On the Key Points for Constructing the Digital Publishing 3.0 Model in the Context of 5G Technology (Postprint)

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Abstract

With the rapid development of information technology, the low latency, high bandwidth, and mobility characteristics of 5G technology have profoundly transformed and disrupted traditional modes of information reception. Especially in recent years, as 5G technology increasingly integrates with various industries and emerging technologies, people' s work and lives have become more convenient, while also generating more complex demands for information acquisition and reading. In the 5G era, the processes, profit models, and marketing systems of digital publishing have been comprehensively transformed. As digital publishing has entered the 3.0 model, establishing a network marketing system and knowledge service platform that aligns with contemporary characteristics and user needs has become a central concern for the publishing industry. Therefore, this paper explores the construction of the digital publishing 3.0 model under 5G technology, aiming to further promote its maturity and widespread adoption.

Full Text

Key Considerations for Constructing the Digital Publishing 3.0 Model in the Context of 5G Technology

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Abstract: With the rapid development of information technology, the low latency, high bandwidth, and mobility characteristics of 5G technology have fundamentally transformed traditional information reception patterns. Particularly in recent years, 5G technology has been increasingly integrated with various industries and emerging technologies, bringing greater convenience to people' s

work and lives while simultaneously generating more complex demands for information acquisition and reading. In the 5G era, the processes, profit models, and marketing systems of digital publishing have been comprehensively transformed. As digital publishing has now entered the 3.0 model, a key focus for the publishing industry is how to establish a network marketing system and knowledge service platform that aligns with contemporary characteristics and user needs. This article explores the construction of the digital publishing 3.0 model under 5G technology, aiming to further promote its maturation and widespread adoption.

Keywords: digital publishing; 5G; 3.0 model; construction strategies

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Leveraging 5G network technology can substantially increase the number of connected users, enabling terminal access to reach millions per square kilometer. When digital publishing utilized 4G technology, limitations on user access capacity meant that when many users simultaneously downloaded or read the same publication through a platform, signal loss could occur. The application of 5G technology can significantly improve this situation. Moreover, due to increased storage capacity, 5G technology can effectively reduce connection costs, which is highly beneficial for enhancing profitability in the publishing industry.

1. Characteristics and Significance of 5G Technology

1.1 Characteristics of 5G Technology

1.1.1 Higher Network Speed Similar to 4G, 5G is a network communication technology, but it employs a new digital cellular network that divides service areas into numerous small zones according to specific patterns, creating a honeycomb-like structure. This architecture far exceeds any network currently used by the public and offers exceptionally high data transmission rates. While 4G network transmission rates typically do not exceed 10M/s, 5G networks can achieve maximum transmission rates of 10G/s, support user experience rates of 0.1-1Gbps, and maintain mobility at speeds over 500Km/h [1]. The adoption of 5G technology will dramatically increase network speeds and transmission rates, facilitating better connectivity between individuals and objects as well as among individuals themselves.

1.1.3 Lower Communication Latency While 4G technology has a latency of 5ms, 5G technology represents a significant improvement with only 1ms latency. The high operating speed of 5G technology reduces power consumption during usage and enables more real-time connectivity between people and objects as well as among people themselves, providing technical assurance for e-book circulation in digital publishing. 4G download rates are limited by communication system capacity; when system capacity is constrained and more electronic users participate, each user receives less bandwidth and experiences longer download times. This often leads to interruptions during downloads after purchasing publications, severely impacting user satisfaction. In contrast, 5G technology can achieve downlink peak rates of 20Gbps. When downloading files of the same size, 5G requires only approximately 1/20th the time of 4G technology [2]. Consequently, the 5G era will substantially improve people' s electronic shopping experiences.

1.2 Significance of 5G Technology

1.2.1 Enhanced User Experience Because 5G technology offers transmission peaks of up to 20Gbps and supports multiple mobile services closely related to daily life, it can simultaneously meet the service needs of multiple users compared to 4G. Additionally, 5G system performance represents a significant improvement over the original 4G technology. With this new technology support, users can enjoy more humanized and integrated reading experiences.

1.2.2 Broader Application Scenarios 5G technology employs ultra-dense networking, enabling precise offloading of mobile communication services and improving existing network environment platforms. This enhances network deployment effectiveness, particularly as the positioning functions of components become increasingly refined. These advancements allow 5G technology to be applied to more scenarios and occasions while maintaining excellent communication quality, providing better communication services for the public. The characteristics of 5G technology indicate that leveraging its high-speed capabilities can unify the characteristics of various mobile communication devices, enabling communication under a unified base station whether on smartphones, tablets, or various electronic bracelets and fitness trackers. In other words, 5G technology can provide network coverage everywhere in people' s work and daily lives.

2. Impact of 5G Technology on Digital Publishing

2.1 Reshaping of Publishing Processes

The development of 5G communication technology has accelerated the digital transformation of the publishing industry, further deepening its integration with new information technologies such as big data and cloud computing. Under this digital transformation trend, publishing processes have undergone tremendous

changes. For instance, in content and layout design, thanks to the information feedback capabilities enabled by big data, topic selection planning has gradually shifted from an experience-based approach to a market-based approach. Publishers have moved from determining topics based solely on planners' personal experience to conducting precise analyses of user behavior feedback and genre preferences to establish user profiles, adopting a "user reading demand-centered" topic selection model [3]. In content production, product presentation has become more diversified, no longer limited to text-based output but also including dynamic publication products such as audio reading and video playback. Furthermore, due to 5G technology' s driving effect on artificial intelligence in terms of data, computing power, and application scenarios, the accuracy of intelligent proofreading has improved significantly, eliminating phenomena such as failing to detect erroneous text or vocabulary or incorrectly marking correct paragraphs—issues common in conventional intelligent proofreading. Publishers' editors can leverage 5G technology to achieve more efficient and convenient human-machine proofreading, freeing themselves from tedious traditional proofreading procedures. Overall, with the assistance of 5G technology, digital publishing topic selection will better align with market positioning, content production will be more intelligent and advanced, editing efficiency will be greatly improved, content promotion will better meet user needs, reading experiences will be more immersive, and digital publishing service processes will become more comprehensive and integrated.

2.2 Changes in User Experience

Due to the substantial enhancement of 5G networks in data retrieval, collection, and feedback capabilities, publishers can more accurately establish user profiles and market models to better satisfy users' personalized and networked reading needs, thereby improving reading experiences. Moreover, because 5G transmission peaks can reach 20Gbps—far exceeding 4G' s maximum asymmetric data transmission capacity—a single network can not only comprehensively carry all existing services but also support multiple HD video streams and meet additional business requirements, such as achieving 4K ultra-high-definition video transmission or synchronized voice reading without delay. These services enable users to gain deeper engagement, immersion, and presence when purchasing products. Publishers can establish a rich and colorful knowledge product world with the help of 5G technology, such as using VR devices to create on-site spatial narrative models. Through live-action playback and scene modeling, users can simultaneously obtain interactive experiences across multiple sensory systems including visual and auditory, allowing them to quickly achieve physiological and psychological immersion by integrating themselves into the scenarios constructed by the product. This creates a three-dimensional, immersive reading experience that is difficult to achieve in traditional digital reading.

2.3 Innovation in Profit Models

With the assistance of 5G technology, publishers can provide users with more diversified services. As these services are deployed, publishers gain diversified consumption channels, and their profit models consequently transform [4]. In traditional profit models, the relationship between publishers and users was primarily a simple commodity transaction, where publishers converted paper books into e-books or created e-book products and sold them directly on network platforms—almost no different from offline sales. In the 3.0 publishing model, publishers have more profit options, such as providing value-added services or membership services that allow users to access multiple electronic products on the same theme simultaneously. Under multi-service models including video performances, e-book reading, and online lectures, users can better understand book information and establish complete knowledge systems and logical relationships, resulting in more comprehensive reading experiences and more diverse revenue streams for publishers. Additionally, publishers can equip digital publications with database services such as article retrieval and knowledge point hyperlinks, enabling users to quickly find needed literature and books after purchase and increase their knowledge reserves. In essence, the development of 5G technology enables the 3.0 model to implement knowledge payment—a profit model difficult to realize in traditional publishing due to technical limitations. By providing personalized knowledge services, traditional paper publishing can introduce knowledge payment: customized personalized knowledge services based on user demand, with corresponding charging items for service content, allowing users to pay for specific items according to their knowledge needs. This service model offers users more diverse and flexible choices while enabling publishers to increase their profit margins.

3. Construction Strategies for Digital Publishing 3.0 Model Under 5G

3.1 Full-Network Coverage Marketing System

In the digital publishing 3.0 model, marketing channels are a crucial component. Publishers must emphasize the management and application of portal websites, self-media positions, and communication platforms such as mobile apps to enhance user engagement and address the problem of single marketing strategies in traditional publications. The prerequisite for online marketing is strengthening website construction—publishing units must properly build and maintain their websites, adding detailed product information, particularly promotional descriptions of various e-books. Website promotion typically includes two major measures: first, increasing industry links, which enables product promotion and publicity through these links, ensures higher website click-through rates, and lays the foundation for search engine promotion; second, improving search engine rankings to ensure increased website traffic. If products or sales pages appear prominently in search results, the probability of potential customers pur-

chasing publishing products can be greatly increased. Publishing units need to conduct targeted and personalized full-network marketing activities for different user groups, enhancing specificity and sustainability from the initial stages of activity planning and project design. In addition to relatively fixed target reading groups, full-network marketing should expand into new fields to attract younger demographics by appropriately incorporating fashionable, innovative, and cutting-edge content into traditional activities to enrich communication spaces and service content.

3.2 Intelligent Reading Experience Platform

In the digital publishing 3.0 model, publishers must keep pace with the times and leverage network dissemination effects. With the development of mobile terminals, publishers have continuously improved their existing service methods, fully utilizing modern technological advantages and publishing resource strengths to provide readers with digital reading services. First, they should adopt an online terminal model, continuously developing and improving mobile clients for publishing product promotion, integrating new media such as WeChat, microreading, and publisher apps into the construction of digital reading platforms to create an "Internet +" reading model adapted to reader needs. Second, they should build three-dimensional smart reading platforms, introduce intelligent technology, create intelligent media reader service consultation centers, emphasize service focus and efficiency, and lay the foundation for optimizing reader services. By introducing AI synthesis technology, publishers can promote the intelligent development of reader services and guide readers toward autonomous service frameworks. Finally, they should implement personalized reading recommendation models, continuously innovating in humanized services and reader participation interactions, promoting characteristic services to meet readers' diverse and differentiated reading needs.

When developing exclusive apps, publishers should also focus on reader traffic. By building a reading service model centered on intelligent media, they can break traditional flat information dissemination patterns and achieve multidimensional, integrated, and deep development goals. Through analysis of 5G technology applications in audience reading needs, publishers can deeply integrate user needs with big data analysis to achieve customized development of reading activities on reading experience platforms. Publishers must integrate reading experience platform backend operation data, mine network data text information, and clarify readers' fundamental needs through data analysis. By combining data on reader traffic duration, demand direction, and content consumption patterns, publishers can achieve reading audience data analysis. Simultaneously, publishers need to create "fragmented" and "precise" reading paths, integrate reading experience platform data, emphasize analysis of reader types and traffic patterns, focus on information dissemination orientation and data development models, and explore relationships between reader traffic, demand value, and service types to promote the precision development of reading

service paths.

3.3 New Media-Centered Dissemination Matrix

With the rapid development of 5G technology, decentralized content production mechanisms represent the primary future transformation trend for publishing units. Based on this trend, publishing units must construct a dissemination system centered on new media matrices. Traditional dissemination methods focus on centralized content production themes, determining dissemination direction according to themes. However, continuing this dissemination model in the 5G era would undoubtedly reduce the powerful data sharing advantages of 5G technology. Therefore, publishers need to create new media-centered dissemination matrices, combining algorithms for reading recommendation and sharing without explicit direction, forming close connections among product authors, editors, and readers, and transitioning from traditional weak interactions to strong interactive relationships.

In the future, 5G technology may realize a user-centered comprehensive information system, enhancing user consumption experiences. Publishers must leverage the dissemination advantages and widespread influence of media to penetrate promotional content into daily life, achieving matching between publishing content and user needs. By enabling real-time retrieval of reading material information, presentation of content, ensuring user presence, producing customized reading materials, and sharing reading information, publishers can form personalized services. Using new media as a dissemination matrix represents an advanced stage in the transformation from traditional to digital publishing. After commercialization of 5G technology, publishers will no longer be simple book producers but cultural service enterprises centered on knowledge content production, distribution, and promotion. Publishers must actively utilize new media to demonstrate their cultural significance and connotation, showcasing their cultural characteristics and product features to the public through media dissemination and diffusion, such as collaborating with digital media to create 5G network VR real-time production and transmission, providing users with better experiences and truly enabling audiences to feel the "dividends" brought by 5G technology [5]. Publishers must leverage the digital social functions of new media to form corresponding cultural social circles through cooperative mechanisms, ensuring real-time understanding of industry dynamics and facilitating the forwarding and diffusion of reading promotion content, thereby achieving resource sharing [6]. Through active interaction, publishers can also enhance readers' favorability toward the platform, facilitating further service promotion.

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Note: Figure translations are in progress. See original paper for figures.