

Exploration of Information Technology Construction and Sustainable Development Strategy of Library Management in Colleges and Universities

Yuxin Luo^{1*}

¹ TaiShan University, Tai'an, China

Email Address

693445486@qq.com (Yuxin Luo)

*Correspondence: 693445486@qq.com

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Abstract:

With the rapid development of information technology, university library management informatisation construction has become an indispensable and important part of the modern education system, the current university library informatisation construction is facing the problems of insufficient resource integration, poor system compatibility, single service mode, etc. Based on this, this paper analyzes the status quo of university library management informatisation construction and discusses the relationship between informatisation construction and sustainable development. The paper discusses the relationship between information technology construction and sustainable development by analysing the current situation of university library management information technology construction, and puts forward a series of sustainable development strategies to provide a reference basis for promoting university library management information technology construction to a higher level.

Keywords:

University Library, Management Information Technology, Sustainable Development, Construction Strategy

1. Introduction

College libraries as an important carrier of educational resources play a key role in supporting teaching and research, service academic development, the arrival of the information age for the development of college libraries to bring new opportunities and new challenges, the management of information technology construction has become an inevitable choice to improve the quality of college library services and management efficiency, in-depth study of college libraries management about information technology construction issues to promote the sustainable development of college libraries.

2. Analysis of the Current Situation of University Library Management Information Construction

2.1. Information Technology Infrastructure Development

After years of development, the university library information technology infrastructure has achieved remarkable results, hardware equipment configuration, universities generally established a perfect network system architecture, equipped with high-performance server clusters, massive storage equipment and stable network transmission equipment, to achieve full coverage of the library wireless network, digital equipment updated and upgraded, self-service lending system, electronic reading terminals, multimedia equipment, hardware configuration to a high level. The configuration of hardware such as self-borrowing and returning system, electronic reading terminals and multimedia equipment has reached a high level. In terms of network infrastructure construction, university libraries generally adopt Gigabit Ethernet backbone network, and some key universities have realised 10 Gigabit network interconnection, so that the network transmission speed and stability are guaranteed. In terms of system integration platform construction, most university libraries have set up unified library automation management system, which realises the automation of basic business operations, such as book collection and editing, circulation and reading, and periodicals management. In terms of the configuration of security protection facilities, firewall systems, intrusion detection systems and data backup systems have been established to ensure the safe and stable operation of information systems. However, in the actual operation process, some colleges and universities still have the problem of insufficient investment in the updating and maintenance of equipments and system upgrading and transformation, which results in the phenomena of aging of equipment performance and decreasing of system operation efficiency; the standard of infrastructure construction is not unified, and the lack of equipment procurement has affected the construction of information technology. Long-term planning, affecting the overall effect of information technology construction [1].

2.2. Status of information resource development

The scale of digital resources construction in university libraries has continued to expand, and a relatively rich information resources system has been formed; the volume of e-book resources has shown rapid growth; the number of Chinese and foreign language databases subscribed to has increased year by year; the coverage of professional databases, such as dissertation databases, academic journal databases, etc., has continued to expand; the construction of featured resource libraries has achieved remarkable results; and the thematic databases of local literature, disciplinary resources, multimedia resources, etc., have gradually developed into a large scale. There has been a steady increase in the investment in digital resources procurement, an increasing diversification of procurement channels, the establishment of long-term cooperation with famous database vendors at home and abroad, the gradual promotion of the construction of the resource integration service platform, the realisation of unified retrieval and access to paper resources and electronic resources, and the construction of an extensive institutional knowledge base, which includes the results of the teaching and research of the university, and supports open access. However, there are still some outstanding problems in the construction of digital resources, such as the lack of integrated planning for resource procurement, the

ineffective use of databases, the insufficient depth of resource integration, the need to strengthen the construction of speciality resources, the imperfect long-term preservation mechanism of digital resources, the risk of loss of resources, the insufficient awareness of copyright protection, and the lack of a sound system of management of the use of digital resources, which affects the sustainable development of resource construction.

3. Challenges Facing Library Management Informatisation in Higher Education

3.1. Challenges at the technical application level

College libraries face many difficulties and challenges in the application of technology, the existing information systems generally have a low degree of integration, poor compatibility and other problems, the formation of information silos between the various functional modules, data sharing and business collaboration is difficult to effectively achieve. The system architecture design lacks foresight, it is difficult to adapt to the rapid development of new technologies, the cost of system upgrading and transformation is high, the new generation of information technology in the field of libraries has varying levels of application, the depth of the application of artificial intelligence, big data analysis, Internet of Things and other technologies is insufficient, the support capacity of the intelligent services is limited, there are loopholes in the data security protection mechanism, in the face of the increasing threats to network security, the existing safety protection In the face of increasing network security threats, it is difficult for the existing security protection system to provide all-round protection. Data quality management is not standardised enough, and there are problems such as data redundancy and data inconsistency, which affects the operational efficiency of the system. The construction of mobile service platform is lagging behind, which can't meet the readers' demand of obtaining information resources anytime and anywhere; the system operation and maintenance support capacity is insufficient; the professional level of the technical team is limited; the response speed of system failure is slow, which affects the quality of service; the data analysis and mining capacity is weak, which makes it difficult to give full play to the value of data to provide effective support for management decisions; the standard of system interfaces is not uniform, and the difficulty of cross-system data exchange has limited the development of inter-library resource sharing and business collaboration. resource sharing and business collaboration [2].

3.2. Challenges at the level of regulatory mechanisms

There are deep-rooted problems that need to be resolved urgently in college libraries from the management mechanism level, the contradiction between the traditional management concept and the requirements of information technology construction is increasingly prominent, managers do not know enough about the importance of information technology construction, lack of systematic thinking and innovative awareness, the interdepartmental collaboration mechanism is not perfect. There are poorly defined responsibilities, poor communication and coordination and other problems, affecting the efficiency of the work, the lack of unified planning and top-level design of information technology construction, the existence of project construction arbitrariness, resulting in inefficient allocation of resources. The performance assessment mechanism is not scientific enough, it's difficult to

accurately assess the effectiveness of information technology construction. Insufficient incentives and constraints, imperfect talent training mechanism, lack of professional and technical talents, and unreasonable personnel structure, making it difficult to adapt to the needs of informatisation construction. The funding guarantee mechanism is not sound enough, and the lack of continuity in financial investment affects the steady progress of construction projects. The quality control system is not perfect enough, and the lack of unified assessment standards and supervision mechanisms makes it difficult to ensure the quality of construction. The construction of the management system is lagging behind, and the rules and regulations are not updated in a timely manner, which makes it difficult to adapt to the management needs under the informatisation environment. There is insufficient awareness of the protection of intellectual property rights, and the implementation of the management system for the use of digital resources is not in place.

4. Optimisation Path of Library Management Informatisation Construction in Colleges and Universities

4.1. Technology Innovation Path

The technological innovation path of university libraries should be led by new-generation information technology, actively promote the upgrading and transformation of the system architecture, adopt micro-service architecture to reconstruct the existing business system, improve system flexibility and scalability, and at the same time, strengthen the in-depth application of artificial intelligence technology in library services, build intelligent service platforms, provide personalised resource recommendation and knowledge services using deep learning algorithms, and provide data support for management decision-making through the establishment of a unified data governance system to regulate data collection, storage and management processes, improve data quality and use of value and the use of big data analysis technology to mine readers' behavioural characteristics and the use of resources, providing data support for management decisions. It is also necessary to strengthen the innovative application of blockchain technology in the copyright protection of digital resources and intellectual property management, establish a safe and trustworthy distributed storage system, improve the construction of mobile service platforms, adopt responsive design for the development of mobile applications, and realise the seamless connection of multi-terminal information services, and at the same time, construct a perfect network security protection system, adopt multi-level security protection strategies, and establish a security situation awareness platform to improve the system security protection capability. Strengthen the application of Internet of Things technology in the construction of smart libraries, realise intelligent management and service of collection resources, enhance system operation efficiency and service capacity by introducing cloud computing technology to optimise system resource allocation, establish standardised system interface specifications, promote data exchange and sharing between heterogeneous systems, and provide readers with a unified and convenient information service experience.

4.2. Management Innovation Path

The path of management innovation requires systematic innovation from multiple dimensions such as organisational structure, management system and operation mechanism, etc. First of all, it is necessary to establish a flat organisational

management structure, optimise departmental setting and function division, establish cross-departmental collaboration mechanism to improve organisational operation efficiency, and at the same time innovate the management concepts and methods of work, implement the refined management mode, establish standardised business processes and service norms, and enhance the management scientification level. level of management. Establish a sound performance appraisal mechanism, develop a scientific and reasonable appraisal index system, incorporate the effectiveness of information technology construction into the scope of the assessment, and strengthen the role of incentives and constraints, in addition to strengthening the construction of quality management system, establish the whole process of quality control mechanism, and carry out regular quality assessment and improvement to ensure the quality of the construction, the implementation of the concept of user-centred service, the establishment of a feedback mechanism for user needs, and the continuous optimization of service processes and content, establish a standardised project management system, implement full life cycle management, and improve project construction efficiency [3]. We should focus on knowledge management innovation, establish a knowledge-sharing platform to promote the exchange of experience and knowledge transmission among librarians, establish a risk warning and emergency response system to enhance risk prevention and control capabilities, strengthen exchanges and cooperation with other libraries through the establishment of an open and collaborative management mechanism to achieve the common construction and sharing of resources, and promote the in-depth fusion of management innovation and technological innovation, so as to form a good situation of synergistic development.

5. Research on Sustainable Development Strategies of College Libraries

5.1. Talent Development Strategy

The implementation of scientific and effective talent development strategy is crucial, which requires the development of long-term talent development planning, clear direction of talent needs, from the system design and practical operation level to build a systematic talent development system. First of all, we must establish a sound mechanism for the introduction of talent to increase the introduction of professional and technical personnel and complex talents, improve the talent selection standards and assessment system to ensure that the introduction of talents of professional quality and development potential. At the same time, a hierarchical training system should be constructed, and differentiated training programmes should be designed for librarians at different positions and levels, so as to enhance their professional ability and comprehensive quality through the implementation of thematic training, business seminars, skills competitions and other forms of learning activities.

5.2. Resource Optimisation Strategy

Resource optimisation strategy should be based on enhancing the efficiency of resource use and service value, which firstly needs to strengthen the resource planning and layout, establish a scientific resource assessment system, regularly carry out resource utilisation benefit analysis, optimise the resource structure, and reasonably allocate various types of resources, and at the same time innovate the resource construction mode, implement the demand-driven procurement mode, and dynamically adjust the resource procurement strategy according to the users' demand

and usage data [4]. Establish a diversified resource guarantee system, expand resource access channels through inter-library loan, document delivery, etc., and also strengthen the construction of special resources, excavate and integrate the university's special disciplinary resources, and form a unique resource system. Meanwhile, it promotes the integration and integration of resources, sets up a unified resource discovery system, realizes the integrated retrieval and acquisition of various types of resources, enhances the visibility and accessibility of resources, strengthens the long-term preservation of digital resources, establishes a perfect digital resource backup and disaster recovery mechanism, ensures the security and continuous availability of resources, and focuses on the assessment of the benefits of resource use is also very critical. Long-term preservation of digital resources, establishment of a perfect digital resource backup and disaster recovery mechanism to ensure the security and continuous availability of resources, focusing on the assessment of the effectiveness of resource use is also very critical, which requires the establishment of a resource use statistical analysis system to regularly assess the use of resources, providing a basis for decision-making on resource optimisation and adjustment, improving the information literacy of users to enhance the utilisation rate of resources by strengthening the training and promotion of the use of resources, and establishing a mechanism for the common construction and sharing of resources, strengthening the cooperation with other resources, and strengthening the cooperation with other institutions and organizations. The establishment of resource sharing mechanism, strengthen the resource sharing and collaboration with other libraries to achieve complementary advantages and expand the coverage of resources [5].

6. Higher Education Library Management Information Construction Guarantee Measures

6.1. Institutional safeguards

The establishment of a sound system system is the fundamental protection of university library management information technology construction, the establishment of a sound information technology construction management system is very critical. The development of a sound project management approach, technical standards and specifications and quality control system, clear the standard process of each work and management requirements, to provide a systematic basis for the construction of information technology. At the same time, it is necessary to improve the job responsibility system, refine the job responsibilities and business processes of each position, establish a job assessment and evaluation mechanism, and strengthen the standardisation and effectiveness of job management. It is also necessary to establish an information security management system, and to formulate security measures and emergency plans from data security, system security, network security and other dimensions, so as to ensure the safe and stable operation of the information system. It is also necessary to formulate a management system for the construction and use of digital resources, regulate the whole process of purchasing, processing, storage and use of digital resources, and strengthen the protection of intellectual property rights and copyright management. In order to guarantee the effective implementation of the system, it is necessary to set up a supervisory and inspection mechanism, carry out a regular assessment of the implementation of the system, and find and solve problems in a timely manner, and at the same time pay attention to dynamic updating and improvement of the system, and make timely adjustments to and optimisation of the relevant system according to the actual needs. At the same time, it pays attention to

dynamic updating and improvement of the system, adjusting and optimising the relevant system according to the actual needs, so that the system can always adapt to the development needs of information construction.

6.2. Financial safeguards

In terms of financial security, establish a stable financial investment mechanism, incorporate information technology construction funds into the school's annual budget, ensure the continuous investment of construction funds, expand funding channels, actively strive for multi-channel financial support such as special construction funds and scientific research funds, establish a project budget management system, scientifically prepare project budgets, reasonably allocate construction funds, and improve the efficiency of fund use. Improve the management system for the use of funds, standardise the approval procedures for expenditure of funds, strengthen the supervision of the use of funds, establish a performance evaluation mechanism for funds, carry out regular analysis of inputs and outputs, assess the effectiveness of the use of funds, implement dynamic monitoring of budget implementation, grasp the use of funds in a timely manner, and ensure that the funds are reasonably used [6]. The establishment of a scientific cost control mechanism for the rational allocation and optimal combination of resources to effectively reduce the daily operating costs and management costs, while strengthening the use of funds in the whole process of auditing and supervision to improve the financial management system system, establish and improve risk prevention and control mechanisms. From the system level to prevent all kinds of risk of the use of funds, in order to ensure that the use of funds of the normative and transparent, the need to establish a comprehensive accountability system for the use of funds. In order to ensure the standardisation and transparency of the use of funds, it is necessary to establish a perfect accountability system for the use of funds, clarify the responsibilities and authority of managers at all levels for the use of funds, and strictly implement the accountability mechanism for the use of funds to ensure the safety of the use of funds. In the structure of financial expenditure should be based on the actual needs of information technology construction of scientific budgeting programmes, co-ordination of hardware equipment procurement, software system development, personnel training and other types of expenditure projects, to ensure that the use of funds is reasonable and effective, and the establishment of a flexible emergency reserve mechanism is very important, the establishment of a special reserve fund to deal with the construction of major projects in the process of the sudden demand and system operation and maintenance to ensure that all construction projects can be planned smoothly and efficiently. It is important to establish a flexible reserve mechanism for contingency funding, and to set up a special reserve fund to respond to unexpected demands during the construction of major projects and for system operation and maintenance protection, so as to ensure that the various construction projects can be implemented smoothly and operated continuously as planned.

7. Conclusions

The construction of university library management information technology is a systematic project, which needs to be promoted from technological innovation, management optimisation, talent training and other dimensions, through the above series of measures can continuously improve the management level and service quality, in the future development of university libraries should grasp the

development trend of information technology, continue to promote the management of information technology construction, to achieve the goal of sustainable development, only to adapt to the new situation, grasp the new opportunities, and cope with new challenges in order to better play an important role in education and teaching to support the development of the higher education industry. Only by adapting to the new situation, grasping the new opportunities and coping with the new challenges can we better play the important role of university libraries in education and teaching, and provide strong support for the development of higher education.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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