Some Reflections on Reengineering the Publishing Workflow in the Context of High-Quality Development: Postprint

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Abstract

From the perspective of promoting high-quality development of China' s publishing industry and building a strong publishing nation, publishing production capability constitutes a crucial foundation for a publishing powerhouse. From lead typesetting to Chinese character laser phototypesetting, China's publishing production has transitioned from the era of "lead and fire" to the era of "light and electricity." In the current era of rapid development of big data, the Internet, and artificial intelligence, this paper, grounded in business process reengineering theory, reexamines the publishing business process from a high-quality development perspective, subsequently redesigns the publishing business process, and proposes an "Intelligent Publishing Business Process Model" based on extensive experiments conducted by the Founder Electronics technical team and the Integrated Media Editing Experimental Center of Dongbei University of Finance and Economics Press. It then elaborates on five advantages of this model in conjunction with publishing practice. Finally, this paper proposes that future publishing business process reengineering will be guided by collective intelligence, grounded in structured data editing, and centered on knowledge graph construction as the core development direction.

Full Text

Preamble

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Reflections on Publishing Process Reengineering in the Context of High-Quality Development

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Abstract: From the perspective of promoting high-quality development and building a strong publishing nation in China, publishing production capacity constitutes the fundamental foundation of a publishing powerhouse. The transition from lead typesetting to laser phototypesetting of Chinese characters marked China' s evolution from the "age of lead and fire" to the "age of light and electricity." Today, with the rapid development of big data, the internet, and artificial intelligence, this paper reexamines publishing business processes from a high-quality development perspective based on business process reengineering theory, subsequently redesigning these processes. Drawing upon extensive experimentation by the Founder Electronics technical team and the Integrated Media Editorial Experimental Center of Dongbei University of Finance and Economics Press, we propose an "Intelligent Publishing Business Process Model" and elaborate on its five key advantages in conjunction with publishing practice. Finally, we suggest that future publishing process reengineering should be guided by collective intelligence, grounded in structured data editing, and centered on knowledge graph construction as its core development direction.

Keywords: publishing process; intelligent publishing; artificial intelligence; integrated media; intelligent proofreading

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2. Redesigning the Publishing Business Process: "Three Integrations and One Platform"

A publishing powerhouse is characterized by strong political orientation, robust content, high production capacity, and effective dissemination—a comprehensive manifestation of these strengths.[1] Undoubtedly, production capacity represents one of the fundamental criteria for a strong publishing nation, and the key factor constraining its improvement is publishing process reengineering. In the internet era, the subjectification of reader consciousness, the generalization of publishing entities, and the fragmentation of reading behaviors all demand highly efficient publishing workflows. During the COVID-19 pandemic in 2020, the inadequacy of traditional publishing business processes became particularly evident, making process reengineering a focal point for publishing enterprises. Business process reengineering involves fundamental rethinking and radical redesign of workflows

to achieve significant improvements in critical performance indicators such as quality, efficiency, cost, and service.

Based on this rethinking, publishing process redesign must achieve "Three Integrations and One Platform." First, deep integration between publishing professionals and artificial intelligence, particularly in editing, proofreading, and typesetting processes, will substantially liberate human productivity. Second, unified integration of technical platforms for author writing, editorial processing, design and typesetting, review and proofreading, and data structuring. In traditional publishing, the lack of unified platforms and system transitions across these stages critically impacts quality and efficiency—for instance, authors using Word, designers using professional typesetting tools, and editors working on paper. Such platform fragmentation prevents synergistic effects across stages. Third, cross-boundary integration of editorial roles. China' s "Regulations on Book Publishing Management" stipulates that "book publishing implements an editorial responsibility system to ensure content complies with national laws," while the "Basic Procedures for Book Proofreading" explicitly elevates "error detection" as proofreading' s primary function. Therefore, defining and integrating editorial roles should form the core of process redesign. All three integrations —human-AI integration, platform unification, and editorial role convergence— must be built upon a unified intelligent cloud publishing platform.

1. Rethinking the Publishing Business Process: High-Quality Development

The premise for rethinking publishing workflows is promoting high-quality development in the publishing industry. From this perspective, we identify six key considerations. First, the core objective is continuously improving content quality, editorial quality, design quality, and printing quality. Second, to ensure such improvements, the entire process must rigorously implement regulations such as "Three Reviews and Three Proofreadings plus One Reading," "Responsible Editor," and "Responsible Proofreader" systems. Third, workflow design must embody the new development concepts of innovation, coordination, green development, openness, and sharing. Fourth, processes should reflect deep media integration, achieving digitization and datafication of content to accommodate evolving reading habits. Fifth, workflow design should be human-centered, enhancing editors' sense of job security, happiness, and professional honor. Sixth, processes must adapt to environmental transformations, including technological changes brought by big data and AI, business model shifts due to COVID-19, and reading habit changes driven by mobile devices.

Based on these considerations and extensive experimental data from the Integrated Media Editorial Experimental Center of Dongbei University of Finance and Economics Press and the Founder Electronics technical team, we propose the "Intelligent Publishing Business Process Model" (see Figure 1 [Figure 1: see original paper], hereinafter referred to as the Intelligent Publishing Model).

3. Advantages of the Intelligent Publishing Business Process Model

The proposed Intelligent Publishing Model offers the following advantages:

3.1 Redefining the Manuscript

The concept of "manuscript" has evolved with technological advances. When editors worked on authors' handwritten drafts, the handwritten version served as the manuscript; when editing authors' Word files, those electronic documents became the manuscript. In our Intelligent Publishing Model, the responsible editor works on an electronically typeset draft (hereinafter "refined manuscript") that has undergone pre-review by the planning editor and precision typesetting by technical editors, with layout confirmed by the author. This refined manuscript, processed through intelligent proofreading, technical typesetting, and proofreading consolidation, eliminates basic textual and formatting errors. Having passed planning editor pre-review and author confirmation, it better fulfills the "complete, clear, and finalized" requirement, laying a solid foundation for subsequent quality and efficiency improvements.

3.2 Full Compliance with "Three Reviews and Three Proofreadings plus One Reading" Regulations

The Intelligent Publishing Model implements four stages: planning editor pre-review, responsible editor initial review (editorial processing), re-review, and final review, with each stage's responsibilities executed according to national regulations. Following the "Basic Procedures for Book Proofreading" issued by the China Publishing Association, "error detection" has become modern proofreading's primary function, and human-machine collaborative proofreading can achieve complementary advantages. When properly implemented, computer proofreading can effectively replace one proofreading round. In our model, computer intelligent proofreading, dedicated proofreader technical consolidation, reading editor comprehensive reading, and quality control editor inspection fully satisfy the three-proofreading requirement. The final print proof reading is conducted by the responsible editor as stipulated.

3.3 AI as the Core Engine for Quality and Efficiency Enhancement

Intelligent proofreading, intelligent comparison, and intelligent typesetting can address regular, repetitive, and simple tasks in publishing. Intelligent proofreading corrects basic political terminology errors, textual symbol mistakes, and duplicate content. Intelligent comparison rapidly identifies differences between any two manuscript versions, completely replacing manual parallel proofreading and red-mark checking. Intelligent typesetting automates layout using templates, currently achieving over 60% automation efficiency. As the core engine of the Intelligent Publishing Model, AI not only rapidly improves publishing efficiency but also reliably resolves numerous content errors and inconsistencies,

liberating editors, proofreaders, and typesetters to focus on more core editorial work.

3.4 The Return of Editors and Enhanced Value of Editorial Work

AI enables both "reduction" and "empowerment" for editors. "Reduction" means decreasing editors' attention and pressure on regular, pattern-based tasks such as formatting, style, characters, punctuation, numerals, and units, allowing them to focus on political, knowledge-based, logical, factual, and grammatical errors, thereby increasing the value of editorial work. "Empowerment" means endowing editorial work with new dimensions. In the Intelligent Publishing Model, traditional typesetters evolve into technical editors who not only handle typesetting but also rectify design oversights and standardize layout formats. Copy editors must not only address political, factual, and grammatical errors but also monitor disciplinary developments and professional knowledge, evolving into subject editors or academic editors. Similarly, planning editors should expand their focus from topic selection to marketing, further developing into project editors.

3.5 Genuine Digital Transformation of Publishing Workflows

Built upon a unified online intelligent cloud publishing platform, the Intelligent Publishing Model enables editorial work unrestricted by time or space, truly achieving digital transformation of publishing workflows in the post-pandemic era. The platform can output files in multiple formats including EPUB, Word, XML, and PDF, effectively supporting diverse product forms such as e-books and databases. Moreover, analyzing the substantial process data accumulated during production can further enhance editorial efficiency and publishing quality.

4. Recommendations for Future Development of Intelligent Publishing Workflows

Technological transformation never ceases, and neither does digital reengineering of publishing workflows. From an economic perspective, the essence of publishing may represent today' s reproduction economy, tomorrow' s knowledge economy, and the day after tomorrow' s sharing economy, depending on different technological contexts. However, big data and AI undoubtedly constitute the most important technological transformations affecting digital innovation in publishing workflows.

Big data will continuously drive the digital transformation of traditional publishing. The establishment and application of content big data and user big data are also essential for optimizing publishing business processes.

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