Research and Exploration of Metadata in Artificial Intelligence Digital Library

Kang Han1,*
1Xinyang Agriculture and Forestry University, Xinyang, China
*Corresponding author e-mail: 61667898@xyafu.edu.cn

Abstract. With the surge of information, the intelligent management of library management research has been the general trend. With the gradually in-depth development of artificial intelligence, intelligent library management system to intelligent library sharing platform and intelligent Metadata platform as the foundation, the library can be based on artificial intelligence strong deep learning, calculation and responsiveness, according to library management process, collect related information, information analysis and decision-making of the library, to gradually replace human. Therefore, it is of great significance to transform digital library into Metadata platform under the background of artificial intelligence.

Keywords: Artificial Intelligence, Digital Library, The Metadata Platform, The Transformation

1. Introduction
The "man-machine war" in Go in 2016 set off a wave of artificial intelligence. Therefore, the development of artificial intelligence is thought-provoking. Many people think that artificial intelligence is actually a very distant thing and always have a skeptical attitude towards it. In fact, since the 1940s, artificial intelligence has been developing steadily. In addition to playing chess, the application of artificial intelligence is gradually infiltrating into the computer industry, financial industry, service industry and other aspects, including the field of library management. Moreover, the scope of application is becoming wider and the technology is getting deeper and deeper [1].

2. The development background and characteristics of artificial intelligence
In March 2016, Google's AlphaGo system won a 4-1 victory over South Korea's Lee Sedol Kyudan in aGo match (see Figure 1 below). As the dust of the war settles, artificial intelligence is once again in the public eye. Then, Deloitte announced that it would introduce artificial intelligence concepts in the fields of auditing, tax and accounting, a move that will bring major changes and influences to the development of digital libraries [2].
In the operation and management of the library, one artificial intelligence is equivalent to two to five artificial intelligence, because it can work 24 hours a day, and it will not make some artificial mistakes, so it is 100% correct, and even provides the premise for the further artificial intelligence in the future. Frankly speaking, the future of libraries is extremely uncertain [3]. Some people say that in 2025 or 2030, the library major will no longer be needed simply from the perspective of bookkeeping, and the number of people who can write library analysis reports will be greatly reduced, because AI is far better than our analysis. In fact, artificial intelligence does have a great impact on digital libraries, which is mainly reflected in the following four aspects:

1. Improve the timeliness and accuracy of accounting information
2. Suppressing financial information fraud to a certain extent
3. Reduced demand for traditional posts in the accounting industry
4. The security of accounting information is threatened

As shown in Figure 2, artificial intelligence has a great impact on digital libraries, does that mean the death of the library profession? Instead of worrying, do something about it now. Now that the trend of The Times has pushed the library profession to the extreme, we must now begin to embrace change! First of all, design and learn according to the possible technological development path, starting from the sharing center, as long as the direction is right, it will always reach the destination; Second, to increase the ability of information, the machine age is coming, we need to know how to communicate with the machine, need to understand the code, understand different interfaces, communication protocols, etc., only connected with these, can we slowly connect some robot process automation (RPA) technology; Third, strive for excellence in strategic design, to see what kind of talents and characteristics the future team needs to support all the characteristics of the future library work. In addition to these three, the most important thing is to do something different from now on, have the courage to innovate, and create an ecosystem where artificial information systems and robots coexist harmoniously [4].
3. Positioning strategies of digital libraries in the context of artificial intelligence

Faced with the constantly updated artificial intelligence technology, we should first realize that the highly repetitive and low-complexity work is gradually being replaced by artificial intelligence. This is an inevitable trend. In this context, in order not to be replaced by artificial intelligence, library management practitioners should at least do the following two things: First, you can do the same thing cheaper than artificial intelligence. To do this, you have to do work that is less repetitive in nature, because it prevents AI from realizing its cost-of-scale advantage through high-frequency computing; The second is that you can do things that AI can't. To do this, your job needs to be very complex in nature. There are two areas that are most difficult for AI: one is communicating with people (for example, in what we call politics); The other is to constantly acquire and judge new information (for example, the current business environment is changing rapidly, and it is difficult for AI to make accurate judgments based on the new situation) [5].

Therefore, in the context of artificial intelligence, the positioning strategies of library managers are as follows:

3.1. Transformation from basic accounting to compound library management

At present, the basic accounting personnel has reached the saturation state, and the shortage of senior compound library management personnel is the consensus of the library management industry in China. From a positive point of view, the changes in the information age are actually an opportunity for library managers to improve their core competitiveness [6].

This requires senior librarians to master various models, laws and regulations, management theories and electronic information technology of digital library. The ability to better understand the meaning behind the library data, to view the development of the company from multiple perspectives, can effectively help the company to overcome various anticipated obstacles and eliminate these obstacles [7].

3.2. Transition from digital library to Metadata platform

Due to the intervention of intelligent library management system, complex data operation will gradually be replaced by machine program calculation, which can greatly improve the accuracy, but the accounting personnel can use the accumulated accounting knowledge to identify the contribution of each economic expenditure, and timely analyze the factors and effects of cost control [8].

\[ S = \frac{B}{A} \times 100\% \]  

(1)

In Formula (1), "S" represents the growth rate of sales (business), and the growth amount of sales (business) of this year (B) is the difference between the sales (business) income (C) of this year and the sales (business) income (A) of last year. The calculation formula is as follows:

\[ B = C - A \]  

(2)

If the current year's sales (operating revenue) (C) is lower than that of the previous year, the increase in the current year's sales (operating revenue) is indicated by "-". Make reasonable budget control and future strategic decisions to help the company complete the internal governance. These overall planning of the work, are only relying on the program Settings can not achieve.

With the popularization of library software, electronic invoices can be issued on APPs or websites, which reduces the workload of arranging special persons to purchase invoices and be responsible for invoices. With the gradual introduction of accounting electronic documents rules, it also shows that accounting electronic documents and paper vouchers have the same legal effect, the traditional accounting vouchers will gradually disappear, manual printing and filling in paper vouchers and other work will be gradually replaced [9].

3.3. Cooperate with the scientific research personnel management system

With the promotion and application of artificial intelligence in enterprises, intelligent robots will
gradually replace part of the original work of the library (such as invoice issuance, tax declaration, expense reimbursement, etc.). The demand for these positions will be less and less. At the same time, for some library audit management requiring rigorous multi-accounting, artificial intelligence cannot be adopted entirely, or manual audit is needed:

\[
\text{Total income} = \frac{s(B) - s(A)s(B)}{\sqrt{1 - s(A)(1 - s(B))}}
\]  

(3)

In the formula, the total sales (operating) income at the end of three years ago refers to the sales (operating) income of the enterprise three years ago. Example: If this year is 2018, then the total sales (operating) revenue at the end of three years ago refers to the sales (operating) revenue of the enterprise in 2015.

Therefore, library staff should gradually shift to the position of METADATA platform and cannot be replaced by robots as soon as possible. They should know more about the business operation of enterprises, participate in the business management of enterprises, and engage in the management work of high value-added library planning, analysis and decision support. Because robots do not have multi-dimensional and multi-level thinking ability, communication and coordination ability, organization and management ability, it is still impossible to completely replace human beings to complete the above work [10].

Computers need to be intelligently maintained and updated to meet changing needs. Therefore, managers and intelligent machine science researchers can learn advantages from each other, give full play to the special advantages of library management and digital library, cooperate with researchers, continue to play an important role in intelligent programming, computer hardware and software development, intelligent machine maintenance and upgrade.

In the traditional accounting in digital library, to meet the demands and current accounts receivable processing article retrieval of thousands of billing details and manual processing, to correspond to the invoice for item by item, cancel after verification, to verify the account receivable, provide the basis for supplier payment and subsequent collection, these all need to consume large amounts of artificial. But if the use of robots instead of manual operation, not only can use non-working hours to carry out the operation, but also can reduce the working hours to 5% or less, at the same time few errors, can maximize the efficiency and customer and supplier satisfaction.

4. Conclusion

Along with the development of the Times, artificial intelligence technology will be the widely application of the library management workers, have the effect, to promote the implement of intelligent management goal smoothly at the same time, realize the library management efficiency and level of ascension, and allow the library management work towards intelligent and the trend of scientific development. In the context of intelligence, the complex library management work can be processed and managed by artificial intelligence robots, so as to reduce the difficulty of staff work and get them out of the tedious work. On the basis of improving work efficiency, the transformation and development from digital library to Metadata platform can be achieved.

References

[1] Li S, Hao Z, Ding L, et al. Research on the application of information technology of Big Data in Chinese digital library[J]. Library Management, 2019, 40(8/9):518-531.
[2] Vasilakaki E, Garoufallou E, Johnson F, et al. An Exploration of Users' Needs for Multilingual Information Retrieval and Access[J]. Springer, Cham, 2015.
[3] Rauber A, Merkl D. Text Mining in the SOMLib Digital Library System: The Representation of Topics and Genres[J]. Applied Intelligence, 2003, 18(3):271-293.
[4] Ghancea-Hercock R, Duman H, Healing A L. Distributed system[J]. US, 2014.
[5] Gromov G R. The Roads and Crossroads of Internet History[J]. Www Consortium, 1995.
[6] Tang, Kai. Research on the Construction of Personalized Active Information Service Model in
Digital Library[J]. Advanced Materials Research, 2013, 753-755:3071-3074.

[7] Gao S, Li L, Li W, et al. Constructing gazetteers from volunteered Big Geo-Data based on Hadoop[J]. Computers, Environment and Urban Systems, 2017.

[8] Olson N, Nolin J M, Nelhans G. Semantic web, ubiquitous computing, or internet of things? A macro-analysis of scholarly publications[J]. Journal of Documentation, 2015, 71(5).

[9] Temal L, Dojat M, Kassel G, et al. Towards an ontology for sharing medical images and regions of interest in neuroimaging[J]. Journal of Biomedical Informatics, 2008, 41(5):766-778.

[10] Wu S, Witten I H. First Person Singular: A Digital Library Collection that Helps Second Language Learners Express Themselves[J]. International Journal of Digital Library Systems, 2010, 1(1):24-43.