Research on Digital Transformation Pathways for Medical Science and Technology Journal Editing in the Cloud-Based Converged Media Era: Post-print

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Abstract

To ensure that the degree of editorial digitalization can satisfy the requirements of journal digitalization development, this study investigates the digital transformation pathway for editors of medical science and technology journals in the cloud computing-based converged media era. Based on an analysis of the necessity for digital transformation of medical science and technology journal editors, it examines the deficiencies of editorial staff in publishing models and integrated development. Grounded in cloud computing, specific digital transformation pathways are proposed from the perspectives of mindset enhancement, mechanism improvement, and competency development.

Full Text

Research on the Digital Transformation Path for Medical Science Journal Editors in the Cloud Computing-Based Media Convergence Era

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Abstract: To ensure that editors' digital capabilities meet the demands of journal digitalization development, this study investigates the digital transformation path for medical science journal editors within the cloud computing-based media convergence era. Building upon an analysis of the necessity for digital transformation among medical science journal editors, the paper examines existing deficiencies in publishing models and composite development. Grounded

in cloud computing technology, it proposes specific digital transformation pathways from three perspectives: mindset upgrading, mechanism improvement, and competency enhancement.

Keywords: cloud computing; media convergence era; medical science journals; digital transformation; necessity
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With the rapid development of internet technology, media has undergone transformation and ushered in a new era. The media convergence era, which integrates traditional and modern media forms, has delivered undeniable impact to traditional communication industries. In this context, conventional journals continuously innovate to adapt to the new landscape, leveraging modern technology to establish digital journals. Since this shift lacks a transitional phase and significant differences exist between the two journal formats in terms of operations and management, journal editors face heightened requirements. Cloud computing technology, characterized by massive information storage, efficient target information location, and reliable data security, has achieved widespread application across industries, with its convenient and user-friendly features determining its vast customer base. Within the publishing industry, Amazon pioneered the application of cloud computing, utilizing its simple storage service model for enterprise information resource storage and achieving excellent results. This attempt prompted Google, centered on online information search, to formally propose the "cloud computing" concept in 2006, subsequently launching a series of related applications that substantially advanced cloud computing development. Major internet companies led by Microsoft have also shifted their industrial focus toward internet applications based on cloud computing, creating broader industrial space and accelerating digitalization across different sectors. In recent years, China' s continuously improving network technology and breakthroughs in network infrastructure have provided a solid foundation for broader cloud computing application. The Chinese government has also recognized the importance of cloud computing technology in social development, explicitly acknowledging its significance in the national "Twelfth Five-Year Plan" and introducing relevant supportive policies. Under the dual impetus of technology and policy, cloud computing applications in different fields have flourished, with the publishing industry among its coverage areas. Digital publishing has broken the constraints of long information cycles and high costs inherent in traditional journals, rapidly becoming the mainstream development trend in the journal industry through higher storage capacity, lower operating costs, stronger interactivity, and broader information transmission scope. Faced with this transformation in journal publishing, new demands have been placed on editorial staff. In response to industry trends, journal editors must also undergo

digital transformation. Therefore, this paper proposes research on the digital transformation path for medical journal editors in the cloud computing-based media convergence era, aiming to provide valuable reference for editors' digital transformation.

1. Necessity Analysis of Digital Transformation for Medical Science Journal Editors

In the context of continuous cloud computing technology development, information dissemination in the media convergence era demonstrates distinct immediacy, efficiency, and broader coverage. Cloud computing-based publishing for medical science journals encompasses a complete publishing chain that utilizes cloud computing technology for publishing channels, content, and post-publishing services. Confronted with such industrial development, journal editors' digital transformation must proceed across multiple dimensions: content creation, operations management, publishing distribution, and reader services. This transformation is essential for both editors and journals themselves.

1.1 Foundation for Journal Operating Cost Control

Cloud computing-based journal publishing eliminates printing and distribution processes in traditional publishing, reducing not only processing costs but also raw material expenses for paper journals. Correspondingly, editors' digital transformation constitutes the foundation for ensuring smooth implementation. First, editors' digital transformation is fundamental to digital journal operations. Only when editors can effectively utilize the value generated by cloud computing can journal content quality be ensured, breakthroughs in distribution achieved, and effective control over journal operating costs realized. Second, problems reflected through cloud computing technology also require editors to possess digital capabilities for resolution. Optimizing journal resource allocation to improve resource utilization value and reduce costs represents another important approach. Some medical science journals face personnel shortages and funding scarcity during initial development stages. When editorial staff utilize cloud computing technology in publishing processes, they can substantially improve work efficiency, alleviate personnel pressure on publishing houses, and effectively mitigate issues arising from salary expenses. Thus, editors' digital transformation holds significant value for journal operating cost control.

1.2 Necessary Condition for Enhancing Professional Competency

Editors' digital transformation holds important practical significance for improving their professional competency and sustainable development. The development of digital journals inevitably imposes new requirements on editors' digital capabilities. In this context, relevant educational programs have introduced computer-related curricula, meaning that in the new talent market, editorial professionals not only possess specialized skills but can also perfectly adapt to

digital operational demands. The principle of "survival of the fittest" is particularly evident in job competition, and traditional editors who fail to achieve digital transformation will face considerable disadvantage for future development.

1.3 Necessary Condition for Adapting to Industrial Upgrading

Internet development has driven the publishing industry toward digital transformation, with the advantages of cloud publishing platforms in information dissemination becoming increasingly prominent and their numbers gradually increasing. This demonstrates that industrial upgrading for medical science journals is an inevitable trend. While technology service providers and publishers primarily address industrial chain order issues, more fundamental tasks still require editorial staff. As the industrial chain continuously upgrades and involved technologies constantly advance and update, editors must also develop in the digital direction to adapt to these changes and remove obstacles for subsequent work development.

2. Existing Deficiencies

2.1 Relatively Backward Digital Publishing Model

Currently, most medical science journal editors still employ conventional methods in operational processes such as journal positioning, topic planning, editing processing, and journal distribution, with manual operations as the primary approach. This not only demonstrates obvious lag in work efficiency but also yields unsatisfactory results. As journals begin digitalization, the work outcomes of traditional operational models are insufficient to meet journal operational demands and have produced noticeable negative impacts on the timeliness of journal content dissemination. The backwardness of editors' digital publishing models mainly manifests in several aspects. First, during the initial stage of medical science journals entering the digital field, official websites and social media platform public accounts remain underutilized, existing merely as information query functions. Editors have failed to fully activate their potential, with network-based manuscript collection, submission, review, and commissioning processes showing obvious lag and low integration. Second, maintenance of official websites lacks timeliness, with information update efficiency not matching actual journal distribution efficiency, reducing their value and significance. Finally, and most fundamentally, tweet content lacks analysis of readers' actual needs, ignoring reader interests and resulting in unsatisfactory push effects.

2.2 Low Level of Compositing

Composite editors represent a key factor in accelerating journal digitalization development. Only editors who understand both technology and publishing can meet current publishing unit personnel demands. Presently, although journal

editors graduate from specialized institutions, they lack digital operation capabilities and understanding of digital publishing knowledge while possessing high professionalism and academic expertise, with minimal knowledge of information operation models in the media convergence era. Additionally, most Chinese journals exist attached to relevant institutions or units, operating under a "public institution administrative management" model. Scale and economic strength determine their low digital investment, which directly restricts editors' composite development. Beyond this, journal editors generally exhibit low autonomous management capability over digital publishing processes, fundamentally due to insufficient understanding of journals' actual operational conditions.

3. Pathways for Cloud Computing-Based Digital Transformation of Medical Journal Editors

Cloud computing development has accelerated the digital transformation and development of medical science journals. In the media convergence era, editors' digital transformation must focus on data-driven approaches, universal connectivity, platform support, and intelligent leadership, fully leveraging cloud computing advantages to explore efficient and reasonable pathways that accelerate digital transformation pace and achieve innovation and sustainable development. Based on the deficiencies analyzed above, this paper proposes three specific digital transformation pathways grounded in cloud computing.

3.1 Upgrading Mindset Patterns

To achieve digital transformation, editors must first break through conventional thinking patterns, conduct long-term analysis of editorial work content and future value from a more open perspective, consider reader needs in the media convergence context from an internet standpoint, and actively embrace industry development trends. Editors should adapt to the work rhythm of digital journals using cloud computing' s powerful computational capabilities, establishing "fast and high-quality" as the new requirement for editorial work. While thoroughly reversing traditional editorial thinking patterns, they must uphold the journal' s founding purpose, clarify their positioning, and avoid blindly pursuing readership metrics at the expense of the journal' s foundational values under the impact of massive data. To achieve this, editors must first objectively analyze their advantages and disadvantages among similar journals and conduct comprehensive analysis of existing resources and distribution channels. Cloud computing technology can be employed to construct reader profiles for the journal, combining information such as audience characteristics of comparable journals to gain clear understanding of improvement priorities. Leveraging cloud computing' s information retrieval functions also enables timely awareness of the latest and most popular journal publishing formats, providing broader space for editorial work development. Editors' digital transformation should not target only current readers but should capture more readers with a longer-term perspective. Therefore, cloud computing' s data analysis functions can

be utilized to obtain dynamic trend changes in reader-journal interactions and changes in reading habits, making corresponding adjustments to journal content focus, format, and release channels. For instance, as life pace accelerates and time becomes more fragmented, information acquisition methods increasingly favor short, concise video content. Journals can adopt this as a new dissemination channel, promoting journals more extensively through interactive short videos, breaking traditional limitations of journal and website interfaces as entry points, and simplifying communication between audiences and journals. Simultaneously, presenting highly specialized knowledge in accessible forms can improve acceptability, break academic barriers, and enable journals to achieve broader development space.

3.2 Improving Digital Mechanisms

Editors' digital transformation cannot be achieved through editors' efforts alone but requires active cooperation from journal publishing houses. Therefore, the most important step is establishing a cloud-based office mechanism compatible with digital development needs. Editors' digital transformation fundamentally serves publishing houses and journals. If publishing houses themselves lack digital mechanisms, editors' digital transformation can only remain theoretical or be implemented without a "stage for application." Moreover, digital mechanisms constitute the hardware foundation for editors' digital transformation. Cloud computing-based office mechanisms can eliminate spatial restrictions on editorial work, accelerating internal business circulation speed with more flexible scheduling. During digital mechanism establishment, cloud computing' s high operational speed can facilitate rapid transmission of work outcomes from different journal departments, improving response rates between different stages and enabling most efficient information utilization in a tighter environment. In such settings, editorial staff will gradually adapt to digital office modes in their work, achieving digital transformation. Since all medical science journal content is copyrighted, digital mechanisms will to some extent increase information security risks. To address this issue, blockchain technology within cloud computing can encrypt information transmission processes within teams, ensuring that only editorial staff can process and handle information, thereby avoiding disputes and ethical risks arising from copyright issues.

3.3 Emphasizing Digital Literacy Cultivation

Digital literacy encompasses not only the application of cloud computing technology but also the ability to transform and analyze cloud computing results. Traditional medical science journals limited convenience requirements to basic tasks such as topic planning and text processing. However, the arrival of the media convergence era has driven journals toward more diversified development, with editors' digital transformation based on possessing digital literacy to adapt to these changes. Therefore, medical science journal editors must break through professional background limitations, strengthen their perception of changing in-

formation, develop toward composite talent with digitalization as the goal. The development of cloud computing technology has accelerated the arrival of the media convergence era to a great extent, with information dissemination methods gradually shifting from traditional print media, radio, and television to PC clients and intelligent terminals based on the internet. As life pace and reading habits change, journals have entered the digital age. In this context, how journal editors adapt to this transformation and adjust their attributes has become the core issue facing this group. This paper proposes research on digital transformation pathways for medical science journal editors in the cloud computing-based media convergence era, analyzing the important value of cloud computing in editors' digital transformation and identifying editors' deficiencies in the face of journal digitalization development. To compensate for these deficiencies, transformation must be achieved from three aspects: mindset patterns, mechanism construction, and competency enhancement, with specific implementation pathways proposed. Through this research, the paper aims to provide valuable reference for editorial staff development and help them more smoothly adapt to journal development demands in the cloud computing environment.

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