

18th IFLA Interlending and Document Supply Conference

Global to Local: Diversity and Inclusiveness in Resource Sharing

December 2-4, 2024 / ADA University

Artificial Intelligence (AI) enables resource sharing and promotes open innovation collaboration within libraries.

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Introduction

01



1. Introduction

As repositories of knowledge, libraries not only preserve a wealth of historical documents and cultural heritage, but also actively promote and disseminate cultural knowledge through various exhibitions and lecture programmes to facilitate cultural inheritance and development.

With the rapid development of information technology, especially the increasing maturity of artificial intelligence technology, the library service model is undergoing profound changes.

The application of AI technology in library resource sharing is mainly reflected in the intelligent recommendation system, automated borrowing and returning process, and personalised service, etc. The application of these technologies not only improves the user experience, but also makes the library resources more efficiently used and managed.



Application of Artificial Intelligence in Library Resource Sharing

02



2.1 Intelligent Analysis and Recommendation System

Personalised Book Recommendations

01

Intelligent recommendation system analyses users' borrowing history and preferences to provide personalised book suggestions to enhance the reading experience.

Increased user satisfaction

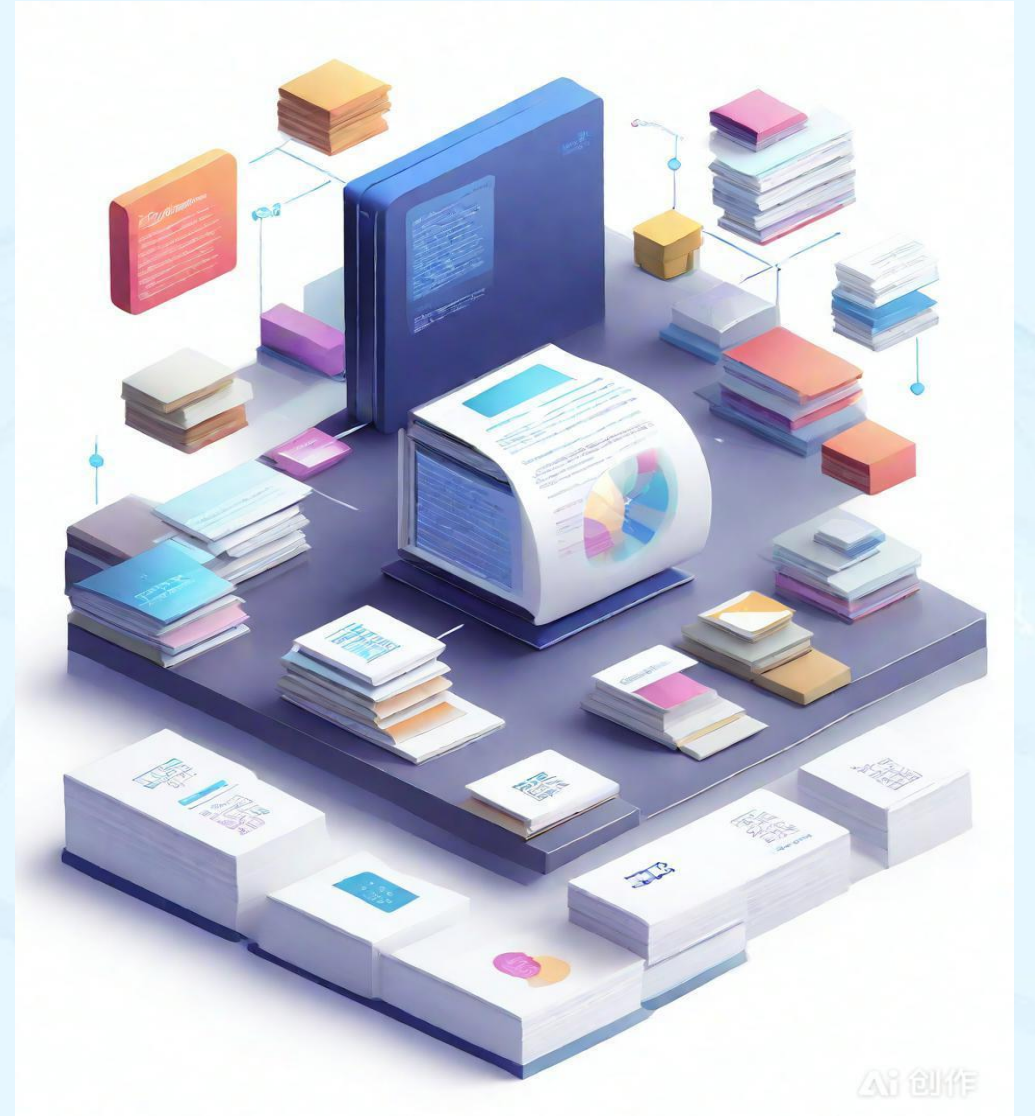
02

Personalised service improves user satisfaction, promotes efficient use of library resources and enhances readers' stickiness.

Optimising resource management

03

Intelligent recommendations help fine-tune the management of library resources and ensure that highly relevant books are discovered by more readers .





2.2 Automated Management System

Classification and shelving of books



Robotics and image recognition make it possible to automate the entry of information, sorting and placing of books in the correct position when new books are put into storage.

self-service book lender



Setting up self-service terminals that support face recognition or membership card scanning allows readers to quickly go through the borrowing and returning procedures.

Virtual Counselling Assistant



Chatbots are used to provide immediate assistance to users by answering frequently asked questions, guiding the use of library resources, and more.



2.3 Document delivery facilitation support



Forecasting documentation needs

Through big data analysis, libraries are able to predict trends in literature requests, deploy resources in advance, and ensure the timeliness of literature delivery.



Optimising search algorithms

Data analysis is used to optimise search algorithms to improve the accuracy of literature finding and speed up users' access to the information they need.



Efficient request mechanism

Establishment of an efficient literature request and delivery mechanism, continuous improvement in conjunction with user feedback, and significant enhancement of the quality and efficiency of literature services.

**Artificial Intelligence Enabled Library
Resource Sharing Development Case
Study**

03



3.1 Resources of the National Library—Overall

Four functions

01

The National Library of China is China's National General Library, National Bibliographic Centre, National Centre for the Preservation of Ancient Books, and National Museum of Classical Books.

Collection size

02

The National Library of China, after 115 years of development, has a collection of over 44.23 million volumes and 2,756 terabytes of digital resources, and is the world's No. 1 in Chinese literature and a leader in foreign-language literature.

Building scale

03

After 115 years of development since its establishment on 9 September 1909, it has a total floor space of 280,000 square metres, ranking third in the world for national libraries.





3.1 Resources of the National Library—Centre for Documentation Provision

Establishment of the Documentation Delivery Centre

In order to promote the common building and sharing of documentary resources, the National Library of China established a Documentation Provision Centre in 1997, which includes inter-library loan and document delivery operations, and assumes the functions of document search, information consultation and dissemination of knowledge and information.

International cooperation and exchange

Over the years, it has maintained co-operation with foreign libraries such as the British Library, the Russian National Library and the National Diet Library of Japan, and has established business contacts with more than 500 libraries in 63 countries around the world.





3.2.1 A Case of Co-operation between Huawei Technologies China and National Library of China



01

5G New Reading Experience Centre

By establishing a new 5G reading experience centre, it provides an immersive reading environment and uses high-speed networks to enhance users' reading experience.

02

Digitisation of antiquarian literature

High-precision digitisation of valuable ancient books preserves cultural heritage and enables its wider dissemination and use. For example, the content of ancient books has been brought closer to everyday life through devices such as the Huawei Mate X2.

03

Joint Innovation Laboratory

The Huawei Joint Innovation Laboratory of the National Library was established to focus on developing industry solutions, promoting the integration of culture and technology, and cultivating innovative talents in related fields to promote the intelligent development of the library industry.



中国国家图书馆
NATIONAL LIBRARY OF CHINA

3.2.1 A Case of Co-operation between Huawei Technologies China and National Library of China



Huawei will repair a number of ancient books online to Huawei Reading App, and on the Mate X2 through the folding method to achieve the effect of reading as if flipping through a real book. Through the Huawei Mate X2, the wisdom that has travelled through thousands of years is presented in the hands of the people of China, so that every reading enthusiast has the opportunity to see the 'real'.



3.2.2 Baidu.com Technology Co., Ltd. and the National Library of China Co-operation Case



Resource sharing

Combining modern information technology to improve the quality of library services, including online consultation and personalised recommendations, enhances the user experience.

Intelligent Services

Leveraging Baidu's AI technologies, such as natural language processing, to provide efficient and accurate information retrieval services .

Cultural inheritance

By digitising ancient documents, it facilitates global Chinese to explore their roots and promote the inheritance and popularisation of Chinese culture.



3.2.2 Baidu.com Technology Co., Ltd. and the National Library of China Co-operation Case

Baidu Wenxin Yiyin launched the 'Ancient Texts and Modern Questions' function, which makes use of the National Library's wealth of ancient square logs and genealogical information to help Chinese people around the world find their roots and visit their ancestors more conveniently through AI technology. After entering relevant information, users can get feedback on the location and occupation of their ancestors. This not only promotes personal understanding of family history, but also facilitates the inheritance and development of Chinese culture.





中国国家图书馆
NATIONAL LIBRARY OF CHINA

3.2.3 Example of co-operation between ByteHop and the National Library



Establishment of special funds

Byte jumping the special fund for the protection of ancient books, injecting social and technological power to activate the new life of ancient books.



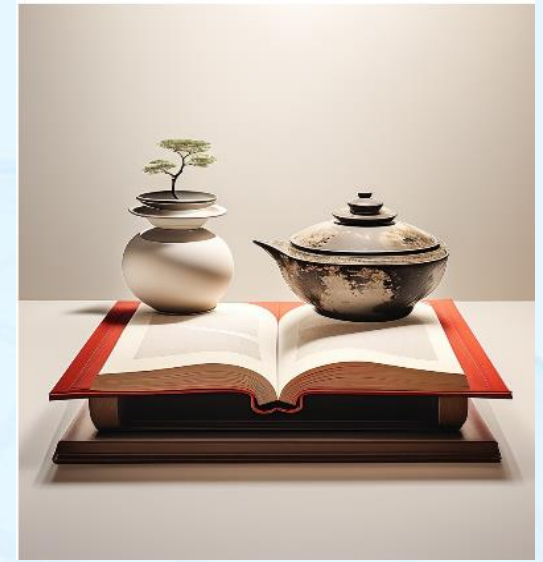
Opening of the Yongle Grand Dictionary

Free access to high-definition image database to promote digital preservation and dissemination of ancient books.



Increased resource utilisation

Combining academic research and popularisation to improve the utilisation of ancient book resources and broaden cultural horizons.



Cultural heritage development

Innovate the protection and adaptive use of ancient books, and deepen the inheritance of outstanding traditional Chinese culture.



中国国家图书馆
NATIONAL LIBRARY OF CHINA

3.2.3 Example of co-operation between ByteHop and the National Library



The high-definition image database of the Yongle Encyclopedia is open for free, promoting the digital protection and dissemination of ancient books, reflecting the idea of sharing resources.

The National Library, together with PICO, Tiktok and other platforms, has created the ancient book activation project "Travels in Ancient Books". The situational VR interaction makes the thick ancient books "live" and "cool".





3.3.1 A case of cooperation between Tencent and Dunhuang Research Institute



Digital Dunhuang Open Material Library

Dunhuang Academy and Tencent jointly launched the "Digital Dunhuang Open Material Library" based on blockchain, which integrates more than 6500 high-definition resources and aims to promote resource sharing worldwide.



Cloud Tour Dunhuang Mini Program

Since its launch in 2020, the "Cloud Tour Dunhuang" mini program has accumulated over 60 million visits and attracted more than 200 million people to participate in online interactions.



Combination of Dunhuang Studies achievements and technologies

The cooperation between the Dunhuang Research Institute and Tencent has combined the research achievements of Dunhuang Studies with modern science and technology, realizing the digital upgrading of cultural resources sharing.



3.3.2 A case of cooperation between Alibaba and libraries

Alibaba's cooperation with libraries covers a number of specific projects, such as the 'Read Light Programme' jointly launched with the China Braille Library and Zhejiang University. The 'Read Light Programme' is just a microcosm of how technology is changing the lives of people with disabilities.

01

Launch of the Read Light Programme

Building a 'Smart Home Pavilion'. Building a barrier-free film and television network audio-visual platform, with 100 barrier-free films to be released in the next three years.

02

Construction of Smart Home Pavilion

Alibaba donated Tmall Elf smart speakers and built a 'Smart Home Pavilion' with its partners to provide visually impaired people with convenient life services and access to information.

03

Provision of free home delivery of reading materials for the blind

It provides the visually impaired with an exclusive service of free door-to-door delivery and collection of reading materials for the blind, and realises barrier-free ordering and one-button delivery through technology, so that the visually impaired can borrow and pick up reading materials smoothly and without any worry.



3.3.3 Relevant Cooperation Cases of Tech Data Xunfei



Audiobook service

Providing rich literature for the visually impaired, the personalised book import function enhances the user experience and breaks down reading barriers.



Intelligent Speech Conversion

KDDJ's real-time speech transcription service solves the communication problems of the hearing impaired. They can participate in social activities on an equal footing.



Win-Win Technology Sharing

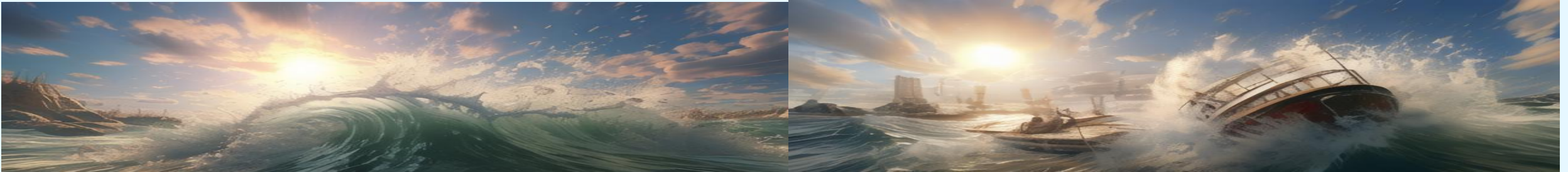
Combining voice and image recognition with cognitive intelligence, KDDJ promotes information accessibility, meets diversified needs, and facilitates cultural popularisation and sharing.

04

Challenges



4. Challenges



01 economic cost

Libraries face the economic challenge of introducing AI technology with high initial investment and ongoing maintenance costs.

02 Security and Privacy

With the application of AI technology in library services, ensuring user data security and personal privacy protection, as well as preventing the leakage or loss of valuable documentation, has become a crucial topic.

03 Regulations and Talent

Libraries need to strictly adhere to copyright laws, ensure ethical and moral compliance, and face challenges such as a shortage of composite talent when utilising AI technology to facilitate resource sharing.

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Thank you!

