

Enterprise Archives Informatization in the Big Data Era: Problems and Countermeasures

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Abstract: As digital transformation continues to develop, enterprise archives informatization has become increasingly important for improving management efficiency and supporting enterprise development. This paper examines the current situation of enterprise archives informatization under the background of big data and discusses the main problems existing in the construction process. The analysis shows that current practices are affected by several factors, including limited planning, insufficient technical support, low utilization of archival resources, and weaknesses in information security and professional personnel development. Based on these findings, the paper suggests improving planning and management systems, strengthening infrastructure construction, enhancing the use of archival resources, and improving security and personnel support. These measures are expected to promote the development of enterprise archives informatization and provide information support for digital transformation.

Keywords: Big Data; Enterprise Archives; Archives Management; Information Construction

1. Introduction

With the implementation of the Digital China strategy, big data, cloud computing, and artificial intelligence are increasingly involved in enterprise management. These technologies have reshaped the way enterprises handle information resources, including archives. Paper-based archives management is gradually shifting toward digital and intelligent approaches. At the policy level, the 14th Five-Year Plan for the Development of National Archives Undertakings called for improving archives digitization and electronic records

management capabilities [1].

Enterprise archives contain records produced during enterprise activities and serve as a basis for management, risk control, and decision-making. The rapid increase in archival data and the diversification of information formats have challenged traditional management practices. Big data technologies have been applied to areas such as archival resource organization, storage, retrieval, and sharing [2], helping enterprises improve management processes and enhance the utilization of archival information. However, the development of enterprise archives informatization remains uneven among different organizations. Many enterprises still face problems such as unclear development plans, outdated infrastructure, insufficient security protection, a shortage of professional personnel, and limited utilization of archival data. This paper analyzes the main problems existing in the process of enterprise archives informatization and proposes corresponding solutions based on practical needs.

2. Literature Review

Research on enterprise archives informatization has mainly focused on several aspects. Some studies examine the design of archives information systems and their integration with existing business processes. Other studies pay attention to information security protection, while some explore the ways of developing and utilizing archival data to support management and decision-making. Overall, existing research provides theoretical references and practical experience for enterprises in promoting archives informatization.

Studies on enterprise archives informatization suggest that digital platforms have improved the efficiency of archives management by making resource access and information sharing more convenient across departments [3]. Compared with traditional manual operations, information systems provide more efficient ways to file,

search, and use archival materials. Nevertheless, problems remain in practical applications, including compatibility issues between systems, limitations in network infrastructure, and difficulties in integrating archival data from different sources and formats [4].

In terms of management support, existing studies have mainly discussed information security, long-term preservation, and the development of professional personnel for enterprise archives management [5]. The rapid increase in electronic archives has brought new risks, including data leakage, network attacks, and system failures. These issues have encouraged enterprises to improve security measures and enhance their ability to preserve digital archives over time. Meanwhile, some studies have pointed out that the development of archives informatization depends on both technological applications and the cultivation of professionals who understand archival practices and information technologies [6].

Existing research has explored enterprise archives informatization in areas such as technology use, management practices, security, and personnel training, providing useful references for the development of modern archives management. However, current studies tend to emphasize the application of specific technologies or the experience of individual practices, while systematic discussions on the difficulties and limitations of enterprise archives informatization remain relatively insufficient. In particular, the optimization of enterprise archives management in the context of big data requires further investigation. Therefore, this paper focuses on the problems existing in enterprise archives informatization and puts forward relevant suggestions based on previous research.

3. Identified Challenges

3.1 Lack of Overall Planning

Enterprise archives informatization requires the coordination of institutional arrangements, technological applications, resource management, and business processes. Its development depends not only on the adoption of information technologies but also on effective planning and management at the enterprise level. At present, some enterprises have not yet developed long-term plans for archives informatization. Archives work is

sometimes treated as a routine supporting activity, with limited integration into the overall digital transformation strategy. As a result, informatization construction lacks sufficient coordination and long-term continuity [7].

During the implementation of enterprise archives informatization, some managers tend to associate informatization with electronic document conversion and software application. The management value of archives resources in areas such as decision-making, risk control, and strategic planning has therefore not been fully recognized. This limited understanding has influenced the direction of informatization construction, with greater focus placed on equipment purchase and system development. Meanwhile, efforts related to management procedures, process adaptation, and cross-departmental resource utilization remain relatively insufficient, making it difficult to achieve comprehensive improvements in archives management.

Different business units within enterprises often develop information systems independently to meet their specific operational needs. Due to the absence of common data standards and unified management rules, these systems are not always well connected with archives platforms and other business applications. Problems such as inconsistent interface requirements and incomplete information-sharing mechanisms have weakened the automatic collection and reuse of archival data. In daily management, employees still need to complete tasks through manual export, data comparison, and repeated entry, increasing workload and limiting the efficiency of archives management.

Without effective top-level planning, coordination among different departments is difficult to achieve, and the value of archival resources cannot be fully realized. As a result, enterprise archives may remain separated from digital decision-making processes, limiting the overall effectiveness of informatization development.

3.2 Weak Infrastructure and Technical Support

The informatization construction of enterprise archives management is inseparable from the perfect infrastructure and advanced information technology support. However, from the current practice of enterprise archives management, the informatization infrastructure of some

enterprises is still relatively weak, failing to meet the actual needs of archives resource management and utilization under the digital background, and now constitutes a primary bottleneck for advancing enterprise archives informatization.

On the one hand, Owing to varying investment levels, company size, and management mindsets, some firms underinvest in archival IT; systems are rarely updated, and server, storage, and network infrastructure lag. When the file data continues to grow, the system is prone to problems such as decreased operating efficiency, insufficient storage capacity, and increased maintenance costs, affecting the stable operation of file management. Especially for small and medium-sized enterprises, due to the limited investment in information construction, file management is still in the stage of electronic document management, and a standardized and efficient information management system has not yet been formed.

On the other hand, the overall intelligence level of the existing file management platform still needs to be improved. At present, most systems perform basic collection, archiving, and querying but fall short in automated classification, full-text search, intelligent analysis, and data sharing. At the same time, there is a lack of effective data interface between the file management system and office automation system, financial management system, human resources system and other business platforms. The degree of system integration is not high, and the file data is difficult to gather and share in time. It still needs to rely on manual sorting and repeated entry, which not only reduces the work efficiency, but also affects the accuracy and integrity of the file data.

The lag of infrastructure construction and the lack of technical platform support ability make the informatization of enterprise archives management stay at the level of digital storage, and the advantages of information technology in the integration, analysis and utilization of archives resources have not been fully utilized, which also restricts the development of enterprise archives management in the direction of intelligence and refinement.

3.3 Underutilization of Archival Resources

Promoting archives informatization serves a dual purpose: preserving records digitally and,

more importantly, extracting actionable intelligence from them. This intelligence, in turn, supports business operations and strategic decisions. However, at present, many enterprises' archives management still takes archives preservation as the main goal, pays insufficient attention to the development and utilization of archives resources, and the value of archives resources has not been fully utilized. At present, most enterprises have completed the digitization of paper archives and realized the electronic storage of archives resources. However, the focus of archives management is still on the basic business of archives collection, collation, archiving and custody, and the comprehensive analysis and in-depth development of archives resources are relatively lacking. A large number of archives data have been in a static storage state for a long time, and lack effective data integration, statistical analysis and information mining, which makes it difficult for archives resources to be transformed into important information resources to service enterprise management, and its role in supporting enterprise decision-making, risk prevention and control and knowledge management has yet to be fully realized.

At the same time, the sharing and utilization mechanism of archives resources is still inadequate. Some enterprises have a low degree of openness in archives information, lack a unified information sharing platform between business departments, and the circulation efficiency of archives resources is not high. It is difficult to achieve effective integration of data resources formed by different departments. In addition, due to the relatively single file retrieval method and the imperfect query function of some systems, the efficiency of user access to file information still needs to be improved, which reduces the utilization value of file resources to a certain extent.

As enterprise archives become more digital and networked, archives resources have gradually changed from traditional management objects to important data resources. A key challenge, therefore, is how to shift archival resources from a purely custodial function toward a service-oriented model that actively informs business activities.

3.4 Deficiencies in Security and Workforce Development

As enterprise archives become more digital and networked, information security and workforce development have gained increasing attention [8]. Information security constitutes the basis of archives management informatization, and high-quality talents are the key support for the continuous operation of informatization construction. At present, some enterprises are lacking in both safety guarantee system and talent training mechanism, which restricts the quality improvement of archives management informatization.

In terms of information security, enterprise archives data rely on network platforms for storage, transmission, and use, and the risks of data leakage, network attack and system failure are significantly increased. The security management system of some enterprises is not perfect, and there are some weaknesses in data backup, access rights management, identity authentication, security monitoring and other links, and the update of security protection means is lagging behind. The occurrence of system failure or data leakage may cause the loss of file information, interfere with the daily business operation of the enterprise, and cause legal litigation and economic damage.

On the workforce front, the push toward informatization demands higher qualifications from archival managers. Modern archives management not only needs to have archival business knowledge, but also needs to master professional skills such as information technology, data management and system application. However, at present, the knowledge structure of archives management personnel in some enterprises is relatively single, and they lack the mastery of new technologies such as digital platform and data analysis, and lack of compound professional talents. At the same time, enterprises have limited investment in archives information training, and the talent training mechanism is not yet perfect, which makes it difficult to continuously improve the construction and application level of information system.

In general, the imperfect information security system and the lack of professional support ability are critical barriers affecting the informatization construction of enterprise archives management. Only by constantly improving the safety management system and strengthening the training of professional talents can we provide a stable, safe and

sustainable development foundation for the informatization construction of enterprise archives management.

4. Recommendations

4.1 Strengthening Top-Level Planning

The lack of unified planning is one of the major obstacles to enterprise archives informatization. Therefore, enterprises should strengthen top-level design and integrate archives informatization with their overall digital transformation strategies [9]. By establishing clear objectives, implementation plans, and corresponding resource guarantees, enterprises can avoid repeated construction and improve coordination among different departments. In addition, improving the connection between archives systems and other business platforms, such as human resources and financial systems, can promote data sharing and integration. Establishing relevant management mechanisms and cross-departmental cooperation models can further enhance the role of archives resources in enterprise decision-making.

4.2 Upgrading Infrastructure and Technical Support

The improvement of enterprise archives informatization requires reliable hardware facilities, network conditions, and software support. Enterprises should strengthen infrastructure construction according to their actual development needs and ensure that relevant systems can adapt to future requirements. In addition to improving basic facilities, enterprises should enhance the intelligent functions of archives management platforms, such as automatic classification, information retrieval, and data analysis. Meanwhile, strengthening the connection between archives systems and other business platforms can promote data integration, reduce manual operations, and improve the accuracy and efficiency of information management.

4.3 Enhancing Resource Exploitation and Service Value

Enterprises should gradually shift their archives management from simple preservation toward broader resource utilization [10]. With effective security measures and management mechanisms, enterprises can establish standardized procedures for the classification, organization,

and utilization of archival resources. Meanwhile, improving information sharing mechanisms can reduce barriers between departments and promote more efficient circulation of archival information. In the context of enterprise management, big data analysis provides new ways to use archival information. By analyzing existing archives data, enterprises can obtain more reliable information for decision-making, risk prevention, project management, and knowledge accumulation. This helps expand the practical value of archives resources and strengthens their contribution to enterprise development.

4.4 Reinforcing Security and Talent Development

The long-term development of enterprise archives informatization depends on both information security measures and the improvement of professional capabilities. In daily management, enterprises should strengthen the protection of archival information through better data backup, permission control, identity verification, and network security practices. Meanwhile, corresponding risk prevention and emergency handling mechanisms are needed to maintain the authenticity, integrity, and safety of archives. The development of archives personnel should also receive greater attention. Regular training and skill improvement can help staff adapt to digital management requirements, while professionals who understand both archival work and information technologies should be gradually cultivated.

5. Conclusion

The advancement of digital transformation has brought new requirements for enterprise archives management. Informatization helps improve management processes and provides more effective information support for business decisions. At the same time, better use of archival resources can enhance their role in enterprise management and contribute to higher-quality development. Promoting archives informatization is therefore an important part of adapting to the digital economy and improving modern management practices.

In the future, enterprise archives management will continue to be influenced by developments in digital technologies. Enterprises need to

improve existing management systems, strengthen cooperation between archives departments and other business units, and gradually apply new technologies in practical scenarios. With these changes, archives resources will no longer be limited to record keeping but will play a greater role in supporting enterprise operations and digital transformation.

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