# Postprint: Research on Cases and Strategies for Quality and Efficiency Enhancement in Library Information Service Innovation from the Perspective of Kinetic Energy Transformation

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## Abstract

[Purpose/Significance] Grounded in the fundamental connotation of kinetic energy conversion, this study preliminarily clarifies the internal logic between library information service innovation and quality-efficiency enhancement under the new normal. It analyzes and summarizes practical cases of new supply of library information services under abnormal conditions (new normal superimposed with the COVID-19 pandemic), aiming to formulate a new service model with a solid theoretical foundation that is replicable and applicable to multiple scenarios, thereby offering reference value for libraries under the new normal and future service innovation quality-efficiency enhancement. [Method/Process] Through a combined approach of theoretical research and case studies, this paper specifically analyzes the content, characteristics, and relational model of library users' new demands and services' new supply within kinetic energy conversion. Based on typical cases featuring full integration of new supply and new demands, it examines the methods and effects of paths for improving quality and efficiency of information service innovation. Finally, it provides strategic recommendations for the basic framework of high-quality development of information service innovation under the library new normal. [Results/Conclusion] Through systematic review and summary of specific practical cases of library information service innovation under abnormal conditions, this study finds that taking users' new demands as the prerequisite and meeting these demands through provision of matching new service supply as the solution path, realizing quality-efficiency enhancement of library information service innovation represents an important direction for high-quality library development under the new normal in the process of kinetic energy conversion. Furthermore, library information service innovation practice under abnormal conditions will become an important driving

force for information service innovation under the library new normal.

## Full Text

## Preamble

**Title:** Research on Cases and Strategies for Improving Quality and Efficiency Through Library Information Service Innovation from the Perspective of Kinetic Energy Conversion

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**Abstract:** [Purpose/Significance] Based on the fundamental connotation of kinetic energy conversion, this study preliminarily clarifies the internal logic between library information service innovation and quality/efficiency improvement under the new normal. It analyzes and summarizes practical cases of new supply in library information services under abnormal conditions (new normal superimposed with COVID-19), forming a new service model with a certain theoretical basis that is replicable and applicable to multiple scenarios. This has certain reference significance for libraries under the new normal and for future service innovation quality and efficiency improvement. [Method/Process] Through a combination of theoretical research and case studies, this paper specifically analyzes the content, characteristics, and relationship models of new user demands and new service supply in libraries during kinetic energy conversion. Based on typical cases of full integration between new supply and new demand, it analyzes the methods and effects of the path for improving quality and efficiency in information service innovation. Finally, it provides countermeasures and suggestions for the basic framework of high-quality development of library information service innovation under the new normal. [Result/Conclusion] Through systematic analysis and summary of specific practical cases of library information service innovation under abnormal conditions, this study finds that taking new user demands as the premise, meeting these demands with appropriate new service supply as the solution path, and achieving quality and efficiency improvement in library information service innovation constitute an important direction for high-quality library development under the new normal in the process of kinetic energy conversion. The innovative practice of library information services under abnormal conditions will also become an important driving force for library information service innovation under the new normal.

**Keywords:** kinetic energy conversion; information service innovation; improving quality and efficiency; new user demand; new service supply; precision service

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Since 2013, General Secretary Xi Jinping has pointed out that China's economic development has entered a new normal. Beginning in 2015, General Secretary Xi Jinping frequently mentioned concepts such as "kinetic energy," "new kinetic energy," and "kinetic energy conversion" in public settings [1]. After continuous deliberation, in January 2017, the State Council issued its first formal document on kinetic energy conversion, titled "Opinions on Innovating Management and Optimizing Services to Foster and Strengthen New Drivers of Economic Development and Accelerate the Conversion of Old and New Kinetic Energy" [2], which authoritatively defined the connotation of new kinetic energy.

## 1. Theoretical Basis

### 1.1 Kinetic Energy Conversion and the Internal Logic of Library Information Service Innovation Quality and Efficiency Improvement

The concept of kinetic energy conversion originates from economics and has been widely applied in sociology and various undertakings as society enters new development phases, being endowed with different connotations in different practices. Grasping the basic connotation of kinetic energy conversion is a prerequisite for deeply understanding the internal logic of library information service innovation and quality/efficiency improvement.

Since the 13th Five-Year Plan period, China's library industry has entered a new normal of development. The development momentum driven by resource investment is gradually weakening, even entering an unsustainable downward channel. This development model will no longer serve as subsequent power for improving library quality and efficiency, and may even bring about development blockages under inertial thinking. When the traditional momentum of library information service innovation is affected by objective environments and cannot provide positive feedback, even impacting library quality and efficiency, new development kinetic energy must be sought. Based on the basic connotation of kinetic energy conversion, fully recognizing the leading role of new technologies and new models in innovative development, and relying on connotative innovation centered on new production factors such as knowledge, technology, information, and data will become the new kinetic energy for libraries to achieve quality improvement, efficiency enhancement, and high-quality development during the 14th Five-Year Plan period and beyond.

In the process of kinetic energy conversion, new demands from library users are an important prerequisite for generating new supply in library information services. The full integration of new supply and new demand is an important basis for promoting changes in the types of library information service products and forming new product systems. The resulting improvements in quality and efficiency are inevitable outcomes of kinetic energy conversion. This inevitably

brings about the transfer of traditional library elements such as resources to new production factors like library information services and technology, while also accompanying improvements in the quality and efficiency of library staff's own work.

Therefore, following the theoretical connotation of kinetic energy conversion, conducting three levels of progressive research is the basic path to achieving quality and efficiency improvement in library information service innovation. The analysis of new user demands and new service supply in libraries during kinetic energy conversion forms the foundation level. The path analysis of quality and efficiency improvement in information service innovation based on typical cases of full integration between new supply and new demand constitutes the intermediate level. Providing countermeasures and suggestions for the basic framework of high-quality development of library information service innovation under the new normal represents the third level. These three levels also constitute the core of research on improving quality and efficiency through library information service innovation under kinetic energy conversion.

### 1.2 Literature Review

Research on library information service innovation from the perspective of kinetic energy conversion is limited. Qiu Hailing [6] explored service model innovation in local university libraries from the perspective of serving kinetic energy conversion. Wu Ruili and Wang Peipei [7] analyzed the impact of "mass entrepreneurship and innovation" on library information service models under the background of kinetic energy conversion, revealing library "mass entrepreneurship and innovation" services from four dimensions: maker space construction models, differences between Chinese and foreign maker spaces, innovative service models, and discussions on the necessity of maker spaces. Regarding kinetic energy conversion in library work, Wang Zhenyuan [8] proposed that new concepts and ideas from library managers are the foundation for achieving kinetic energy conversion in libraries, and that reasonable collection layout and artificial intelligence application are the driving forces for kinetic energy conversion. Qi Ying [9] suggested that university libraries should also be guided by kinetic energy conversion theory to optimize collection structure and remove unreasonable inventory while integrating and reusing removed books reasonably to achieve library kinetic energy conversion.

Regarding new user demands in libraries, Zeng Jianxun [10] proposed the need to fully investigate the information preferences, information behaviors, and information needs of different levels and groups of people, to balance and optimize information demand structures, formulate information product promotion measures, enrich high-quality information product supply, and detect information consumption growth space and information consumption upgrade trends. Wang Yuefen et al. [11] proposed using the scientific research lifecycle as a foundation and scientific research users as research objects to investigate knowledge innovation service needs through empirical surveys and statistical analysis. Sun Jian-

hong [12] conducted surveys on information service needs for scientific and technological achievement transformation among scientific research users in some universities in Hebei Province using questionnaires and interviews. Zhang Yue [13] conducted research on research data service needs from a user perspective.

Regarding improving quality and efficiency in library information services, S. S. Andaleeb and P. L. Simmonds [14] conducted in-depth research on the application of the SERVQUAL evaluation model in libraries, proposing that libraries should be user-centered, better understand the specific needs of library users, and provide corresponding services to meet user needs. U. Hakala and U. Nygren [15] proposed that libraries are service institutions whose operations should be evaluated by measuring customer satisfaction, and that improving library work efficiency requires finding a balance between customer needs and the strategic goals of superior organizations. Wei Jingzhu et al. [16] proposed a service quality evaluation method based on reader needs, using readers' judgments as the standard for evaluating urban public library information service quality and selecting indicators most valued by readers to establish a service quality evaluation model. K. K. Twum et al. [17] used LibQUAL+TM to evaluate library information service quality, proposing that library management must continuously improve service quality to establish a positive brand image and thereby enhance user loyalty.

Regarding library innovative services, Wang Xincai and Xie Xin [18] proposed that library service innovation refers to using new ideas and technologies to improve and transform existing workflows and products, improve service quality and efficiency, expand service scope, and update service content, which is key to libraries' continued growth and survival. Wang Yujian et al. [19] investigated and analyzed current practical cases of library innovative services, exploring new library development models of "Internet + Library" and "Library +". K. Nicholson [20] proposed that public library innovation mainly focuses on areas such as participation, making and creating, learning, and new outreach and partnerships. These emerging areas are strongly influencing the development of library information services, transforming them into a collaborative, innovative, and participatory model.

In summary, regarding library information service work from the perspective of kinetic energy conversion, researchers have mostly proposed views from the perspective of traditional library management, while research on library innovative services from the perspective of kinetic energy conversion is limited. Research on information service innovation and quality/efficiency improvement has been conducted by some scholars focusing on collaborative cooperation, education and training, and librarian capability enhancement, or on innovative reader service concepts, content, and forms to propose strengthening work efficiency and quality improvement. However, almost no research has analyzed and studied the characteristics of new demands and new supply in library information service innovation based on the perspective of kinetic energy conversion, conducted path research on service innovation through case analysis methods, and

proposed countermeasures for a basic service framework for high-quality library development. Therefore, this study will help to more comprehensively and accurately grasp libraries' functional positioning and core value, and improve the quality and efficiency of library services.

## 2. Analysis of New Demand and New Supply in Libraries During Kinetic Energy Conversion

The analysis of new user demands and new service supply in libraries during kinetic energy conversion is the foundation for research on improving quality and efficiency through library information service innovation. Before defining new demand and new supply, it is necessary to clarify the environment in which they are generated. During the 13th Five-Year Plan period, China's economic and social development began to enter a new normal, and libraries also exhibited development characteristics under this new normal environment. When General Secretary Xi Jinping explained the new normal [21], he pointed out that "new" means "different from the old nature," and "normal" means a frequently occurring state. The new normal is a state that is different from the past and relatively stable. Things always develop dynamically among normal, abnormal, and new normal states, rising in a spiral manner. The COVID-19 outbreak in 2019 has become an unpredictable new variable in the library new normal, and the resulting new demands or new service supply may drive libraries into a new development stage of the new normal.

So, what exactly are the new demands of library users and the new supply of information services under the new normal? The author believes that new demands formed by library users under the new normal are needs generated by library users due to changes in the objective environment or resulting changes in their own cognition. These are one of the main sources of external driving force for library kinetic energy conversion. New information service supply refers to the willingness of libraries (staff) to spontaneously change the status quo due to changes in the external environment, as well as the new service products created by resulting improvements in supply capacity. It is one of the main manifestations of internal driving force in the library kinetic energy conversion process.

### 2.1 Content of New Demand and New Supply

Under the new normal, new production factors such as information, data, knowledge, and technology are new drivers of social development and also important objective environments for generating new library user demands. Digitalization, datafication, and intelligence have become new labels for social development and change under the new normal. Affected by the objective environment, especially the superimposed factors of COVID-19, library users' demands for new library supply under the new normal and the abnormal state after the COVID-19 outbreak have undergone important transformations. Users' needs for information

access have abruptly changed from using paper resources in the library and using electronic resources within limited scope under the new normal to remote use of electronic resources under abnormal conditions. The depth of user needs has also generally evolved beyond mere information acquisition, forming a multi-level demand chain from data to information to knowledge to intelligence.

A multi-level demand chain has already formed. Libraries are prepared for new user demands under the new normal and have provided certain new supplies of resources and services, including data management systems targeting data services, literature management platforms targeting information services, academic evaluation services targeting knowledge services, and briefings and special reports targeting intelligence services. However, at different stages, new user demands frequently undergo dynamic changes, and there are also differences in new supply of library information services. Whether the two can completely match remains uncertain.

### 2.2 Characteristics of New Demand and New Supply

The uncertainty of new demand and new supply determines that they have both explicit and implicit characteristics. Under the influence of changes in internal and external environments and insufficient demand and supply, the implicit and explicit characteristics of new demand and new supply will transform bidirectionally. When new user demands and new service supply receive positive guidance, they transform from implicit to explicit. When they receive negative feedback or stimulation, they often form a situation of transforming from explicit to implicit. The reason is that the matching degree between new demand and new supply is not completely compatible, and there are certain errors or obstacles. When new user demands become explicit demands but libraries fail to provide effective supply, the new demands may transform into implicit demands due to the stimulation of unsatisfied signals. When new library supply emerges but new user demands have not yet become explicit demands, the new supply will also gradually transform into implicit new supply due to insufficient positive stimulation. Therefore, it is necessary to establish a preliminary model of the relationship between new demand and new supply to further clarify their interrelationship.

### 2.3 Relationship Model of New Demand and New Supply

In the preliminary model of the relationship between new demand and new supply, the two ends of the relationship connect the two main concepts of new demand and new supply. These two main concepts are defined from four dimensions: implementing party, implementation content, implementation state, and implementation content. As can be seen from the aforementioned content, due to the factor of the new normal superimposed with COVID-19, the environmental factors are divided into two periods: the new normal and the abnormal state (new normal superimposed with COVID-19) for discussion, as shown in Figure 1 [Figure 1: see original paper].

In the implementing party dimension, it is divided into new demand side and new supply side. When defining library types in library science, they are basically divided into public libraries, university libraries, and specialized libraries. Different types of libraries provide different services to different users. However, for ease of discussion, library users are classified here in a simplified manner, specifically including the general public, students (groups with research capabilities), researchers (faculty), and institutional or government management personnel (decision-makers). These four groups constitute the demand side of new demand. The supply side of new supply generally refers to libraries (librarians).

The implementation content dimension is divided into demand content and supply content. Here, referencing J. Rowley's [22] pyramid model from data to information to knowledge to wisdom, the demand content is summarized as a multi-level demand chain from data to information to knowledge to intelligence. It should be noted that intelligence is used instead of wisdom based on the actual situation in China at the current stage. The supply content mainly refers to corresponding services provided around the demand chain.

The implementation state dimension is divided into demand state and supply state, both corresponding to explicit and implicit states. The implementation state is affected by the matching balance between demand content and supply content, resulting in two signals: positive feedback and reverse stimulation, which trigger dynamic adjustments between explicit and implicit states.

During abnormal periods, demand content and supply content are affected by public health emergencies. When the demand chain shows abnormal changes, supply content will also respond promptly. Demand state and supply state reach a new balance in dynamic changes, thereby achieving the best state of library information service innovation.

Similar to the survey and analysis of health information service needs during the pandemic conducted by libraries of medical colleges in Zhejiang Province, which divided needs into three levels: expected needs, mixed needs, and attractive needs [23], this article specifically analyzes the changes in new user demands faced by specialized libraries like the Information Center during abnormal periods from the dimensions defined in the preliminary model of the relationship between new demand and new supply. The specific content can be summarized as shown in Table 1 .

## 3. Case Analysis of Improving Quality and Efficiency Through Library Information Service Innovation During Kinetic Energy Conversion

The author uses the example of the Shanghai Information Center for Life Sciences, Chinese Academy of Sciences (hereinafter referred to as "the Information Center") achieving dynamic balance between new user demands and new library information service supply during abnormal periods to analyze the exploration

path for improving library quality and efficiency under kinetic energy conversion.

### 3.1 Case Content Analysis

Librarians perceived through service the states of different users' demands for different levels under the new normal. The general public's demand for specialized library information services generally shows explicit expression only at the information level. Students' and researchers' demands for specialized library information services have risen to explicit expression from data to information to knowledge. The service demands of institutional or government management decision-makers focus on the three levels of information, knowledge, and intelligence.

With the sudden arrival of the pandemic, librarians deeply felt the significant changes in specialized library user demands under abnormal conditions. In addition to intelligence needs, the general public's demands for data, information, and knowledge grew rapidly. Students, researchers, and institutional/government management decision-makers all generated service demands across the full dimension from data to information to knowledge to intelligence. Such changes are extremely challenging for libraries.

From the perspective of meeting new service demands and providing solutions, libraries need to comprehensively consider new supply issues. Balancing dynamic changes in demands with service timeliness is a key focus of service timeliness. Achieving both chain-wide coverage and precise positioning is a key focus of service breadth and depth. At the same time, it is necessary to fully consider existing library supply capabilities, including personnel allocation, resource allocation, and technology configuration as service foundations.

The sudden COVID-19 outbreak at the end of 2019 had a huge impact on social development under the new normal, and the challenges to library information services were also unprecedented. Regardless of whether libraries were prepared, when these challenges became new urgent demands from users during abnormal periods, libraries had to overcome all difficulties, aim to provide user solutions, propose response plans and implementation plans, and demonstrate library information service capabilities and value.

#### 3.1.1 Changes in New Demand During Abnormal Periods

**3.1.2 New Supply Solutions During Abnormal Periods** The formulation of new supply solutions is not perfect at the beginning of service. Typically, a step-by-step implementation plan is formulated based on factors such as the timing and urgency of new demands, the difficulty of implementation, and existing supply foundations. This case analysis closely follows the time nodes of user demand emergence and provides new supply services in the order of information, data, knowledge, and intelligence.

**Phase 1:** Proactively understand service demands, quickly form a service team, and establish information collection, organization, and release mechanisms. By the end of January 2020, under the constantly changing pandemic environment, the subject service team of the author's library realized that it was very important to timely collect and organize COVID-19-related information and establish a rapid release channel for users to obtain information promptly. A special service team consisting mainly of subject librarians with the cooperation of basic information service librarians was quickly established. Based on the characteristics of publicly available information sources that could be accessed at the time, the team identified the latest research results released on open-access preprint platforms and journal websites with rapid release channels as the main tracking targets. Most publishers were restricted by publishing processes at the early stage of the pandemic and could not release the latest research results quickly. After identifying information sources, the team quickly established a workflow for information downloading, cleaning, subject indexing, and organization, clarified division of labor, and determined the use of internal network disk sharing as the initial rapid information release channel. The special database has been continuously updated since February 1, 2020, with 104 updates, collecting more than 150,000 documents, including about 130,000 journal articles, over 20,000 preprint documents, and 40,000 full-text documents obtained, with downloads reaching over 190,000 times (data as of May 31, 2021). To avoid intellectual property issues, it was initially limited to use by researchers and students within the institute. In this phase, the library focused on the depth and precision of service supply capabilities and conducted full coverage from the supply chain perspective.

**Phase 2:** Collaborate and cooperate, gradually enhance service supply content, and establish a relatively complete new supply release and utilization channel. After two weeks of initial operation, the team received feedback on new demands from researchers and students. In conducting emergency scientific research, in addition to literature-based information, users also needed real-time data on domestic and international research progress, such as COVID-19 genome data and testing data. This part of data service demand posed difficulties for the library's existing work foundation. After quickly contacting the institute's biological big data center and learning that it had begun planning to establish a COVID-19 data service platform, the two parties communicated and negotiated to determine that they would cooperate to provide new service supply. In addition to opening literature information to institute users through network disk, it would also be shared to the service platform to form integrated services from data to literature information, while opening to the general public. At the same time, the team quickly adjusted and improved the scope of literature information collection and organization, dynamically adjusting the key information sources tracked to COVID-19 literature specials launched by major domestic and foreign publishers, thereby improving the comprehensiveness and authority of literature information. In this phase, the library focused on extending and solving difficult points in user new demand guarantees in new supply, and made

timely dynamic adjustments from the supply chain perspective.

**Phase 3:** Apply new technologies to further enhance service supply capabilities and form a complete new supply service chain. After collaborating with the data service team to establish the COVID-19 special knowledge base (platform) (website: https://www.biosino.org/ViGTK/researchProgress), providing services at the data and information levels, researchers and relevant institutional decision-makers proposed in-depth information analysis needs to the team, hoping to provide new supply at the knowledge and intelligence levels. The former would use analysis results for research project applications, while the latter needed to provide support for national ministry decision-making. The time from demand proposal to providing complete service products was extremely tight and limited. The team quickly adjusted personnel division of labor, transferring routine update tasks to the basic literature service team. Subject librarians utilized the accumulated COVID-19 literature information foundation, gave full play to their disciplinary background advantages and bibliometric work practical experience, accurately grasped user demand pain points, formulated efficient information analysis processes, established complete intelligence content analysis frameworks, and provided timely, accurate, and effective knowledge and intelligence service supply and support to users within the specified time, forming a monthly continuous update mechanism. During monthly updates, team members learned programming techniques and used Python technology to improve service supply efficiency and quality. In this phase, the library focused on the depth and precision of service supply capabilities and conducted full coverage from the supply chain perspective. The progress of service construction at each stage is shown in Table 2 .

### 3.2 Case Effect Analysis

The new supply of COVID-19 special services during abnormal periods is a vivid attempt by libraries under the new normal to respond dynamically and timely to public health emergencies, provide chain-based precision services, and a path exercise for improving library quality and efficiency through information service innovation under kinetic energy conversion.

**3.2.1 Full Integration of New Supply and New Demand, Giving Rise to New Service Models** Throughout different stages of new supply services, the team always adhered to the concept of full integration with new demand, following the principle of building while serving and improving while accumulating. Through practice, it continuously promoted and gradually formed a new supply product system covering four levels of demand: data, information, knowledge, and intelligence, to find effective solutions for users. At the same time, in the process of forming the new supply service chain, the library demonstrated the proactivity of library information service innovation by meeting basic new demands and providing timely new supply. It demonstrated the professionalism of library information service innovation by extending the level of user new

demand guarantees and making timely dynamic adjustments from the supply chain perspective. It demonstrated the sustainability of library information service innovation by enhancing the depth and precision of service supply capabilities and covering the entire supply chain. Layer by layer, this gave rise to a new supply model for library information services under abnormal conditions. This new supply model has also become one of the main models for service innovation at the Information Center during the 14th Five-Year Plan period, transitioning from abnormal to new normal and comprehensively building chain-based precision services for professional disciplinary domain users.

**3.2.2 Significant New Supply Service Effectiveness, Promoting Quality and Efficiency Improvement in Kinetic Energy Conversion** Throughout the new supply process, the team continuously received many positive evaluations and feedback from different user groups. At the initial information provision level, some researchers and graduate students at the institute maintained the habit of timely downloading and updating their literature collections from the network disk after the literature collection was updated. After data and literature information were widely disseminated through the platform, the platform's click-through rate increased daily. After providing knowledge and intelligence supply to researchers and relevant institutional management decision-makers, researchers wrote thank-you letters stating that the provided information analysis results were highly valued by project review departments and expressed hope for long-term cooperation with the team. Relevant institutional management also sent formal thank-you letters at the end of 2020, highly evaluating the three intelligence products updated monthly, stating that they provided detailed basis for decision-making by relevant national ministries. The significant effectiveness of library information service innovation under abnormal conditions and the positive and high recognition from users are important confirmations of the actual effectiveness of library information service innovation. This also provides a foundation for improving quality and efficiency and achieving high-quality development of libraries under the new normal.

**3.2.3 Continuous Advancement of Kinetic Energy Conversion, Driving Quality and Efficiency Improvement of Traditional Library Elements** The process of providing new supply services is a process of continuous 磨合 with new user demands and also a process in which team members continuously apply new technologies and new knowledge, continuously explore, improve, and break through in finding solutions for new demands. According to the "element theory" proposed by Chinese library science academia, whether it is the three elements of "books, people, and methods" proposed by Mr. Du Dingyou or the four elements of "books, personnel, equipment, and methods" proposed by Mr. Liu Guojun [24], library staff are important components of library elements. Through the work experience of the entire new supply service period, team members have achieved rapid improvement in quality and effi-

ciency in terms of service concepts, service capabilities, and service efficiency. The emphasis on timeliness in the practical case brought high-intensity work to team members. The emphasis on dynamic adjustment required team members to have keen service awareness. The emphasis on chain-based precision services required team members to have continuous learning capabilities and both broad and deep service capabilities. Under the continuous requirements and advancement of kinetic energy conversion, traditional library elements have achieved transformation into important internal driving forces for improving quality and efficiency.

## 4. Countermeasures and Suggestions for High-Quality Development of Library Information Service Innovation Under the New Normal

The new supply case for COVID-19 services under abnormal conditions provides an important practical foundation for improving quality and efficiency through library information service innovation under the new normal and has become an important path for such improvement. Taking the generation of new user demands as the premise, meeting new user demands with appropriate new service supply as the solution path, and achieving quality and efficiency improvement in library information service innovation constitute an important direction for high-quality library development under the new normal in the process of kinetic energy conversion. It is recommended to focus on enhancing "three awarenesses" and strengthening "three capabilities."

### 4.1 Enhancing Three Awarenesses

**4.1.1 Enhancing Proactive Awareness of Service Innovation** Library information service innovation under the new normal is an important driving factor for promoting high-quality library development. Although this understanding has become a common consensus in China's library community, it has not yet reached a level that satisfies users in terms of actions and achievements. There are objective factors such as library type, scale, and level, but the fundamental reason lies in insufficient proactive awareness of library information service innovation. The experience from service innovation cases under abnormal conditions proves that only by proactively perceiving changes in user demands, proactively capturing new user demands, proactively planning new service supply, and proactively providing new service supply can we seek real development momentum for service innovation and provide possibilities for kinetic energy conversion and quality/efficiency improvement under the new normal.

**4.1.2 Enhancing Cooperative Awareness of Service Innovation** Libraries under the new normal are in constant dynamic development, and there are still gaps between libraries' own service capabilities and new user demands. Cases of service innovation under abnormal conditions prove that libraries' active seeking of service partners is an important method to achieve effective

supplementation of new service supply. Therefore, when grasping changes in service innovation demands and making new supply responses, libraries should enhance cooperative awareness, abandon the inherent thinking of fighting alone, consider upstream and downstream library business and peer relationships with an open concept, integrate superior units, give full play to synergistic effects, and rapidly improve the quality and effectiveness of library information service innovation.

**4.1.3 Enhancing Feedback Awareness of Service Innovation** The premise for improving quality and efficiency through library information service innovation under the new normal is achieving a new dynamic balance between new demand and new supply. An important factor in achieving this goal is user feedback. Cases of service innovation under abnormal conditions prove that actively receiving positive feedback from users can promote the continuous generation of new library supply. Libraries providing timely new supply and giving users timely positive feedback will promote the continuous improvement of user satisfaction with new demands and achieve a new dynamic balance. Therefore, enhancing feedback awareness of service innovation is an important driving force for achieving high-quality library development.

### 4.2 Strengthening Three Capabilities

**4.2.1 Strengthening Capability Building of Library Talent Teams** Talent team capability building is crucial for libraries to achieve the high-quality development goal of kinetic energy conversion under the new normal. As one of the important elements of libraries, the capability level of talent teams directly determines the quality and effectiveness of service innovation. Practice from service innovation cases under abnormal conditions shows that strengthening talent team capability building can include the following specific measures: quickly improving the innovative service capabilities of a group of librarians through undertaking important tasks, and gradually forming business echelons of different capability levels in the work; effectively solving the problem of repetitive labor in high-intensity tasks through the application of new technologies and strengthened cooperation among librarians; encouraging librarians to timely summarize experiences and form reproducible and reusable processes and templates to provide a foundation for improving overall service effectiveness and quality.

**4.2.2 Strengthening Capability Building of New Technology Application in Libraries** Technology innovation as a leading factor is an important symbol of kinetic energy conversion and also an important means for libraries to achieve quality and efficiency improvement through information service innovation under the new normal. Practice from service innovation cases under abnormal conditions shows that applying new technologies can effectively improve new supply service processes and enhance new supply service efficiency. Intelligence and smartization will become the direction of effort for library information

service new supply during the 14th Five-Year Plan period. New technology application will run through the entire business chain of library information service new supply and become a dominant factor. Therefore, strengthening capability building of new technology application is urgent. Future needs include exploring automated information acquisition methods, using monitoring platforms for rapid response when new demands emerge; using programming methods to achieve automated computer work, reducing manual intervention workload, and improving work efficiency; introducing more advanced methods such as neural networks, natural language analysis, and machine learning for more intelligent information processing and knowledge mining to further improve information service quality.

**4.2.3 Strengthening Capability Building of Library Information Service System Reengineering** The process of kinetic energy conversion is a process of replacing the old with the new. The process of library kinetic energy conversion is the process of library information service system reengineering. Under the new normal, libraries need to strengthen capability building of service system reengineering to consolidate the foundation of high-quality development. On the basis of constructing good underlying data of special literature, it is necessary to improve measurement analysis according to the personalized needs of different users, and also to deeply mine literature content to form knowledge service products focusing on content 梳理 and pattern summarization, providing users with more valuable literature knowledge services. Practice from service innovation cases under abnormal conditions shows that service system reengineering can adopt multiple methods: completely breaking the old service system and establishing a new service system according to new demands; effectively integrating original independent service systems according to new demands to form a new service system; or integrating or developing new service functions in the original service system according to new demands to form a new service system. Regardless of the method, service system reengineering will form new library information service products under the new normal, and libraries need to possess and continuously improve the capability of library information service system reengineering.

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