Postprint on Librarian Capacity Building for Smart Libraries

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Abstract

Smart libraries, as a new stage in library development, should prioritize librarian capacity building as the primary task in their construction process. The fundamental service model of smart libraries involves librarians leveraging intelligent technologies to provide smart services to users. Librarian capacity building should be strengthened and improved across six dimensions: user needs analysis capability, data management service capability, technology research and development application capability, smart intelligent service capability, innovation and creativity capability, and professional core competitiveness.

Full Text

Librarian Capacity Development for Smart Libraries

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Abstract: As a new stage of library development, smart libraries should prioritize librarian capacity development during their construction. The fundamental service model of smart libraries involves librarians providing intelligent services to users with the aid of smart technologies. Librarian capacity building should be strengthened and improved across six dimensions: user demand analysis capability, data management service capability, technology R&D and application capability, intelligent service capability, innovation and creation capability, and professional core competitiveness.

Keywords: Smart Library; Librarian; Capacity Development

Smart libraries represent an urgent research priority for contemporary libraries and the dominant model for future library development. Whether libraries can

evolve from traditional physical and digital-mobile formats to smart libraries not only determines their societal status and value but may also affect their very survival. The *14th Five-Year Plan for National Economic and Social Development of the People' s Republic of China and the Long-Range Objectives Through 2035* specifically mentions "smart libraries" in its section on "providing intelligent and convenient public services" [1].

In the era of intelligence and smart technologies, smart libraries are not merely specific business operations or technical projects; they constitute a highly intelligent knowledge service system emphasizing omnimedia, platformization, and new business formats [2]. Libraries that fail to embrace intelligence and smart technologies will inevitably become incompatible with societal development and ultimately be abandoned by the times. Therefore, vigorously strengthening smart library construction and incorporating it into the 14th Five-Year Plan and future development plans for libraries at all levels holds significant meaning for both libraries and society at large.

Smart library construction involves numerous complex issues, including policy planning (top-level design), technology application (technical support systems), business reorganization (business process transformation and optimization), and service capability (meeting diverse user needs). However, the most critical issue is librarian capacity. Whether librarian capacity can match smart library development, whether librarians can play a leading role in smart library construction, and whether smart libraries can truly achieve their intended goals and tasks are determined not by policy environments or advanced technologies, but by librarians and their capabilities.

Consequently, librarian capacity development must remain the top priority throughout smart library construction, serving as a crucial benchmark for evaluating its effectiveness. Smart library initiatives that neglect or ignore librarian roles will neither meet user needs nor constitute true smart libraries. To adapt to rapidly changing environments, library staff must not only be competent in executing and managing existing systems and services but also possess exceptional insight and dedication, constantly monitoring the information needs of their academic communities, understanding how to enhance service quality through new information sources, and focusing on emerging technologies that effectively disseminate information [3]. The so-called "user-driven" approach necessarily involves librarians leveraging advanced intelligent technologies to more efficiently, accurately, and deeply satisfy user service demands. How to harness librarians' knowledge, expertise, and wisdom to strengthen capacity building within smart library construction tasks requires greater attention and emphasis.

1. Strengthening User Demand Analysis Capability

Fundamentally, smart library construction tasks are driven by user needs. Without user demand for smart libraries, there would be no need for their construction. Therefore, grasping user needs represents both a key issue for libraries in

general and a challenge for smart library construction. Librarians must enhance interaction and communication with users, integrate into user environments, embed themselves in user processes, and skillfully understand, excavate, anticipate, and discern user needs. They must conduct in-depth profiling analysis of different user types and individuals, laying the foundation for technology R&D and targeted personalized services. In a sense, the more accurate and precise the understanding of user needs, the more focused and valuable smart library construction becomes. To this end, a dynamic and continuous user demand cognition and analysis system must be established, combining users' actual and explicit needs with their potential and implicit needs to construct a user demand database (user profile) that enables value conversion.

2. Strengthening Data Management Service Capability

From a technical perspective, smart libraries are also "data-driven." In simple terms, smart libraries are characterized by artificial intelligence applications, represented primarily by the Internet of Everything, advantaged by big data modeling and personalized analysis, and oriented toward the organic integration of user needs and services. All of these aspects hinge on data—linked data, semantic data, rich media data, and other critical content. Smart libraries aim to activate resource data, user data, and business process data, transforming data capabilities into service capabilities through modeling processes. Librarians need to strengthen their data literacy, intensify the collection and development of data resources, organize and reveal various data resources through knowledge organization, excavate the value and role of big data, and convert data potential into actual service capabilities. In smart library contexts, management and services centered on data will constitute the main body of librarians' work. Mastering data management and services and constructing a business architecture centered on "data librarians" will establish librarians' advantages and expertise, enabling them to play leading and critical roles in smart library construction.

3. Strengthening Technology R&D and Application Capability

The specific technologies required for smart libraries are neither clearly defined nor static. Any technology that helps provide intelligent services to users and assists librarians in delivering knowledge services is needed. Libraries can introduce various advanced technologies and systems based on their business development needs and user service objectives, within certain financial constraints and through certain experimental processes. These technologies and systems can be self-developed, purchased on the market, or developed through a combination of both (secondary development). Many libraries lacking R&D capabilities may primarily purchase existing systems but must do so only after thoroughly understanding their performance and ensuring they meet library and user needs, strengthening technical feasibility analysis and expert evaluation. Limited funds must be used to maximum effect, invested where they matter most, and avoid using technological "garbage" for decorative purposes. Any technology that fails

to produce actual library effectiveness is meaningless.

4. Strengthening Intelligent and Smart Service Capability

If physical libraries provide literature and information services, and digital libraries provide intelligence and knowledge services, then smart libraries provide intelligent and smart services. Literature and information services are characterized by literature utilization and information revelation; intelligence and knowledge services are characterized by intelligence mining and subject services; while intelligent and smart services are characterized by precise, efficient, and in-depth professional data analysis and knowledge discovery. Intelligent services and smart services are distinct concepts. Intelligent services fundamentally depend on systems, software, tools, and platforms, allowing users to independently complete established tasks with minimal librarian intervention under certain manual involvement conditions. Smart services, however, involve librarians—supported by robust technical systems—personalizing the satisfaction of users' complex and in-depth knowledge needs based on specific task requirements and fully applying their own and their team' s knowledge and wisdom. If intelligent libraries require intelligent services, smart libraries necessarily require smart services. Libraries and users need intelligent services but need smart services even more. Smart services should represent the greatest distinguishing feature of smart libraries compared to other library forms and constitute their primary advantage for existence and development [4]. Only smart services can demonstrate the value and capability of libraries and librarians.

5. Strengthening Innovation and Creation Capability

Smart library services are not traditional one-to-one services but multidimensional, multilevel services that radiate from points to surfaces and from outside to inside. Therefore, service methods, content, and feedback are no longer simple linear transmissions but three-dimensional, precise, radiating interactions. Whether service subjects can accurately perceive and effectively serve object needs requires librarians' subjective initiative. Regarding the service essence of libraries as a process of freely providing users with valuable knowledge and information, librarians must integrate existing library resources (document resources, data resources, space resources, etc.), technologies, tools, and channels to resolve contradictions between user needs and cognition. This process requires strengthening librarians' innovation and creation capabilities, primarily including innovation in service models and creation and utilization of emerging technologies and tools. This aligns with the essential content of smart services. Librarians are not merely "movers" of knowledge but important agents of knowledge creation and transfer. As in-depth communication with users develops, librarians will transform from "service providers" into "collaborators" with users, deeply participating in research decision-making and solution formulation to facilitate users' scientific research activities. Simultaneously, librarians' innovation and creation capabilities will promote the development and advancement of

smart services, bringing inexhaustible momentum to smart library development and reform, thereby forming a spiral upward trend.

6. Strengthening Professional Core Competitiveness

Digital libraries posed a test to libraries' survival value, and smart libraries may pose an even greater challenge. However, any assertion regarding libraries' survival or demise is subjective speculation based on simplistic linear analysis of library development. Library development is dynamic and changing, even achieving unconventional leaps. Society will certainly continue developing, technology will certainly become more advanced, and user needs will certainly grow more complex. Regardless of how library forms change or how far libraries develop, the most important factor remains librarians' professional core competitiveness. Strong resource management capabilities, high technical application proficiency, and robust user service capabilities will ensure increasingly better library development. In smart library contexts, whether libraries can avoid being replaced or eliminated depends on what professional, core, and competitive capabilities librarians possess. Library and information science professional capability is the foundation, core capability in smart knowledge services is the key, and competitive capability in data management and services is strategic. With such a professional core competitiveness system, librarians will achieve greater accomplishments, and smart libraries will transform from goals into reality.

Exploration of librarian capabilities runs throughout library research and construction. As the main body of library services, librarian capabilities directly determine service methods, content, and quality—equally critical for smart library development. In smart library construction, librarian capacity development faces higher requirements and greater difficulty than conventional libraries but is also more important and urgent. Librarian capacity development constitutes the core of smart library construction and must integrate librarians' career development and planning into the smart library blueprint. Coordinated efforts are needed in institutional guarantees, technology R&D and tool application, talent cultivation, service standards, and evaluation mechanisms. Only by focusing on librarian capacity development as the main thread can we construct smart libraries with complete systems, precise services, advanced technology, and scientific management [5].

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