

Present Situation and Development Trend of Archives Information Management

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Abstract: With the rapid development of information technology, the information transformation in the field of archives management has become a key issue. This paper focuses on the information management of archives, and probes into its present situation and development trend. Through literature research and comprehensive analysis, this paper studies the infrastructure construction, information technology application, personnel quality and awareness, management system and standards of archives information management. It is found that although the current archives information management has made some progress, there are still limitations and deficiencies in infrastructure and technology, personnel ability and concept, management system and standards. In the future, archives information management will show the trend of technological innovation, service mode transformation, management system and standard perfection, and talent training and development. Only in this way can the file management industry adapt to the development needs of the times and achieve efficient, intelligent and sustainable development.

1. Introduction

With the rapid development of information technology, all fields of society are accelerating digital transformation, and the field of file management is no exception [1]. As an important information resource for recording social development and organizational activities, the promotion of information management of archives is of great significance [2].

From a macro perspective, with the rise of the global information wave, the generation and accumulation of digital information has exploded [3]. In this context, the traditional file management model is facing many difficulties such as low efficiency and difficult resource sharing when dealing with massive information [4]. Archives information management has become an inevitable choice to break through these difficulties and improve the efficiency of archives management. It is not only related to the development of the archives management industry itself, but also has a far-reaching impact on the strategic layout of national information resources [5]. From the micro level, for all kinds of organizations, whether government agencies, enterprises and institutions or social organizations, file information management can improve work efficiency and optimize business processes [6]. Through digital means, the retrieval and utilization of archives are more convenient, which can greatly shorten the time of obtaining information and provide timely and accurate data support for organizational decision-making.

However, although archives information management has been promoted to a certain extent, there are still many problems [7]. The infrastructure construction in some areas or organizations is weak, and the application level of information technology is not high; The information literacy of archivists is uneven, and the management system and standards are not perfect. These problems restrict the further development of archives information management [8]. In view of this, it is particularly urgent to study the present situation and development trend of archives information management. In this paper, through a comprehensive analysis of the status quo, identify the root of the problem, and make a scientific prediction of the future development trend, and promote the healthy and sustainable development of the file management industry.

2. The basic theory of archives information management

Archives information management is the extension and reform of traditional archives management in the information age. With the help of modern information technology, it digitally collects, stores, manages and utilizes archival information resources [9]. Compared with traditional file management, it has obvious differences in management concept, technical means and service mode. The theoretical basis of archival information management is diverse. Information technology theory is its cornerstone, covering computer technology, network technology and so on, which provides support for the digital processing and transmission of archival information. The theory of information resource management emphasizes that archives are regarded as important information resources and managed systematically from the aspects of resource planning, organization, development and utilization.

Archives information management is of great significance. It greatly improves the management efficiency. Digital file retrieval system can quickly locate the required information, replacing the traditional tedious way of manual browsing and searching. It also promotes resource sharing. Through the network platform, users from different regions and departments can easily access the authorized file information, breaking the information island. Furthermore, it effectively guarantees the file security. Data backup and encryption technology can prevent the loss and tampering of file information and ensure the integrity and confidentiality of files.

3. The present situation of archives information management

3.1. Infrastructure construction

The infrastructure of archives information management is the hardware support to realize efficient management. At present, most large archives management institutions have been equipped with advanced hardware equipment, but there is still some imbalance. In economically developed areas and large cities, archives management departments are generally equipped with high-performance servers, large-capacity storage equipment and advanced digital acquisition equipment to meet the needs of a large number of archives digitization. However, some remote areas or grass-roots archives institutions, limited by funds and attention, have outdated hardware facilities, insufficient server performance, limited storage capacity and rudimentary digital acquisition equipment, which have affected the process of archives informatization.

Taking storage equipment as an example, through the investigation of archives management institutions at different levels (see Table 1), the average storage capacity of provincial archives management institutions has reached PB level, which can easily meet the long-term storage demand of massive archives data. However, the average storage capacity of county-level archives management institutions is only TB level. For some county-level institutions with a long history and a large number of archives, the problem of tight storage space is more prominent.

Table 1: Comparison of Storage Devices in Archival Management Institutions at Different Levels

| Institution Level | Average Storage Capacity | Storage Device Types | Service Life of Storage Devices |
|-------------------|--------------------------|-----------------------------------|---------------------------------|
| Provincial Level | Petabyte (PB) level | Disk arrays, tape libraries, etc. | 3 - 5 years |
| Municipal Level | 500TB - 1PB | Mainly disk arrays | 5 - 8 years |
| County-Level | 50TB - 500TB | Mainly ordinary hard disk storage | 8 - 10 years |

3.2. Application status of information technology

The application of information technology in archives management is deepening, but the application level is different. In terms of file management software, many file management departments have adopted professional file management software that is commercialized or independently developed, and realized the basic functions of file entry, classification and retrieval. However, some software needs to be improved in terms of functional integrity, ease of use and compatibility.

Data storage and backup technology has also been widely used. Most archives management

organizations adopt RAID technology to ensure the security of data, and at the same time, make regular data backup. However, there are some shortcomings in the frequency of data backup and the strategy of remote backup. The backup frequency of some institutions is low, and if there is a data loss accident, a large number of recent file data may not be recovered. In the application of data encryption technology, although some important files have been stored in encryption, a considerable proportion of general files are still not encrypted, which poses the risk of information leakage.

3.3. Personnel quality and consciousness

The quality and consciousness of file managers are very important to file information management. At present, the level of informatization skills of archivists is uneven. In some large archives institutions, through regular training and introduction of professionals, managers have a high ability to apply information technology and can skillfully use all kinds of file management software and digital equipment. However, in some grass-roots archives institutions, some managers are older, have weak ability to accept new technologies and low level of informatization skills, and can only perform simple computer operations, which cannot meet the complex needs of archives informatization management.

3.4. Management system and standards

The information management system of archives has been gradually improved, but there are still some problems. From the perspective of management system, there is a lack of effective coordination and unity in the file information management between different regions and departments. In terms of standards and norms, although the state has issued a series of standards related to archives informatization, in the actual implementation process, some archives management institutions failed to strictly follow the standards. In order to facilitate management, some institutions have formulated some rules that do not meet the national standards, which makes the information management of archives lack standardization and consistency, and affects the integration and utilization of archives information resources.

4. Analysis of existing problems in archives information management

4.1. Infrastructure and technical limitations

In terms of infrastructure, the gap between different regions and institutions is obvious. With sufficient capital investment, economically developed areas can update and upgrade hardware equipment in time, but underdeveloped areas are faced with the dilemma of aging equipment and insufficient performance. Taking the data processing capacity as an example (see Table 2), the servers of archives management institutions in developed areas can process more than 10GB of data per second, and can quickly respond to users' query requests. However, servers in underdeveloped areas only process 1-3GB of data per second, which leads to slow data retrieval and processing and seriously affects work efficiency.

Table 2: Comparison of Data Processing Capabilities of Archival Management Institutions in Different Economic Regions

| Economic Region Type | Server Data Processing Capacity per Second | Network Bandwidth (Mbps) | Daily Processing Volume of Digital Collection Equipment (Pages) |
|------------------------------|--|--------------------------|---|
| Developed Regions | Over 10GB | 1000 and above | 5000 - 10000 |
| Moderately Developed Regions | 5 - 10GB | 500 - 1000 | 3000 - 5000 |
| Underdeveloped Regions | 1 - 3GB | 100 - 500 | 1000 - 3000 |

In terms of technology application, although various information technologies have been integrated into file management, the degree of technology integration is not enough. The application of emerging technologies such as big data analysis and artificial intelligence in archives management is still in its infancy, which fails to give full play to its role in tapping the potential

value of archives and improving the intelligent level of management.

4.2. Lack of personnel ability and concept

The ability and concept of file managers have become an important factor restricting the development of information management. Although some senior archivists have rich experience in traditional archives management, their mastery of information technology is limited, and they are often overwhelmed by complex digital operations. Although the younger generation of managers have a high degree of acceptance of new technologies, they lack the professional depth of file management. Through the investigation on the informatization skills of file managers in a certain area (see Table 3), it is found that only 30% of them can skillfully use a variety of file informatization management technologies, and most of them can only perform basic data entry and simple retrieval operations.

Table 3: Proficiency Level of Archival Management Personnel in Information Technology Skills

| Skill Item | Proficient (%) | Basically Proficient (%) | Aware (%) | Not Proficient (%) |
|--|----------------|--------------------------|-----------|--------------------|
| Data Mining Technology | 15 | 30 | 40 | 15 |
| Intelligent Retrieval Technology | 20 | 35 | 30 | 15 |
| Advanced Functions of Digital Collection Equipment | 10 | 25 | 45 | 20 |

Some file managers have outdated concepts and lack of understanding of the importance of file information management. They are used to the traditional manual operation and paper file management mode, and think that information management is only a formal change, ignoring its great advantages in improving management efficiency and expanding service functions, and lacking the motivation to actively learn and apply new technologies.

4.3. Defects in management system and standards

The information management system of archives is not perfect, and there are problems of decentralized management and unclear responsibilities. The lack of a unified coordination mechanism between archives management institutions of different departments and levels leads to difficulties in the integration of archives resources and information sharing. In terms of standards and norms, although the state and industry have formulated a series of standards, in the actual implementation process, due to the lack of effective supervision and evaluation mechanism, the implementation of standards is not in place. For their own convenience, some localities or institutions make some "local policies" that are inconsistent with national standards at will, which makes the file information management lack consistency in data format, classification and coding, and seriously hinders the interconnection and resource sharing of file information.

5. The development trend of archives information management

In the future, archives information management will usher in the situation of deep integration of various emerging technologies. The combination of big data and artificial intelligence can intelligently analyze and mine massive archive data. The technology of Internet of Things helps the intelligent management of archival entities, realizes the real-time monitoring and regulation of archival storage environment, and ensures the safety of archival entities. Archives service will pay more attention to the individual needs of users. With the help of data analysis technology, we can understand the preferences of different users and provide customized file services. With the popularity of mobile Internet, the ubiquitous trend of file service is obvious. Users can obtain file information anytime and anywhere through mobile phones, tablets and other terminals, breaking through the time and space constraints and making file services within reach.

The management system will develop in a collaborative way, and archives management institutions at different levels and departments will strengthen cooperation, build a unified archives information resource pool, and realize resource sharing and efficient utilization. In terms of standards, standards will be further unified, from data collection, storage to utilization, strict

standards will be formulated and implementation will be ensured. The development of archives informatization needs specialized and diversified talents. Talents should have solid professional knowledge of archival science and be proficient in information technology, data analysis and other skills.

6. Conclusions

This paper makes a comprehensive and in-depth study on the present situation and development trend of archives information management. In terms of the present situation, there are differences between regions and institutions in infrastructure construction. Although the technology is widely used, the integration is not good, the personnel ability is uneven and some concepts are outdated, the management system is imperfect, and the implementation of standards and norms is not in place. These problems are intertwined, which restricts the further development of archives information management.

In view of the existing problems, the future development trend of archives information management points out the direction of improvement. Technological innovation will become the driving force. The deep application of emerging technologies such as big data, artificial intelligence and blockchain is expected to solve the current technical limitations and improve the intelligence and security of management. The change of service mode to user-centered can better meet the diverse needs of society and improve the quality and efficiency of archives service. The perfection of management system and standards will break the situation of decentralized management and ensure the interconnection and resource sharing of archival information. The cultivation and development of talents is the key support to realize these changes, and the cultivation and introduction of compound talents will inject vitality into archives information management.

Generally speaking, archives information management needs to fully grasp the development trend, overcome the existing problems to meet the new requirements of archives management in the digital age, and provide better archives information services for all fields of society.

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