continuously 颠覆改造 in the future, their growth direction must target meeting reader needs, inheriting excellent national culture as the core, using new intelligent services as means, and weaving a development scene of nationalization, intellectualization, and intelligentization, allowing intelligent libraries to reach readers and truly become “urban third spaces” and “heaven” in people’s cultural lives.

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Liu Sisi: Responsible for data collection, partial paper writing, and literature research and table design in the paper.

Reconstruction and Prospect of Public Library Space in China

Du Xilin¹, Liu Sisi²

¹Liaoning Provincial Library, Shenyang 110167

²Library of Shenyang Normal University, Shenyang 110034

Abstract: [Purpose/significance] Based on the investigation of the current situation of library space reengineering research and practice, this paper puts forward prospects for future space reengineering development to promote continuous spatial service transformation and innovative service expansion in public libraries. [Method/process] Through literature analysis, this paper discusses the current research status of library space reengineering; investigates the national status of public library space reengineering; and proposes existing problems and future prospects. [Result/conclusion] Space reengineering is an organic growth point for public library development in the new era, and should follow principles of pursuing multi-dimensional cross-border integration, focusing on characteristic libraries, emphasizing intelligent construction, and adhering to universal equal service.

Keywords: public library; space reengineering; historical investigation; future prospect

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

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