

# Application of Block Chain Technology in Archives Management

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**Abstract:** With the development of society, the value of archives management is getting higher and higher. There are some problems in traditional archives management, such as aging management mode, poor timeliness, integrity and accuracy. Because of its unique application advantages, block chain technology is more and more widely used in various industries. Therefore, the introduction of block chain technology in archives management can promote the current archives management by utilizing the characteristics of decentralization, openness, independence and security. Therefore, by explaining the related connotations of block chain technology, this paper makes an analysis of the applicability of block chain technology in the management of electronic archives, and then puts forward some suggestions on the application of block chain technology in the management of archives, with a view to providing reference and help for the management of archives in China.

## 1. Research background

### 1.1 Literature review

In recent years, the application of block connection technology in archives management has become more and more common. Many Chinese scholars have done a lot of research on the application of block chain technology in archives management. Chen Sheng thinks that the essence of block chain is the same as that of electronic archives, and explains that applying block chain technology to archives management is a completely feasible thing. According to the application advantages of block chain technology in archives management, taking accounting archives, people's livelihood archives and science and technology archives as examples, she prospects the application prospect of block chain technology in archives (Chen, 2019). Zhang Shan, a scholar, proposed that the application of block chain technology in archives has four practicalities (Zhang, 2017). Bai Ruhua believes that block chain technology has the characteristics of decentralization, traceability and non-compilation. Therefore, introducing block chain technology into archives management can solve the problems of authenticity and security in archives management before. She studied the process control and secure storage of electronic archives, and proposed the role of block chain in the construction of archives trust system (Bai, 2018). Xu Xinxin points out that there is a high correlation between block chain technology and archives management (Xu, 2018). Liu Qingyue proposed that the introduction of block chain technology into archives management can realize the authenticity, usability and integrity of archives, and guarantee the security of archives (Liu, 2018). Liu Yue-man put forward that block chain technology is mostly used in file management, and put forward suggestions for improving file management under block chain technology (Liu, 2018). However, Li Gaofeng and other scholars believe that the integration of block chain technology in archives information management will have many technical advantages, but archives management can not be separated from the shackles of the traditional pattern. Block chain technology takes "de-centralization", "trust-free" and "time stamp" as innovative points, which is ahead of the current file management mechanism, but there are some derailments (Li, 2018). According to the existing research, the main research fields and methods of scholars are relatively single. Therefore, based on a large number of literature and research results, this paper analyses the applicability of block chain technology in archives management and puts forward application suggestions, which is of great practical significance.

## 1.2 Purpose of research

Archives refer to the data and information formed in all aspects of social work and have preservation value. Relevant workers will use various forms and carriers as historical records. In the specific work, it can be said that the leadership decision-making provides a certain basis for the work of the examination vouchers. At the same time, archives also provide reliable information for scientific research, basic equipment and equipment construction. If we want to do a good job in archives management, we should establish a sound management system, improve the efficiency of archives management by improving the basic equipment and system of archives. The efficiency of traditional archives management can not meet the current needs of social development. Therefore, the integration of block chain technology in archives management and the use of the characteristics of block chain technology can provide convenience for archives management and better promote the development of archives management.

## 2. Overview of the connotation of block chain technology

### 2.1 Ecological Garden

The meaning of block chain has two meanings: narrow sense and broad sense. The narrow understanding of block chain is a kind of chain data structure, and each data unit in the chain, also known as data blocks, these data blocks are connected sequentially in time order as dimension. In this process, cryptography is used to ensure that these data blocks can not be edited and forged. Block chains are stored at multiple nodes at the same time, commonly known as distributed accounts. In a broad sense, block chains represent a technology that uses block-chained data structures to validate and store data. Then the distributed node consensus algorithm is used to generate data and update data. Cryptography is used to ensure the security of data transmission and access (Zhang, 2017). Block chain is an intelligent contract, programming and manipulating data, which is composed of automated script code. It is a new distributed infrastructure and operation mode.

### 2.2 Landscape Art Design

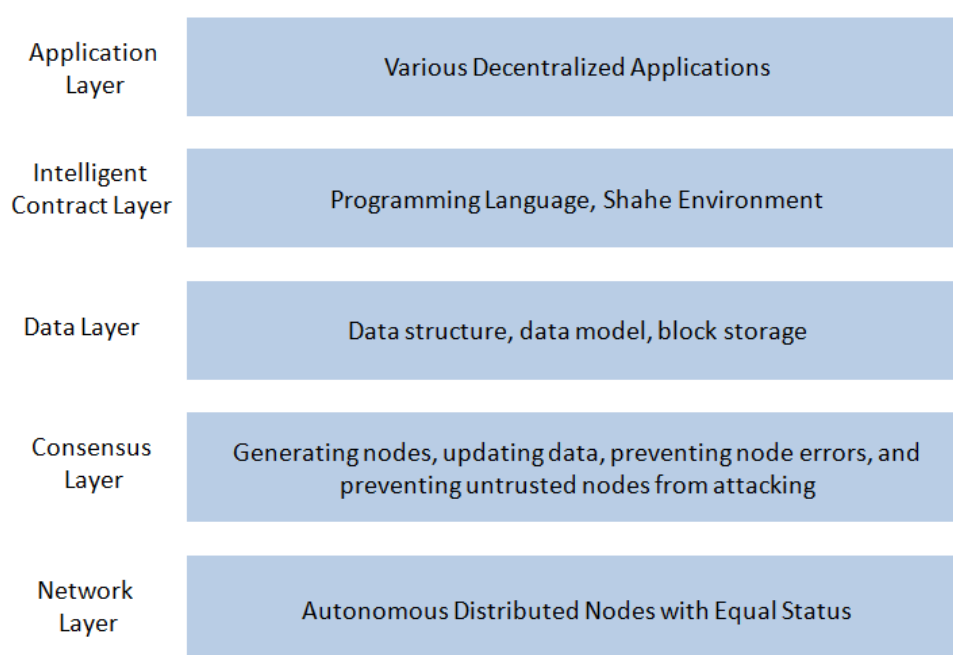


Figure 1. Block Chain Architecture

Block chain technology is not a single technology. It is an innovation and integration of many technologies, including distributed data storage, point-to-point transmission, encryption algorithm

and consensus mechanism. The architecture of block chain is composed of network layer, consensus layer, data layer, intelligent contract layer and application layer (Yuan et al., 2018). Different technologies work at different levels, as shown in Figure 1. Block chains can be divided into public chains and license chains according to the degree of freedom of network nodes. Any node can be added to the public chain and any information on the network can be viewed at the same time. The license chain allows only those nodes that have been authorized to join, and the permission to view information is limited. The license chain managed by multiple organizations can be called alliance chain. When all nodes belong to a license chain owned by one organization, it can be called private chain. At present, licensing chain is the mainstream of block chain commercial applications.

### **3. Applicability analysis of block chain technology in electronic archives management**

First, there are similarities between block chains and electronic archives. The management of electronic archives is a general collection of electronic image files, which are stored by means of computers and other devices and correspond with the traditional paper archives. Some scholars believe that electronic archives are machine-readable materials and other forms of carriers which are processed and stored by computer systems. They are a record of preservation value formed in social practice. Comparing the concepts of block chain archives and digital archives, they have many similarities. One is about storage, both of which store useful information. The other is that both of them aim at electronic data information stored on magnetic carriers. Thirdly, the data, records, archives and documents that they keep are different in name, but they are essentially data information. Therefore, block chain technology is suitable for the management of electronic archives.

Secondly, the security of electronic archives can be guaranteed by means of block chain technology. The core of archives management is to ensure its security. Block chain technology is characterized by decentralization, openness, independence, security and anonymity. Therefore, Block Chain technology can pay attention to trust and security issues in the process of transaction, and therefore has been the concern and praise of all walks of life. The integration of block chain into archives management can not only improve the convenience of management, but also improve the security of archives data.

Thirdly, introducing block chain technology into archives management can guarantee the authenticity of archives. Another core goal of electronic archives management is to prevent electronic archives from being arbitrarily edited. Block chain technology can also play its role in guaranteeing the authenticity of archives. It can prevent illegal compilation of electronic archives and improve the authenticity and reliability of electronic archives.

Finally, block chain technology can dynamically integrate operational data, original data and information data of electronic archives themselves, and integrate them into a whole. In this way, the problem of separating the operation data, the original data and the information of the electronic archives itself in the current electronic archives management is effectively solved, and the integrity of the electronic archives is greatly maintained (Zhuang, 2017).

### **4. Suggestions on the application of block chain technology in archives management**

#### **4.1 Strengthen the cognition and research of block chain technology**

The research results of “credible documents” show that credibility must have three characteristics: accuracy, reliability and authenticity. Moreover, these features must be maintained in the process of long-term data preservation. Therefore, the evaluation index of block chain technology is accuracy, reliability, authenticity and persistence. Even with the continuous development of science and technology, there is still no guarantee that any technology can not completely avoid the problem of deviating from the objective facts in the contents of archives. Therefore, to a certain extent, the accuracy and reliability of block chains are inadequate, which is acceptable. And these shortcomings are also the significance of the need to manage the archives. At

present, block chain technology is also in the early stage of development, so it faces many challenges in performance, security and technology. Therefore, people should pay attention to and learn the developing block chain technology. Strengthen the understanding and research of block chain technology, in order to promote the efficiency of archives management.

#### **4.2 Practicality of block chain technology in archives management**

At present, China's archives departments have tried to use block chains to manage archives, but there are still many debates about whether block chains are also applicable to the management of archives. American scholars point out that there are many advantages in integrating block chain technology into the management of public documents. On the contrary, some researchers of Vermont block chain believe that, in terms of current development, there is a high cost problem in introducing block chain into the management of public documents. Therefore, the application of block chain technology in the management of public documents is relatively small. Whether the business documents generated in the archiving block chain should be kept in the original environment or excluded from the traditional central organization of the archival department? Scholars should study how to use the bottom technology of block chain to achieve a more comprehensive file management function. Under the block chain technology, with the help of traditional mechanism, more targeted research will be carried out in order to better promote the application and development of block chain technology in document and archives management.

#### **4.3 Research on strengthening block chain technology solution**

With the continuous development of block chains and the introduction and application of various industries, the relevant legal provisions of block chains have been adjusted and amended in many parts of the United States. In order to reflect the acceptance of new technology and innovation and praise. China can draw lessons from foreign experience and make comparative adjustments and modifications to the relevant documents of block chain technology. First let people accept and embrace block chain technology, promote its application in various work, and then promote the rapid development of society and technology. At the same time, on this basis, relevant departments should organize relevant personnel to study and apply the knowledge of block chain regularly, so that the knowledge learned can be applied to practical work, find the current problems and solve them. Relevant departments can integrate these learning materials and relevant cases into documents to provide reference and reference for future work, which can also become the first-hand information of many scholars in the research block chain for archives management. Therefore, the relevant departments can focus on mining and collecting relevant cases, through the analysis of real cases, summarize the core points of archives management, archive, and provide relevant departments with archives management ideas and theoretical support.

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