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Analysis on the Application of Big Data Technology in Editing and Publishing Informatization

Zhang Zhimin

Yangtze University, Jingzhou City, Hubei, 434023, China

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Abstract: Data publishing is a brand-new way of communication. With the increasing development of digital and cross-media information dissemination, it has had some impacts on the traditional editing methods of books and periodicals. Therefore, this paper introduces the characteristics of publishing industry under the background of big data development, the problems faced by editors and the countermeasures, as well as the use of big data processing technology to classify information, improve content quality and help users provide diversified services.

1. Introduction

In the context of big data, the traditional publishing management can no longer meet the development needs of contemporary people. Implementing the strategic transformation of publishing is the most important transformation goal of China's traditional publishing industry. Therefore, according to the development characteristics of the information age, this paper further enhances the internal strength of the publishing industry by integrating information technology, thus enhancing the core competitiveness of the publishing industry.

2. Definition of Big Data Analysis

Big data analytics (BDA) involves key technologies such as information acquisition, recovery, storage, management, data mining, etc., and finally uses technical means such as information distribution and knowledge sharing to effectively support decision-making. In fact, it is through quantitative analysis that scientific value can be obtained from massive data, so as to discover regularity or development trend[1]. Information mining involves visual analysis methods, data mining algorithms, predictive data analysis capabilities, semantic engines, data mining quality and data management, among which visual data analysis results are the most intuitive.

3. Development of Publishing Industry under the Background of Big Data Technology

At present, with the increasing number of media, the expression of publishing industry is constantly innovating and changing. The publishing industry based on big data technology can not only save more human and financial resources, but also have higher communication speed and wider communication range. At the same time, compared with the traditional publishing promotion

platform, the information consumption of publishing houses in the market is higher[2]. The traditional distribution mode of physical stores is gradually being replaced by multimedia and multidimensional communication processes. The functions of traditional publishing houses are gradually decreasing. The information-based communication mode has taken a solid step in the market, and the traditional publishing mode is gradually fading out of people's lives.

4. Typical Application Mode of Big Data Technology in Digital Publishing

In view of the close relationship between digital publishing and computer technology and the new characteristics of information dissemination, big data processing technology has great application space in many aspects of digital publishing industry. Some classic usage modes of big data analysis technology in digital publishing in the future are listed and analyzed as follows.

4.1 Accurate Planning and Marketing

At present, the content planning of commercial publications (including paper publications and digital publications) is often realized through the industry experience of planning editors and the sensitivity to hot information in a certain field. There are often some problems, such as insufficient knowledge of hot spots, inaccurate orientation of target readers, improper invitation of authors, etc. "Precise Plan" refers to the investigation and research on the massive data provided by China's mainstream community platforms (Douban.com, Renren.com, Weibo, WeChat, professional communication platforms, etc.) and e-commerce platforms to record user behaviors (browsing records, purchasing records, making comments, etc.), and selects the current hot topics in relevant industries as alternative themes, with relevant authoritative scholars or focal figures as the protagonists, and studies the names, education, positions, geographical locations and other information of relevant users[3]. This kind of data can not only provide "accurate planning" for planning and editing, but also provide "accurate demonstration" for experts.

4.2 Optimization of r&d and Production Processes

The research and development process of digital publishing products is managed by RDM system; The production process is generally managed by ERP system and digital production tools; The supply chain is managed by the supply chain management system. If these systems are used to collect and analyze all the data generated in the process of product R&D and production, it is just like magnifying the process with a magnifying glass, observing, refining and making use of it, which is of great significance to optimize the process, improve production efficiency and product quality. Among them, collaborative compilation platform is an ideal application platform of big data technology[4]. Collaborative editing platform is a comprehensive operation platform for traditional publishing houses, which can integrate authors, editors, experts, digital content processing and publishing personnel across regions in real time to realize digital content creation, collaborative editing and dynamic publishing. The working process of authors, editors, experts, processors and publishers using the platform and their interaction through the platform will generate a large amount of unstructured data (such as manuscript revision, editing and records of expert communication).

4.3 User Experience and Product Effect Evaluation

For example, paid e-books can provide some chapters for readers to try and then decide whether to buy them or not. Through the big data collection tool of e-book publishing platform, publishers can not only count the times of e-book trial reading and purchase, but also draw a "reader map",

including users' age, income and geographical location. In addition, it can also collect all kinds of valuable user experience information, such as whether readers bought free chapters, how many pages readers read on average, the average stay time of each page, which chapter readers like to start with and which chapter they give up halfway, so as to analyze and evaluate[5]. Another example is a digital publishing application with voice interaction. Through the microphone, camera and touch screen of iPad, the publishing house can collect data such as the time, scene, times of users' use of interactive functions, and recordings of users' use of voice interactive functions, and analyze users' love for applications, emotional changes after use, and mastery of relevant knowledge, so as to evaluate whether the application has achieved the intended effect and promote its future improvement.

5. Challenges Faced by Publishing House Editors under the Background of Big Data

In the era of the vigorous development of modern information technology, all kinds of software enterprises constantly innovate, develop and popularize all kinds of application software for information transmission. Nowadays, all kinds of short video applications, such as Tiktok and Kwai, have become very popular, and have had a certain impact on Chinese traditional publishing industry. Because information media technology can meet people's needs of obtaining information through various channels, it is widely spread in various forms of high-definition video and images[6]. Compared with traditional books and other books and periodicals, it is more novel and attractive. In terms of topic selection, its information publishing mode has more choice space and richer information connotation, but the homogenization problem is very serious. Faced with the vigorous development of various new media, more and more readers consider getting information through new channels such as WeChat, Tiktok and iQiyi. There are fewer and fewer users of paper edition, resulting in the continuous decrease of the sales volume of paper edition, and also seriously affecting the operating effect of publishing houses. Therefore, it is necessary to improve the service level of publishing houses. With the development of readers' love and time, the service of publishing houses needs to be further optimized.

For some topics, the editors of publishing houses should not only have a unique perspective and a comprehensive knowledge structure, but also have a comprehensive grasp of some mainstream discourses of China's contemporary development to ensure the freshness of the articles. From the service level, serving users has become the main development concept of a large company, and reading experience is also important for the development of publishing houses.

6. Analysis of the Coping Strategies of Big Data Technology in the Informatization of Editing and Publishing

6.1 Update of the Concept of Digital Publishing and Editing, and Clarification of the Direction of Digital Publishing and Editing

In terms of editing, the development of big data shows that news content must be the first element in editing, and reading should be the first element. With the rise of digital publications, the traditional methods of receiving news in the information age have already ended, and the reading work has already become a news leader from a pure news audience. To some extent, the field of press and publication is changing from a content-centered era to a platform-centered or reading-centered new era. This change also shows that the scope and connotation of editing work have been expanded. The position of editors no longer depends solely on the quality of editors themselves, but also includes the overall awareness of editorial culture and communication in the social, political, economic and ideological fields.

6.2 Expansion Functions to Realize the Scientific Transformation of Digital Publishing and Editing

The scientific transformation of digital publishing and editing marks the transition of layout management from the traditional single flattening, simplification and processing to three-dimensional, diversified and modular, and the editing function will also be greatly expanded. Editor's duties mainly include two aspects. One is the individual level, and the other is the publishing company. From the user's point of view, you can rearrange the display information of different media channels, and communicate with technicians on product presentation methods, performance requirements, use costs, display quality, and improvement space. We can combine the consumer's mind with digital marketing technology, so as to achieve refined marketing and improve the sales effect. The second is a publishing company. In the process of digital publishing, publishing enterprises should improve the knowledge and technical transformation of publishers. Strengthen the training of staffing managers, so that employees can understand the theory, skills and operation of digital editing through theoretical teaching and case studies. Publishing enterprises should allocate full-time scientific research personnel to provide effective support for the normal and orderly development of digital publications and the cultivation of editors' academic ability. Besides, reading can realize humanized service. In the new era, with the progress of time, the way people read has changed to some extent. Most readers prefer to get information by using mobile electronic devices, while a few users get information by traditional means. At the same time, dynamic videos, photos and other ways are also more popular for reading. Therefore, publishers should take the initiative to use big data analysis technology to understand the dissemination channels of readers' information[7]. By using big data analysis technology, we can analyze the number and characteristics of users using various message delivery channels. On the one hand, it can make the propaganda content cover all aspects. On the other hand, users can get information through their own interested methods, which can get good evaluation and improve user experience.

6.3 Determination of Digital Publishing Responsibility in the Context of Big Data

Editors' management plays a very important role, which is directly related to the whole development of editors' team and the successful completion of various management work, especially in the era of digital writing. Therefore, in establishing an effective management mechanism of modern editors' management, we should first determine the objectivity and ability of editors' management. In the process of designing and evaluating the digital publishing system, we should break through the traditional ideas and find the correct way to operate. The introduction of modern layout mode is helpful to organically integrate editors' working interests with specific digital publishing operations, so as to increase editors' participation, establish a community of working interests and improve layout efficiency. However, when faced with the problems existing in the traditional arrangement operation, comprehensive measures should be taken to reduce the potential problems, so as to enhance the pertinence of the arrangement operation.

6.4 Resource Allocation and Optimization of Digital Publishing Environment

In the process of compiling, the national press and publication agencies and publishing enterprises should not only keep a large number of information compiling talents and materials, but also realize the significance of rational allocation of information resources for increasing the efficiency of data use. This constitutes a mutually promoting development trend, thus making information resources in a decisive position in editing work. Once the information sources of news publishing organizations or distribution enterprises are missing, it will be difficult for each editor to

make a scientific choice. This requires companies and editors to flexibly use existing information sources to realize the normal development of digital distribution. Today, with the increasing international competition, improving the conditions of digital distribution, changing the role of compilation, and allocating talents are all issues that the distribution companies need to think about and deal with in advance, otherwise it will limit the digital transformation of the distribution companies.

6.5 Content Production Based on Big Data

In the process of content formulation, big data analysis is the best basis for decision-making, whether the content of the work is selected or the expression of the content of the work and the development of the plot are determined. Coliloquy, a French electronic publishing group, has carried out quite mature practice in this area. Coliloquy used Amazon's Kindle to produce interactive content. With the model of “choosing one's own adventure experience”, readers can set characters and plot clues, summarize and read the data analysis generated by the choice, and then pass the analysis results to the writers and adjust the story clues. The bestseller of The Hunger Games is based on this idea and experience.

6.6 Layout and Production Based on Big Data

The editing process mainly involves information review, editing, proofreading, re-editing and other links, focusing on cost and quality. In recent years, the content visualization production management platform based on XML structured data management standard has been widely used. Among them, the multi-person collaborative network editing platform creates opportunities for readers, users, editors, publishers and other people of various identities to communicate and collaborate in editing. It can not only automatically record all process versions, but also synchronously save all finished product data and fragment data in the production process, so as to facilitate tracing and obtaining information. In the editing process, the digital annotator can also review and record the manuscript in electronic form through predefined common proofreading symbols; Rich database can ensure that the content can be edited in the correct format and automatically, and different types of publications can be obtained according to different types. Through the arrangement and operation of big data, not only the quality of editing tools is greatly improved, but also the quality of finished products is improved.

6.7 Precision Marketing Based on Big Data

The so-called precision marketing is to accurately push the published products to the users who really need them by minimizing the marketing cost and maximizing the marketing effect. When using big data technology for marketing, publishing and media enterprises can not only dig deep into customer information to achieve accurate delivery, but also use various platforms such as social networks to maintain personalized interactive communication with users, improve user loyalty, or realize targeted marketing activities by analyzing user circles in social networks. Amazon has done a good job in big data marketing. Amazon replaced the previous expert recommendation system with a personalized recommendation system based on big data, which greatly increased sales. The system can accurately recommend books to readers by analyzing customer consumption information (such as what books to buy, what books to pay attention to, etc.). Besides personalized recommendation system, Amazon has also entered a higher stage in big data marketing-pre-delivery. The core of pre-delivery is to use big data technology to deeply analyze customers' past consumption records, search records, wish lists and other information, predict customers'

willingness to buy new goods, and mail the goods directly to customers or warehouses near customers before placing orders. In this way, once the customer places an order, the receiving time will be calculated in “hours” instead of “days”. Pre-judgment delivery mode can improve customer loyalty and Amazon's reputation among high-end customers to a certain extent.

7. Conclusion

To sum up, big data has a great influence on the development of publishing industry. In order to realize the stable development of publishing industry, it is necessary to combine with new media technology. By making full use of big data technology to analyze themes, people's appreciation interest can be improved, the quality of information content can be strengthened, users can pay attention to publishing houses stably for a long time, personalized services can be made for readers, and user experience can be improved.

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