# The Bottleneck and Countermeasure of E-Books Development in Chinese University Libraries

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**Keywords:** E-books; University library; Digital resources; Resource construction; Electronic resource utilization

**Abstract:** With the rapid development of computer technology, e-books have emerged. Compared with traditional paper books, e-books have the advantages of fast update, short publication cycle and rich content. The library quickly accepted this new thing and developed into the main force of the electronic book consumer market. However, the utilization ratio of electronic books does not match with the money invested in each year, and readers always feel the lack of e-books. This paper discusses the bottleneck and countermeasures of the development and application of electronic books in Chinese university libraries, and hopes to make a contribution to the development of electronic books.

## 1. The development of e-books

With the rapid development of network transmission technology and digital storage technology, electronic books have emerged. In the 1940s, the concept of e-books first appeared in a science fiction novel. In the novel, it describes a book that can be read on an imaginary electronic device. Until 1995, the US launched the SoftBook, a pocket-sized device that can read and store text. Then NuvoMedia launched Rocket book, marking the birth of a truly electronic book [1].

Electronic books in China started late, but started high and developed rapidly. In 1999, Wuhan university press produced WDBOOK, an electronic book editing and bibliographic system. The system can be used for electronic book production as well as reading tools, and become a pioneer in domestic electronic books. In 2001, China's state council approved the project of the second phase of the national library project and digital library infrastructure project, with an investment of 11.2 billion yuan, which promoted the development of electronic books in China. On July 11, 2017, the annual report of the 2016-2017 Chinese digital publishing industries was released at the 7th China digital publishing expo. In the past few years, e-books have continued to grow at a rapid pace, with e-books earning up to 5.2 billion yuan, compared with just 1.65 billion yuan in 2011, according to the report.

Compared with traditional books, electronic books have many advantages [2], such as short publishing cycle, quick update, various forms, rich contents, convenient retrieval and environmental protection, etc. As a result, the library quickly accepted the new invention of electronic books [4][5]. For more than ten years, the library has been in the main position of the electronic book consumer market. Each powerful library is actively purchasing electronic books and expanding its collections so as to better serve the readers [6]. However, the study shows that the utilization rate of electronic books is not satisfactory and does not match the appropriation of the investment per year. According to the survey of CNNIC every six months, the most dissatisfied Internet information service, the number one is always "lack of e-books".

How can our university libraries cope with the challenge of electronic books? How can electronic books better serve readers? How to improve the utilization of electronic books? In the library world, it has always been a hot research topic. This paper analyzes the problems encountered in the use of electronic books. It is expected that the research of this paper can contribute to the development of library e-book resource construction in China’s university libraries.

 

## 2. The bottleneck and countermeasure of electronic books utilization

Although the number of electronic book resources is growing rapidly in China's university libraries, there are still the following bottlenecks:

### 2.1 There are higher requirements for library hardware and software resources.

Electronic books have made higher demands on the hardware environment of the library. By digitizing the content of text, sound, image, video and other information, e-books are made. Computer or handheld device terminal can realize the reading function. In general, readers will use the reading terminal to access the library information resource server through the communication network to realize the use of electronic books. For libraries, they need to invest a lot of money to buy servers, computers and other equipment, and to set up communication networks.

Meanwhile, the introduction of electronic books also has higher requirements for library software environment. The most commonly used book management systems in Chinese libraries include ILAS (library automation integration system), LIBSYS (Huiwen book management system) and WXGJXT (literature management integration system). They were originally developed for the design of paper books, and also mainly served the printed-paper books, and the functional modules were mainly focused on service interviews, cataloguing and circulation. Obviously, it is not suitable for the management of electronic books; the collection, weaving and flow of electronic books have their own characteristics and requirements. Therefore, in terms of software, the characteristics of electronic books are also needed to increase the corresponding management module or to re-develop the book management system.

### 2.2 Electronic book technology standard is not unified.

Today, the development of electronic books has made a qualitative leap. There are more than 20 formats including PDF, TXT, EXE, EPUB, MOBI, SEP, CAJ, DOC, CEB, UMD, CHM, JAR, PDG, PDB, BRM and other formats. These format types can be divided into two classes: fixed layout and reflow able text. Fixed layout is related to the printed version of the electronic book, and the structure of each page is fixed on the display screen. The reflow able text automatically adjusts a page of display content according to the display screen, in which the concept of the page almost disappears. The PDF as we know it is generally classified as a fixed format. And special formats such as TXT, HTML, and EPUB are often considered to be reflow able text.

For the sake of economic benefit, most of the published e-books are in their proprietary format. The software formats of major companies are incompatible and have not formed an executable industry standard or national standard. The diversity of formats can be a problem for libraries and readers alike. First of all, for libraries, a variety of formats can lead to a reliance on publishing houses, and if publishers stop supporting the browsing software, they will not be able to use the corresponding formats. For example, the e-book in LIT format, whose browsing software is Microsoft Reader, has stopped the production of the browser software in 2012. A digital migration must be made to the saved LIT electronic books, or there is no guarantee of access to the e-book.

Second, for readers, the variety of formats limits access. Users need to download a dedicated browser to access the corresponding electronic books, which brings great inconvenience and trouble to users. For example, the Kindle does not support EPUB, a dedicated format for commonly used electronic books, and iBooks formats can only be used in iBooks and iBooks authors. Superstar's e-books use PDG and PDZ, PDF variant formats, which can only be used in superstars' SsReader. Similarly, Apabi Reader, Shusheng book Reader, etc. If users have a need for multiple formats of e-books, you need to install multiple browser software.

The electronic book retrieval interface of each publisher also brings inconvenience to the use of electronic books, and readers need to go to different pages to retrieve them. For example, the library of South China University of Technology has provided digital library resources such as super star digital library, SpringerLink electronic book, CADAL digital library and founder electronic books. The reader must access a different search page for the electronic book, and the corresponding reading software must be installed. This hinders the use of electronic books to a large extent, which

is undoubtedly a barrier to resource sharing. Only by establishing a standard of electronic book making, preservation, transmission and use as soon as possible, can we further overcome technical barriers and make readers use e-books more.

### 2.3 The content of Chinese e-books is limited and lags behind.

China's annual new book edition of nearly 100,000 books, plus reprint books, there are 170,000. But the simultaneous release is less in print and in electronic format. Even the pioneers of digital books, such as the super stars digital library and the Founder, are only two thousand new books a year. There is no comparison with the nearly 100,000 volumes of paper books. Moreover, the kinds of e-books involved in the market are mainly literature and leisure. The proportion of education and professional resources is poor, making the variety of electronic books single. Domestic electronic books lack a lot of quality resources, and many of them are not found in electronic books.

In comparison, there is a lot to learn from overseas electronic books. For example, in SpringerLink electronic books, there are many electronic books that are updated in sync, and there is no need to download a dedicated reader, which can be read online in a web browser. To develop our country's electronic books, unified standard, uniform format, synchronous update is imminent.

### 2.4 Electronic book purchasing mode is backward.

In our country, the price of electronic books is generally high, and most of them are tied and sold. This is also a challenge to e-book procurement. The mainstream-pricing model is priced in sub-stores, accounting for about 61.5%. For example, Thieme, Ebary, Emerald, Karger, Springer, Gale and The super star are sold as wholesale. Such a pricing model makes the price of a single e-book relatively modest, but the entire database must be purchased. E-books can't be picked up, and some of the most efficient and unpopular electronic books must be packaged together. Such immature electronic book sales mode seriously impedes the promotion and application of electronic books. Our library has long been in a weak position in the game with the electronic book supplier. Therefore, it is an effective way to establish the library alliance and actively cooperate with the library, which is the unequal status in the game of library change and bookseller.

### 2.5 Solve the problem of electronic cataloguing.

The libraries use MARC, CNMARC and UNIMARC for cataloguing of printed-paper books. But for electronic books, whether it is optical disc or network, it needs to be organized and organized, before it can be easily and quickly used by readers. But how to organize and sort electronic books? There is no uniform standard at present.

The study of cataloguing of electronic books by foreign scholars has moved from the theoretical research stage to the practical stage. At home, there are many kinds of metadata, and electronic books are written in disorder. Some libraries use DC; some adopt MARC, and REACH and VRA. But most take a MARC or DC format. Each of these two cataloguing formats has there own characteristics and corresponding deficiencies. In general, DC is more advantageous in the application of electronic book cataloging than MARC format. It has many language versions, high specificity of bibliography, concise cataloguing and convenient retrieval. It is necessary to accelerate the establishment of the standard for electronic book cataloging.

### 2.6 Copyright issues.

While electronic books are developing, there is a constant dispute over copyright. Google's digital library plan, Hanwang electronic books have encountered copyright issues. Readers use the library information resources is a kind of public access behavior, most of the main body of protection of intellectual property rights is a person, is a respect for the knowledge workers, how to grasp the "degree", is a difficult problem.

According to the literature survey, at present China's press has only about 20% of e-book copyright, most of the electronic book rights are directly in the hands of the author, and publishers only printed the books. It is impractical for libraries to face a large number of geographically dispersed authors, but ignoring any copyright owner could face infringement charges.

We will improve the relevant laws and regulations for the protection of electronic books. The existing law lags behind the development of network environment, and the supporting legal norms need to be further improved, such as the attribution of digital rights, the payment standard of electronic books, etc. At the same time, we need to establish a perfect collective management system of copyright. In this way, the author's rights and interests can be protected, and the cost of purchasing copyright can be saved. Finally, it is necessary to strengthen the technical measures to protect the copyright of electronic books. After a reasonable authorization, the reader can read, download, copy, print, etc.

## 3. Conclusions.

With the development of technology, libraries are also digitized and networked. The library's digital resources are also increasing rapidly. In the process of digital development of library resources, the methods and carriers of resources have undergone drastic changes. In addition to the introduction of electronic books, the library has been able to strengthen and improve the library's hardware and software environment, and enhance the cultural knowledge level of library staff. Library alliances can be established between libraries to be mutually beneficial in terms of joint procurement and resource sharing. The alliance can also share e-book resources within the alliance by signing agreements with e-book manufacturers when purchasing them from the group. In the future, libraries will promote and complement the development of e-books. The library will become a hub for knowledge distribution, with a core function of delivering knowledge to the development organization, and creating a library without walls to meet the needs of readers.

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