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Navigating the generative frontier: adoption, challenges, and strategic realignment of GAI in the Chinese publishing industry

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Abstract

Introduction. Generative artificial intelligence (GAI) is reshaping knowledge-intensive sectors, yet empirical research on its organizational adoption within non-Western contexts remains scarce. This study investigates GAI integration in the Chinese publishing industry using the technology-organization-environment (TOE) framework.

Method. A mixed-methods approach was employed, involving 44 semi-structured interviews with senior managers from specialized, university, and comprehensive publishers, alongside digital culture groups. Data collection occurred between April and October 2024.

Analysis. Qualitative data underwent hybrid thematic analysis to generate a codebook. These data were then quantised into a binary matrix, and statistical methods, including one-way ANOVA, were used to examine relationships and variations across publisher types.

Results. Findings reveal cautious optimism constrained by tool immaturity and copyright ambiguity. A strategic divergence emerged: specialized and university presses prioritize accuracy amidst resource constraints, while digital groups leverage investments to reshape the ecosystem.

Conclusion. The industry faces a tension between efficiency goals and structural barriers like the ‘versatile talent’ gap and legal uncertainty. Future strategy depends on evolving from content production to intelligent data provision.

Introduction

Since the launch of AI-powered ChatGPT in 2022, the rise of generative artificial intelligence (GAI) technology has been continuously applied across various industries. As a content-centric cultural industry, the publishing industry is one of the sectors significantly impacted by it. Just as the digitization process of the publishing industry evolved at the turn of the century, scholarly publishing was the first to engage with GAI in an intimate and in-depth way. Scholarly publishers such as Elsevier and Springer Nature have begun to adopt the GAI tool and to develop a specification of principles. Moreover, due to technological advances and adaptive development of tools, the publishing field is increasingly accessing GAI technology for more content types and business types. GAI has become a strategic imperative for China's publishing industry over the past three years, leading a number of publishers to anchor their future industrial strategies around its adoption. BOOKSGPT, a Chinese GAI model specializing in serving the publishing industry, provides a full chain of services covering planning, editing, and distribution for more than 300 publishers in China, and has cumulatively helped to create nearly 2.07 billion dollars of actual revenue.

Technology can undoubtedly improve efficiency, but business requires complex considerations. The extent to which Chinese publishers have integrated GAI, and the factors influencing these decisions, remain largely underexplored. Contextualized within the global GAI boom, China's supportive policy environment, and the publishing industry's active embrace of transformation, investigating the specific pathways of this adoption is of high research value. This study aims to conduct an in-depth survey of Chinese publishers, so as to clarify the current development stage of AI practice in China's publishing industry and identify the reference value of the practical experience gained therein.

Literature review

GAI in culture industry

GAI is reshaping the cultural and creative industries (Amankwah-Amoah et al., 2024). Distinct from conventional automation technologies, GAI possesses the capability to produce multimodal outputs exhibiting a degree of originality, including text, images, audio, and video. Moreover, GAI offers advanced tools that enhance production processes by minimizing redundant efforts and increasing innovation efficiency within these sectors (Mondal et al., 2023). Consequently, GAI has already instigated significant transformations in domains such as artistic creation, film and television, and game design and publishing (Johansen & Mourath, 2024; Oberting, 2024; Shi et al., 2023).

Current scholarly inquiry into the specific applications of GAI in the cultural and creative industries concentrates on three principal themes. First, investigations into the underlying technical mechanisms of GAI aim to delineate its capabilities and chart its potential applications and technological prospects within cultural contexts. Cui (2025) highlights that GAI substantially strengthens the positive relationship between digital innovation and digital transformation in media organizations. Suri et al. (2024) observe that GAI markedly enhances productivity in the media, marketing, and entertainment sectors by autonomously generating diverse content formats, thereby reducing production time, fostering innovation, and enabling personalized content creation. Second, research addresses the risks associated with GAI deployment, including intellectual property disputes, the propagation of misinformation, and disruptions to the labor market. Amankwah-Amoah et al. (2024) emphasize that while GAI, as a collaborative instrument, can facilitate novel creative pathways, preserving the human element and authenticity in creative outputs remains a critical concern. Third, studies adopt a micro-level perspective by examining creative professionals' perceptions, attitudes, and usage behaviors concerning GAI. Lim et al. (2025), employing the theory of affective cognition and evaluation, found that advertising

professionals' acceptance of GAI is shaped not only by its functional advantages and perceived risks but also by their emotional responses and cognitive appraisals.

Nonetheless, there exists a notable paucity of empirical research at the meso-level concerning the integration of GAI within organizational and business contexts. Limited attention has been devoted to investigating how GAI is embedded within organizational structures, workflows, and governance mechanisms. This research gap is especially evident within the publishing sector. Presently, generative AI serves as a pivotal tool for publishers, supporting a wide array of functions throughout the publishing process, including content planning, text exploration, image editing, plagiarism detection, promotional marketing, and content customization (Ganjavi et al., 2024). Despite this, scholarly inquiry into the application of GAI in the publishing industry predominantly remains at the macro level, focusing on potential use cases and associated risks (Amankwah-Amoah et al., 2024). Empirical studies examining the actual implementation and operationalization of GAI within publishing organizations are notably scarce.

TOE framework in culture industry

The technology - organization - environment (TOE) framework, introduced by Tornatzky and Fleischer (1990), is widely acknowledged as a seminal model for examining technology adoption and innovation at the organizational level (Oliveira & Martins, 2011). The framework delineates three interrelated contexts: the technological context, which includes both internal and external technologies relevant to the firm, encompassing existing technical infrastructure as well as the availability and attributes of innovations in the market; the organizational context, which pertains to internal characteristics such as firm size, managerial structure, communication mechanisms, and slack resources that may facilitate or hinder innovation; and the environmental context, which captures the external environment in which the organization operates, including industry features, competitive dynamics, regulatory frameworks, and the broader technology-support infrastructure. Collectively, these dimensions offer a comprehensive perspective on how internal and external factors interact to influence organizational decisions regarding the adoption and implementation of new technologies.

Due to its integrative approach to multilevel determinants, the TOE framework has been extensively employed in empirical research on the adoption of emerging technologies at the firm level, including cloud computing (Gangwar et al., 2015), blockchain (Kouhizadeh et al., 2021), and other advanced technologies (Wallace et al., 2020). In relation to artificial intelligence (AI), the framework has been applied across diverse sectors such as hospitality and tourism (Shah Alam et al., 2024), construction (Na et al., 2022), healthcare (Nevi et al., 2025), and apparel manufacturing (Qu & Kim, 2025). Furthermore, TOE's applicability has been demonstrated across various national contexts, with empirical studies conducted in countries including Malaysia (Jais et al., 2024), Ghana (Addy et al., 2024), and Germany (Weiss et al., 2025).

The framework's explanatory capacity is further evidenced in studies within cultural and creative industries. For instance, Yang et al. (2024) integrates the TOE framework with constructs of perceived value and ethical concerns to explore the adoption of AI-driven creative advertising technologies in China, revealing that perceived usefulness, perceived control, firm innovativeness, and competitive pressure exert significant direct influences on adoption behavior. Similarly, Ersoy (2024) investigates the determinants of generative AI adoption in game art asset production by employing a mixed theoretical approach combining TAM, IDT, and TOE frameworks, identifying relative advantage, compatibility, managerial support, and external competitive pressure as key organizational-level factors.

In summary, by systematically articulating the technological, organizational, and environmental dimensions, the TOE framework provides a versatile, comparable, and operational analytical lens for understanding technology adoption at the meso (organizational) level. Its application across a

wide range of industries and geographic settings elucidates the conditions under which organizations decide to adopt and implement new technologies, thereby furnishing a robust theoretical foundation to inform managerial decision-making and policy formulation.

Method

This study employs a mixed-methods approach, integrating both qualitative and quantitative analysis techniques in parallel. To first explore the rich, nuanced perspectives of publishers and then systematically quantify the frequency, prevalence, and relationships between these perspectives across the entire sample.

Qualitative analysis

Structured Interview

This study employed a purposive sampling strategy, initially selecting 50 publishers of various types and tiers. Following screening and outreach, 44 institutions were ultimately included. Detailed profiles are provided in Attachment 1. The final sample comprised 15 specialized publishing houses, 15 university presses, 8 comprehensive publishing houses, and 6 digital culture groups. The interviewees primarily consisted of high-level decision-makers and core practitioners, such as Directors of Digital Media Departments, ensuring that the collected data reflects both strategic foresight and operational reality.

This stratification was designed to reflect the broader publishing ecosystem, aiming to capture the distinct strategies and challenges exhibited by diverse entities with varying core missions, content characteristics, and business models. The semi-structured interviews were guided by the TOE framework and focused on three core dimensions (see Attachment 2): (1) GAI Application, (2) Impacts and Challenges, and (3) Strategic Transformation in the AI Era. And the guide was developed based on the TOE framework and existing literature on GAI adoption. A pilot study was conducted with two industry experts to refine the questions before the full-scale study.

Data collection spanned from April to October 2024. Interviews were conducted via face-to-face meetings, online video calls, or written correspondence, depending on participant availability, with sessions lasting 30 to 60 minutes. Informed consent was obtained from all participants prior to the interviews. To protect confidentiality, all institutions and interviewees were anonymized and assigned unique identifiers during the analysis. Informed consent was obtained from all participants. All sessions were audio-recorded, and manually verified for accuracy.

Thematic analysis

Thematic analysis constitutes a versatile, yet methodologically rigorous qualitative technique employed to identify, analyze, and interpret recurring patterns of meaning (themes) within textual datasets, such as interviews, documents, and open-ended survey responses (Braun & Clarke, 2006). This method is applicable across a broad spectrum of theoretical and epistemological frameworks (Nowell et al., 2017). The primary objective of thematic analysis is to produce a comprehensive, nuanced, and multilayered qualitative account. The significance of a theme is not determined by its frequency of occurrence but rather by its explanatory relevance and breadth in relation to the research question. This approach integrates both semantic (explicit) and latent (implicit) meanings to maintain the contextual integrity of the data.

The processes of coding and theme development may be conducted inductively (bottom-up), deductively (theory-driven, top-down), or through a hybrid approach that synthesizes both strategies (DeJonckheere et al., 2024). In inductive thematic analysis, the procedure is data-driven, whereby codes and themes emerge directly from the dataset without being constrained by pre-existing theoretical frameworks, models, or hypotheses. Conversely, deductive thematic analysis is characterized by its theory-driven nature, wherein the analysis is directed by an a priori theoretical framework and informed by existing domain knowledge, established models, or

predefined theoretical constructs (Braun & Clarke, 2006). The hybrid approach to thematic analysis combines elements of both inductive and deductive methods. It employs an initial coding scheme or codebook to guide the analysis while remaining open to the incorporation of emergent codes and subthemes that extend beyond the original framework (Proudfoot, 2023). This approach facilitates alignment with extant theories or models while simultaneously enhancing analytic flexibility and sensitivity. Such a strategy is particularly advantageous for research endeavours that seek to integrate established theoretical perspectives with empirical data exploration (DeJonckheere et al., 2024).

Given the established body of research on firm-level technology adoption (Oliveira & Martins, 2011), the factors influencing adoption—even in the context of emerging technologies—primarily align with the dimensions outlined by the TOE framework (Saghafian, 2021). Furthermore, previous investigations have confirmed the TOE framework's robustness as an analytical tool across diverse national and industrial settings. Nonetheless, the technological environment is undergoing rapid transformation; notably, GAI constitutes a significant advancement relative to prior information technologies, and the dynamic nature of associated practices may transcend a strictly predefined interpretation of TOE categories. In response, this study adopts a hybrid thematic analysis approach that integrates both deductive and inductive methods: an a priori codebook informed by the TOE framework guides the initial theory-driven coding to maintain conceptual clarity and facilitate cross-case comparison, while simultaneously allowing for reflexive, inductive identification of subthemes when empirical data from interviews extend beyond or challenge the established TOE domains.

Quantitative analysis

The codebook derived from theme analysis provides a starting point for the quantised content analysis. Each of the 44 interview documents was read thoroughly. When a phrase, sentence, or paragraph in an interview addressed a topic defined in the codebook, it was identified. For each publisher (case), and for each code in the codebook, a binary value was assigned. A '1' was recorded if the publisher's interview contained at least one thematic segment matching the code's definition. A '0' was recorded if the topic was not mentioned. The results were compiled into a binary matrix, where each row represents a publisher, and each column represents a specific code from the codebook. The final value and proportion obtained by summing up the figures for publishers under each code represents, to a certain extent, the situation of the publishing industry in each respective aspect. Specific information is available in Attachment 3.

Results

Guided by the TOE theory, this study conducted thematic analysis on 44 interview transcripts to explore the influencing factors of GAI application and innovation within the publishing industry, particularly focusing on the varying decisions and performance across different types of publishers.

Codebook based on the TOE theory

This study adopted an iterative development process combining a theory-driven deductive approach and a data-driven inductive approach.

Deductive code generation

A substantial body of empirical research has investigated the organizational adoption of (generative) AI through the lens of the TOE framework or institutional theory, spanning diverse countries, industries, and methodological approaches. For instance, Horani et al. (2025), employing a combined DOI and TOE framework and surveying 512 IT/IS executives in Jordan, identified positive influences of factors such as relative advantage, top management support, cost-benefit analysis, competitive pressure, vendor support, compatibility, alignment with AI strategy, and

resource availability on the intention to adopt AI. In the telecommunications sector in China, Chen et al. (2021) integrated TOE and DOI frameworks and utilized structural equation modeling (SEM) to demonstrate that environmental support, organizational resources, and attributes of AI innovation significantly impacted adoption decisions. Concentrating specifically on generative AI, Agrawal (2024) merged TOE with institutional theory and DOI, revealing that technological compatibility, an innovation-oriented organizational culture, and industry competitive pressure serve as primary determinants of adoption. Additionally, Hradecky et al. (2022), applying a TOE framework combined with the Technology Readiness Index and conducting elite interviews with executives from the meetings and exhibitions industry across nine Western European countries, identified organizational confidence and readiness for technology, financial resources, firm size, and data management and protection as critical enablers or constraints.

A synthesis of this literature indicates that the most consistently supported technological factors include relative advantage, cost-benefit considerations, compatibility, and data-related readiness and safeguards. Organizational factors encompass top management support, resource capacity, strategic alignment, an innovation-oriented culture, and firm size. Environmental factors comprise competitive pressure, vendor, or external support, and broader environmental or policy support. These constructs informed the development of our a priori codebook, aligned with the TOE framework, for deductive coding purposes; the initial codebook and representative sources are presented in Table 1.

Dimension	Main Codes Reference
Technology	Relative advantage (Ramdani et al., 2009; Horani et al., 2025); Compatibility (Hradecky et al., 2022); Simplicity (Awa et al., 2017). Perceived values (Yang et al., 2024). Perceived cost (Horani et al., 2025; Hussein et al., 2020)
Organization	Management support (Huang et al., 2008). IS/IT expertise & infrastructure (Lin & Lin, 2008; Donmez et al., 2025). Firm size (Na et al., 2022); Competence & training (Alkhater et al., 2018). Organization culture (Prasad Agrawal, 2024)
Environment	Competitive pressure (Donmez et al., 2025). Regulatory environment (Na et al., 2022). Market and trading partners (Awa et al., 2017; Chen et al., 2021). Customer pressure (Ganguly, 2024);

Table 1. Deductive code generation.

Inductive code generation

Two researchers independently conducted open coding on a random subset of 16 interviews to identify emergent themes and concepts as sub-code, especially those not covered by the deductive code. And specific concepts such as '*versatile talents*' and '*industry alliances*' were frequently identified. These bottom-up emergent codes, as some representative examples outlined in the Table 2 below, authentically reflect the unique contextual dynamics and core concerns of China's publishing industry in response to GAI. This ensures the coding scheme is grounded in the data.

Sub-code	Frequency	Sub-code	Frequency
Copyright ownership	70	Need for 'versatile talent'	53
Improve efficiency	46	Insufficient content quality	45
Risk of copyright infringement	32	Content review mechanisms	27
High costs	26	Data security	22
Cooperation with technology companies	18	Provide internal training	18
Formulate laws and regulations	17	Unclear business model	15
.....			

Table 2. Inductive code generation.

Codebook finalization

First, the inductive codes were integrated into the corresponding codes of the deductive code, with main code that containing a higher frequency of inductive codes being formally retained; second, for issues that were not fully covered by the theoretical framework but repeatedly emerged in interviews, they were added as new codes; finally, all codes were rephrased and clearly defined, with explicit definitions and connotation explanations written for each sub-code. Thus, the deductive and inductive codes were merged into a single, comprehensive codebook, see Attachment 4.

The two researchers used the finalized codebook to independently code another random subset of 12 interviews (27% of the sample). Cohen's Kappa (κ), a robust statistical measure of agreement, was calculated to be 0.74, indicating good consistency in the coding process.

GAI adoption and application in China's publishing industry

Based on the codebook, this study converts interview data into a structured quantitative matrix, simultaneously presenting interviewees' expressions and data evidence, to better explain the specific circumstances of GAI in the publishing industry.

Technology

The publishing industry perceives more advantages than disadvantages of GAI, which indicates a generally positive expectation for the prospects of this technology. However, there is also a gap between its actual tool capabilities and the ideal application scenarios.

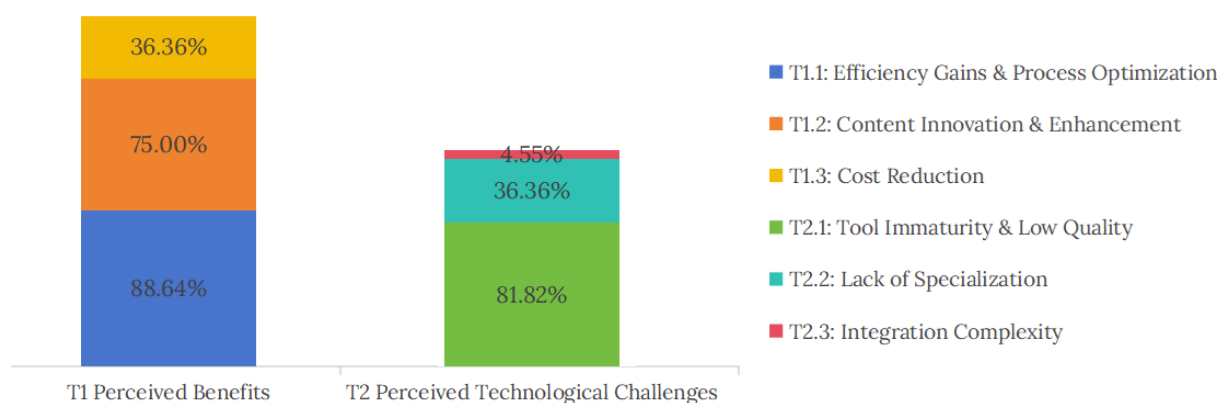


Figure 1. Overall results of the technology dimension.

Efficiency and innovation have become core driving forces. The vast majority of publishers (88.64%) mentioned the role of GAI in efficiency improvement, and a majority (75%) also focused on its potential for content innovation. It is evident that the industrial driving force brought about by technological upgrading has always been the primary factor.

In the early stage of topic planning, AI tools are used to generate multiple versions of sample manuscripts and content outlines. Based on these, communication is conducted with intended authors, which not only improves communication efficiency but also enables targeted rapid adjustment and optimization of the content structure of the initial manuscript. (Publisher 17)

Immature tools are the primary technical bottleneck. However, a considerable number of publishers (81.82%) have pointed out that current GAI tools are immature and believe that the accuracy and stability of the content generated by GAI are far from meeting the professional standards required for publishing. Meanwhile, some publishers (36.36%) argue that general large models lack professional depth and struggle to meet the highly specialized requirements of specific domains. *'In terms of proofreading, the accuracy rate is perceived to be relatively low. Especially for professional manuscripts, AI is unable to provide effective support.'* (Publisher 28)

Unclear cost-value conversion. While a small number of publishers (36.4%) mentioned cost reduction, this proportion is far lower than that of efficiency improvement. Furthermore, on this point, the investment in GAI is very likely not included in the cost considerations. This reveals a key issue that the efficiency improvement brought by GAI at present has not yet been effectively converted into quantifiable cost savings, and its business value loop remains unformed. *'The application of intelligent review has freed up significant human resource costs and shortened the review time'* (Publisher 08). *'But there are still issues such as high sunk costs in testing new applications'* (Publisher 06).

Organization

As the most typical organization in the publishing industry, publishers have reached a consensus on their urgent need for new-type talents. However, their corresponding organizational reforms and resource investment appear relatively slow.

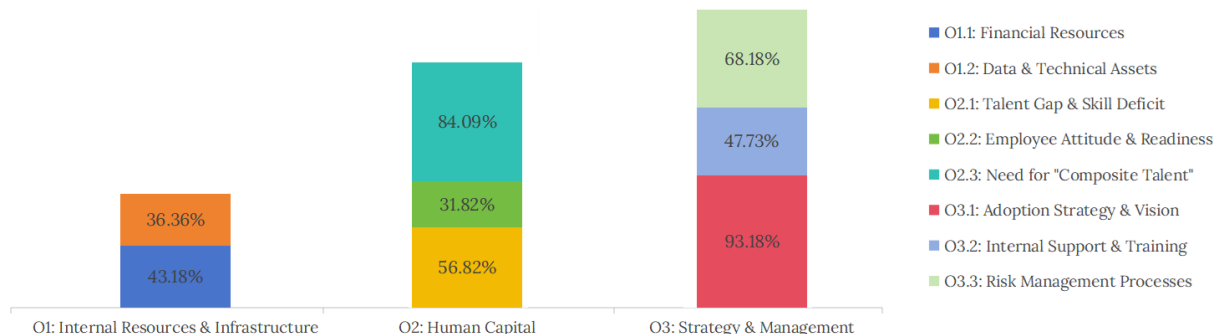


Figure 2. Overall results of the organization dimension.

Versatile talents have become the biggest pain point. The vast majority of publishers (84.1%) have expressed demand for versatile talents, requiring employees to possess comprehensive capabilities in *'content + technology + market.'* Meanwhile, half of the publishers (56.8%) have directly pointed out the current talent gap. This indicates that human capital has become a key bottleneck restricting the in-depth application of GAI in the industry.

'In the AI era, the requirements for human competency models are completely different, and inherent human capabilities such as creativity, communication, decision-making, and judgment have become more important.' (Publisher 39)

Internal support systems are disconnected from talent needs. In contrast to the widespread talent anxiety, only half of the publishers (47.7%) mentioned having established clear internal support/training mechanisms. This reflects a disconnection between awareness and action at the organizational level for most publishers—they generally recognize the importance of talent, yet

have not established a systematic talent development and empowerment system. ‘An AI team has been established, consisting of more than ten editors from multiple editorial departments. In the future, they will serve as communicators and trainers for AI applications within the departments’ (Publisher 43).

Resource investment and risk management go hand in hand. Financial resources are a barrier for some publishers (43.2%), while most have begun to focus on risk management processes (e.g., manual review). This shows that as traditional content gatekeepers, publishers (68.2%) generally adopt an extremely prudent risk avoidance strategy while investing resources in technological exploration. ‘The first difficulty is the high development cost. For instance, the cost of training a large model with 100-billion-level parameters once may reach tens of millions of US dollars’ (Publisher 42).

Environment

Although GAI is widely recognized as a business endeavor requiring high investment, with no mature development paths or business models yet in place, uncertainties in laws and regulations in the external environment—copyright issues in particular—are more pressing concerns and act as a ‘Sword of Damocles’ hanging over the entire industry.

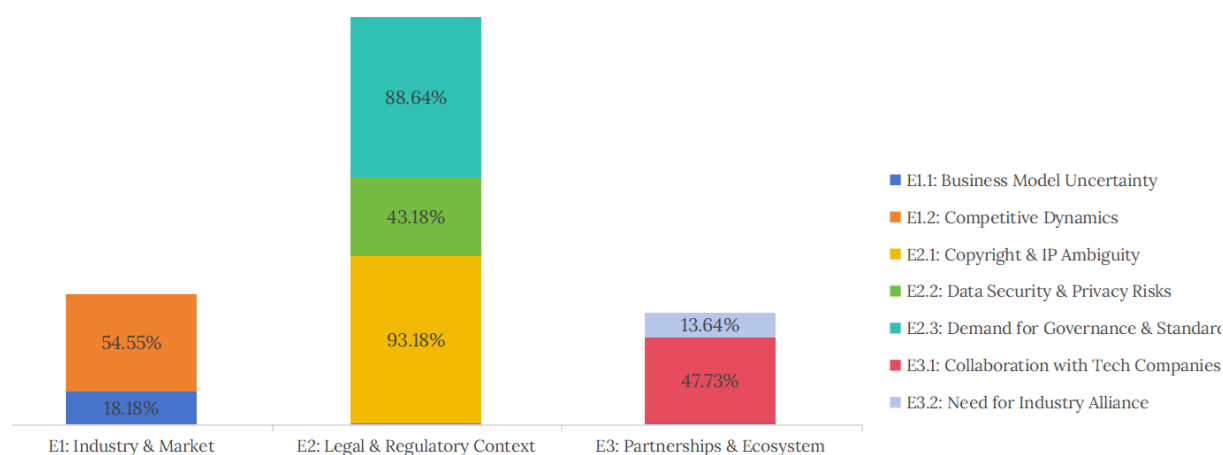


Figure 3. Overall results of the environmental dimension.

Ambiguous copyright has become an overwhelming consensus. Nearly all publishers (93.17%) regard ambiguous copyright as a core risk. Issues such as the copyright legality of GAI training data and the ownership of rights to generated content have brought significant uncertainty to publishing houses in terms of content production and usage, greatly dampening their willingness to apply GAI in depth.

The issue of copyright protection has not been given sufficient attention. High-quality corpora are crucial for large model training; however, it is impossible to identify which books have been used as corpora for training in practical application scenarios, and the generated content also fails to specify citation sources and references. (Publisher 09)

The industry generally calls for top-level governance. Alongside copyright anxiety, most publishers (88.64%) have expressed a strong demand for governance and standards. The publishing industry generally hopes that the state and competent authorities will introduce clear laws and regulations, industry standards, and data usage norms as soon as possible, providing a stable and predictable external environment for the healthy development of GAI-related businesses.

‘The Publishing Bureau shall put forward clear administrative guidance on how published content is applied to large model training, based on the Interim Measures for the Administration of Generative AI Services.’ (Publisher 05)

Data security and technological cooperation have become focal points. Data security & privacy risks (43.2%) and collaboration with tech companies (47.7%) are also important environmental issues. The former reflects publishers’ awareness of protecting their core content assets, while the latter indicates that publisher-enterprise cooperation has become one of the main models for current technological application.

GAI requires substantial data support, yet the quality and security of the data are directly tied to the quality and stability of publishing operations. How to securely import external data and prevent internal data from leaking outward has become a crucial criterion for us when evaluating third-party technology platforms. (Publisher 23)

Comparative analysis of different types of publishers

When analyzing the impact of GAI on the publishing industry, treating the entire industry as a homogeneous entity will obscure the significant differences among its internal stakeholders in terms of strategic motivations, resource endowments, core challenges, and adoption paths. To conduct a more accurate and in-depth comparative analysis, this study classifies the surveyed entities into four representative categories—specialized publishing house, university presses, comprehensive publishing house, digital culture groups, and cultural and technology companies.

A one-way analysis of variance (ANOVA) was conducted to examine the variations across these groups. The results indicate that while these four types of publishers differ in their specific considerations regarding GAI operations (see Figure 4), there are no statistically significant differences ($p > 0.05$) among them in terms of the technological, organizational, and environmental dimensions (see Table 3).

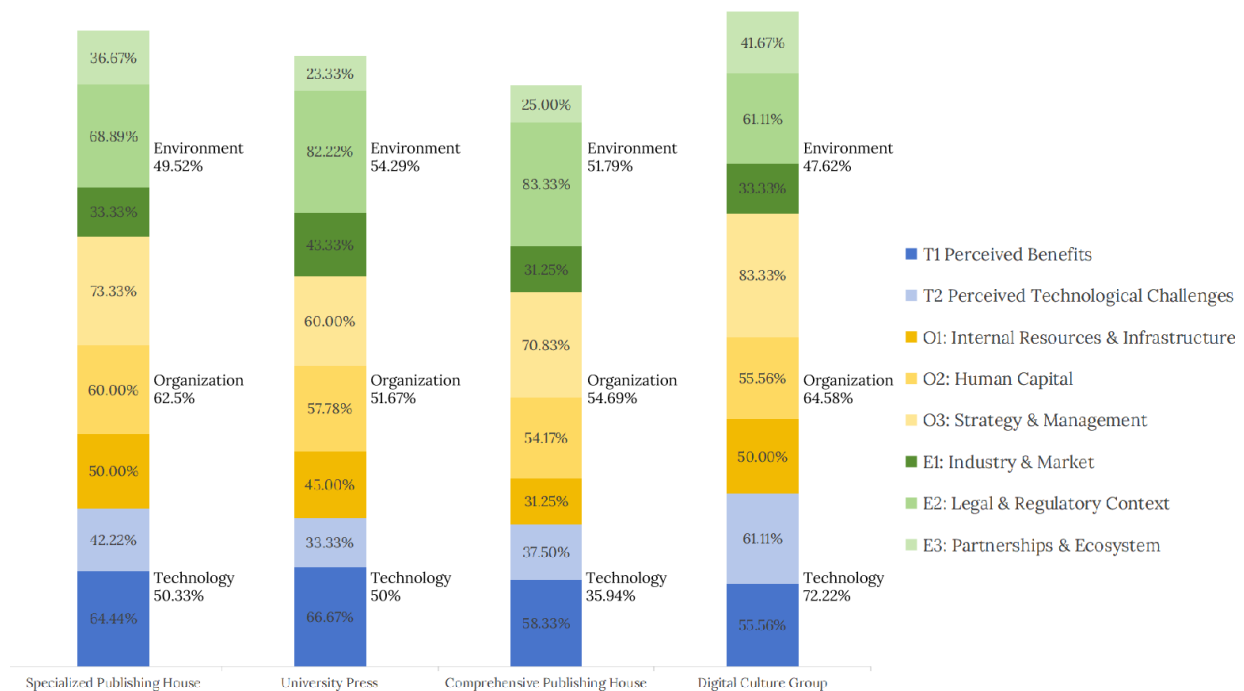


Figure 4. Overall results of the four types of publishers.

Variation	SS	df	MS	F	P
Technology	1.145	3	.382	.260	.854
Organization	.557	3	.186	.083	.969
Environment	1.295	3	.432	.273	.845

Table 3. Analysis of variance for T-O-E dimensions.

Nevertheless, One-way ANOVA revealed statistically significant differences ($p < 0.05$) in a very small number of sub-items under the three dimensions (see Table 4). Subsequent post-hoc multiple comparisons further indicated that (see Table 5): in the technological dimension, digital culture groups differ significantly from other publishers in their considerations of AI operations regarding costs and professionalism; in the environmental dimension, university presses differ significantly from other publishers in their considerations of AI operations related to risk management.

Variation	SS	df	MS	F	P
T1.3: Cost Reduction	1.807	3	.602	2.877	.048*
T2.2: Lack of Specialization	3.307	3	1.102	6.413	.001**
O3.3: Risk Management Processes	1.879	3	.626	3.267	.031*

Table 4. Analysis of variables with significant differences.

Variation	Comparison	Std. Error	95% CI	P	Cohen's d
T1.3: Cost Reduction	Specialized publishing house	.221	[0.05,0.95]	.029*	.500*
	University presses	.221	[0.05,0.95]	.029*	.500*
	Comprehensive publishing house	.247	[0.21,1.21]	.007**	.708*
T2.2: Lack of Specialization	Specialized publishing house	.200	[0.20,1.00]	.005**	.600*
	University presses	.200	[0.40,1.20]	.000**	.800*
	Comprehensive publishing house	.224	[0.42,1.33]	.000**	.875*
O3.3: Risk Management Processes	Specialized publishing house	.160	[-0.79, -0.14]	.006**	-.467*
	Comprehensive publishing house	.192	[-0.74,0.04]	.075	-.350
	Digital culture groups	.211	[-0.86, -0.01]	.047*	-.433*

Table 5. Pairwise comparisons of variables with significant differences.

Based on the above results, the following findings regarding these types of publishers are presented below.

Specialized publishing house: focused on vertical applications and technological cooperation

Specialized publishing house focus on vertical fields such as science and technology, medicine, law, and finance, with their core assets being high-value and structured professional content. They are particularly sensitive to the immaturity and lack of professionalism of GAI tools, due to their strict requirements for content accuracy. Therefore, they are more inclined to seek external cooperation to develop vertical domain solutions. Data shows that 62.5% of professional presses mentioned cooperation with technology companies—a proportion far higher than that of university

presses and comprehensive publishing house. Their core strategy is to treat their high-quality, structured content data as core assets and collaborate with technology companies to develop precise applications that meet the specific needs of their respective industries.

University presses: constrained by both resources and talent

University presses take academic missions and social responsibilities as their primary purposes. They serve teaching and research, with their content emphasizing authority and rigor. As key hubs for knowledge production and dissemination, university presses generally hold a positive yet prudent attitude toward GAI. Data shows that a high 53.3% of university presses regard financial resources as a major barrier—this proportion is the highest among the four types of institutions. Meanwhile, their attention to the talent gap (60.0%) also remains high. This indicates that while actively exploring how GAI can empower education and academic publishing, university presses also feel the dual pressure of funding and talent most acutely.

Comprehensive publishing house: focused on efficiency and marketing innovation

Comprehensive publishing house are market-oriented, with the goal of meeting the cultural consumption needs of a broad readership. Their success is highly dependent on market trends and marketing promotions and demonstrate greater flexibility and market orientation in GAI application. Their concerns about financial resources are relatively low (30.0%), and they focus more on leveraging GAI to improve marketing efficiency and drive content innovation. However, unlike Specialized publishing house that possess vertical content barriers, trade presses are more worried about market competition dynamics (60.0%), fearing they will lose their edge in the homogeneous content competition.

Digital culture group: distinctly different perspectives and paths

Digital culture groups are non-traditional publishing entities such as AI technology providers and digital content platforms, who presented a completely different profile from the other three types of publishers in this survey. They barely worry about financial resources (16.7%); instead, they focus more on collaboration with tech companies (100%)—as this is inherently their business model. They have the most comprehensive internal support/training systems (66.7%), given that they are the creators and promoters of technology. Their perspective is not how to use GAI, but rather how to provide GAI solutions for the industry—and in this process, define technical standards, business models, and cooperation rules. They are the engine and enablers driving transformation across the entire industry.

Discussion

The study finds that the entire industry is in a critical transformation period filled with tensions and expectations, and its core conclusions can be summarized into the following four points:

A consensus on transformation with highly divided practical paths

Nearly all surveyed publishers, regardless of the depth of their technological application, agree that GAI will reshape the publishing industry. However, in terms of specific actions, significant path differentiation has emerged within the industry: a small number of leading institutions, leveraging their resource advantages, are making strategic investments on a multi-million-dollar scale, committed to building vertical domain large models or internal GAI platforms and acting as strategic integrators. In contrast, the vast majority of small and medium-sized publishing houses and university presses, constrained by funding, talent, and technical awareness, remain in the stage of personalized and fragmented exploratory applications. This differentiation indicates that the industry's future competitive landscape may further intensify, and technological barriers may become a new moat.

Copyright ambiguity and immature tools as two key shackles

Copyright ambiguity is the external risk most frequently mentioned across the industry, and its uncertainty has greatly dampened publishers' willingness to apply GAI in depth for core content. Meanwhile, immature tools remain the primary technical bottleneck—current general large models are far from meeting publishing-level standards in terms of content accuracy, professionalism, and logical consistency, restricting their applications mostly to auxiliary tasks such as marketing copywriting and preliminary translation. Until the legal framework is improved and technical tools are mature, the large-scale application of GAI in the core processes of publishing will remain limited.

Versatile talent shortage as core barrier to internal transformation

The publishing industry clearly recognizes that it will need versatile talents with combined expertise in content, technology, and market insight in the future. However, there is a stark contrast between the existing talent gap and the relatively underdeveloped internal support/training systems in reality. This indicates that while most publishers have recognized the urgency of talent upgrading, they have not yet established matching, systematic mechanisms for recruitment, training, and organizational support. The iteration speed of human capital has fallen behind the pace of technological development.

Publisher - enterprise cooperation as the mainstream model

Faced with the dual challenges of technology and talent, cooperating with external technology companies has become the most practical choice for publishers. From the introduction of intelligent proofreading tools to the joint development of vertical large models, an ecological cooperation model of 'content + technology' is taking shape. Within this ecosystem, the core value of publishers is shifting from mere content production to the provision of high-quality, structured data assets. However, how to protect data assets, clarify rights and responsibilities, and establish a sustainable business model in such cooperation remains a key issue the industry needs to address in the next step.

Conclusion

Through in-depth research and systematic analysis of 44 Chinese publishing houses and related cultural and technology companies, this study comprehensively reveals the ideal scenario and practical challenges facing China's publishing industry amid the GAI wave. Looking ahead, the GAI-driven transformation of the publishing industry will be a long-term process full of dynamics: in the short term, the industry will continue to focus on efficiency improvement and cost optimization at the application level; in the long run, institutions with high-quality and exclusive content data assets will occupy the most favourable strategic position in this transformation, and eventually evolve from content publishers to knowledge service providers and intelligent data providers.

Limitation

While this study strives for comprehensiveness and depth, it still has limitations. First, this survey mainly adopted written interviews and online interview, which may lack opportunities for follow-up questions and detailed exploration, limiting the depth of discussion on some issues. Second, GAI is evolving at an extremely rapid pace, many technical bottlenecks and market conditions mentioned in the study may undergo significant changes in the short term. Therefore, the conclusions of this study are highly time-sensitive, and future longitudinal follow-up studies are needed to continuously update and validate them.

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Attachment 1. Information of publishers

Interviewee	Type	Location	Number
Chemical Industry Press	Specialized Publishing House	Beijing	Publisher 01
Shanghai Education Publishing House	Specialized Publishing House	Beijing	Publisher 02
Foreign Language Teaching & Research Press	Specialized Publishing House	Beijing	Publisher 03
People's Education Press	Specialized Publishing House	Beijing	Publisher 04
China Machine Press	Specialized Publishing House	Beijing	Publisher 05
Electronic Industry Press	Specialized Publishing House	Beijing	Publisher 06
Guangdong Science & Technology Press	Specialized Publishing House	Guangdong	Publisher 07
Higher Education Press	Specialized Publishing House	Beijing	Publisher 08
Jiangsu Science & Technology Press	Specialized Publishing House	Nanjing	Publisher 09
Shanghai Jiao Tong University Press	Specialized Publishing House	Shanghai	Publisher 10
Intellectual Property Publishing House	Specialized Publishing House	Beijing	Publisher 11
China Social Sciences Press	Specialized Publishing House	Beijing	Publisher 12
Zhejiang Ancient Books Publishing House	Specialized Publishing House	Zhejiang	Publisher 13
Posts & Telecom Press	Specialized Publishing House	Beijing	Publisher 14
Chinese Medical Association Press	Specialized Publishing House	Beijing	Publisher 15
East China Normal University Press	University Press	Shanghai	Publisher 16
East China University of Science & Technology Press	University Press	Shanghai	Publisher 17
Tsinghua University Press	University Press	Beijing	Publisher 18
South China University of Technology Press	University Press	Guangdong	Publisher 19
Beijing Institute of Technology Press	University Press	Beijing	Publisher 20
Beijing Sport University Press	University Press	Beijing	Publisher 21
Northern Jiaotong University Press	University Press	Beijing	Publisher 22
Tianjin University Press	University Press	Tianjin	Publisher 23
Sun Yat-sen University Press	University Press	Guangdong	Publisher 24
Tongji University Press	University Press	Shanghai	Publisher 25
Chongqing University Press	University Press	Chongqing	Publisher 26
Renmin University Press	University Press	Beijing	Publisher 27
Shanghai Jiao Tong University Press	University Press	Shanghai	Publisher 28
Northeast Normal University Press	University Press	Jinlin	Publisher 29
Huazhong University of Science and Technology Press	University Press	Wuhan	Publisher 30
Guizhou People's Publishing House	Comprehensive Publishing House	Guizhou	Publisher 31
Shanghai Translation Publishing House	Comprehensive Publishing House	Shanghai	Publisher 32
Guangdong Haiyan Electronic & Audiovisual Press	Comprehensive Publishing House	Guangdong	Publisher 33
Haitian Publishing House	Comprehensive Publishing House	Guangdong	Publisher 34
Shanghai People's Publishing House	Comprehensive Publishing House	Shanghai	Publisher 35
Xinhua Publishing House	Comprehensive Publishing House	Beijing	Publisher 36
Changjiang Media & Publishing Group	Comprehensive Publishing House	Wuhan	Publisher 37
New Century Publishing House	Comprehensive Publishing House	Guangdong	Publisher 38
Kanshan Technology	Digital Culture Group	Beijing	Publisher 39
Midu	Digital Culture Group	Shanghai	Publisher 40
Beijing Manmanlai	Digital Culture Group	Beijing	Publisher 41
Founder	Digital Culture Group	Beijing	Publisher 42
China National Knowledge Infrastructure	Digital Culture Group	Beijing	Publisher 43
Shanghai Chuxun Technology	Digital Culture Group	Shanghai	Publisher 44

Attachment 2. Interview Outline

I. Current Status of GAI Application

Could you please introduce whether your company has achieved any specific results in applying GAI to publishing business, whether these results have met the expected goals, what are the main difficulties encountered in the process of promoting AI application, and how to address these difficulties?

Could you further elaborate on whether your company is actually using AI to solve problems in content creation, editing and processing, and marketing promotion? If yes, how is it done? Are there any problems encountered, and how are these problems solved?

Besides the scenarios mentioned above, are there any other scenarios where your company is applying AI?

In terms of internal company management, are there any incentive or supportive measures for the application of GAI?

Could you summarize the current problems existing in your company's use of GAI and the corresponding countermeasures adopted by your company?

How does your company view the potential copyright issues related to content created by GAI?

What risks do you think may exist in the application of GAI? How do you perceive these risks? What measures have been or are planned to be taken to address these risks?

How does your company evaluate the effectiveness of AI application, and how does it assess the impact (positive or negative) of GAI on your company's business?

II. Industry Impacts and Challenges

From both short-term and long-term perspectives, what positive impacts do you think GAI will have on the publishing industry?

From both short-term and long-term perspectives, what negative impacts do you think GAI will have on the publishing industry?

Regarding risk issues, what risks do you think GAI will bring to the publishing industry in the long run?

For the superior regulatory authorities, what suggestions or demands do you have regarding the supervision and governance of GAI?

III. Future-Oriented Transformation of the Publishing Industry

A serious question: With the advent of GAI, will traditional publishing still exist in the future?

In your opinion, how should publishing houses position themselves in the future? (What kind of companies should they become? Is it necessary to carry out structural and systematic reforms? How to implement such reforms?)

What kind of talents will publishing houses need more in the future? What capabilities should these talents possess?

Attachment 3. Matrix chart of publishers' conditions

Interviewee	Technology						Organization							Environment							
	T1.1	T1.2	T1.3	T2.1	T2.2	T2.3	O1.1	O1.2	O2.1	O2.2	O2.3	O3.1	O3.2	O3.3	E1.1	E1.2	E2.1	E2.2	E2.3	E3.1	E3.2
Publisher 01	1	0	0	1	1	0	1	0	0	0	1	1	0	1	1	1	1	0	1	0	0
Publisher 02	1	1	1	1	1	1	1	0	0	1	1	1	0	1	0	1	1	1	1	1	0
Publisher 03	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	1	1	1	1	0	1
Publisher 04	1	0	0	0	0	0	1	1	0	0	0	1	1	1	0	0	0	0	0	1	0
Publisher 05	1	1	0	0	0	0	0	1	0	0	1	1	0	1	0	0	1	0	1	1	0
Publisher 06	1	1	1	1	0	0	1	1	0	0	1	1	1	1	0	0	1	1	1	0	0
Publisher 07	1	1	0	1	1	0	0	0	1	1	1	1	1	1	0	1	1	0	1	0	0
Publisher 08	1	1	1	1	0	0	1	1	1	0	1	1	1	1	0	0	1	1	1	0	0
Publisher 09	1	1	0	1	1	0	0	0	0	1	1	1	0	0	0	1	1	0	1	0	1
Publisher 10	1	1	0	1	1	0	1	1	1	0	1	1	0	1	1	1	1	0	1	1	1
Publisher 11	0	1	0	1	0	0	0	0	1	0	1	1	0	1	0	0	1	0	1	1	1
Publisher 12	1	1	1	1	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0
Publisher 13	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	0	0
Publisher 14	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0
Publisher 15	0	1	0	1	1	0	1	1	1	0	1	1	1	1	0	0	1	0	1	1	0
Publisher 16	1	1	0	1	1	0	0	1	0	0	1	1	0	0	1	0	1	1	1	1	0
Publisher 17	1	1	1	1	0	0	0	0	1	1	1	1	0	1	0	1	1	0	1	1	0
Publisher 18	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	0	1	0	0
Publisher 19	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	0
Publisher 20	1	1	0	0	0	0	0	0	0	0	1	1	1	0	0	1	1	1	1	0	0
Publisher 21	1	0	0	1	0	0	0	0	0	0	1	1	0	1	0	1	1	0	1	1	0
Publisher 22	1	0	0	1	0	0	1	0	1	0	1	1	0	0	0	1	1	1	1	0	0
Publisher 23	1	1	1	1	0	0	1	1	1	0	1	1	1	1	0	0	1	1	1	1	0
Publisher 24	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0
Publisher 25	1	1	1	1	0	0	0	1	1	0	1	1	1	1	0	0	1	1	1	1	0
Publisher 26	1	1	0	1	0	0	1	1	0	0	1	1	1	1	0	1	1	1	1	0	0
Publisher 27	1	1	0	1	0	0	0	0	0	1	1	1	0	0	0	1	1	0	1	0	0
Publisher 28	1	1	0	1	1	0	0	0	1	0	1	1	1	0	0	1	1	0	1	0	0
Publisher 29	1	1	1	1	0	0	1	0	1	0	1	1	1	0	0	1	1	1	1	1	0
Publisher 30	1	1	0	0	0	0	0	0	1	1	1	1	1	0	0	1	1	0	0	1	0
Publisher 31	0	1	0	1	1	0	1	0	1	0	1	1	0	0	1	0	1	1	1	1	0
Publisher 32	1	1	0	1	0	0	0	0	1	1	0	1	0	1	1	0	1	0	1	0	0
Publisher 33	1	1	0	1	0	0	1	1	1	0	1	1	1	1	0	0	1	0	1	1	0
Publisher 34	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	1	1	1	0
Publisher 35	1	1	1	1	0	0	1	0	0	0	1	1	0	1	0	1	1	0	1	0	0
Publisher 36	1	0	0	1	0	0	0	0	1	0	1	1	0	1	0	0	1	1	1	0	1
Publisher 37	1	1	0	1	0	0	1	0	1	0	1	1	1	0	1	0	1	0	1	0	0
Publisher 38	1	1	0	1	0	0	0	0	1	0	1	1	1	1	0	1	1	1	1	0	0
Publisher 39	1	1	1	0	1	0	1	1	1	1	1	1	1	1	0	1	1	0	1	1	0
Publisher 40	1	0	0	1	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
Publisher 41	1	1	1	1	1	1	0	0	1	1	1	1	1	1	0	1	1	1	1	0	0
Publisher 42	1	1	1	0	1	0	1	1	0	0	0	1	0	1	0	0	1	1	0	1	0
Publisher 43	1	1	1	1	1	0	0	1	1	0	1	1	1	1	0	1	1	0	1	1	1
Publisher 44	1	0	1	1	1	0	0	1	0	0	1	1	1	1	0	1	1	0	1	1	0

Attachment 4. Codebook finalization

Dimension	Main Code	Sub-Code	Definition / Description
Technology	T1 Perceived Benefits	T1.1: Efficiency Gains & Process Optimization	GAI accelerating workflows, reducing repetitive tasks, shortening production cycles, and improving speed.
		T1.2: Content Innovation & Enhancement	GAI enabling new content formats (e.g., multimedia), improving content quality (e.g., text polishing), or assisting in creative tasks.
		T1.3: Cost Reduction	GAI reducing costs related to labor, content acquisition, or production.
	T2 Perceived Technological Challenges	T2.1: Tool Immaturity & Low Quality	GAI outputs being inaccurate, containing factual errors ('hallucinations'), or lacking the quality for professional use.
		T2.2: Lack of Specialization	General-purpose GAI models are not tailored to the specific needs and workflows of the publishing industry.
		T2.3: Integration Complexity	Integrating GAI tools with existing systems, processes, and workflows.
Organization	O1: Internal Resources & Infrastructure	O1.1: Financial Resources	The availability or lack of funding for GAI projects, tools, and talent.
		O1.2: Data & Technical Assets	The company's data resources (quality and quantity for training) and technical infrastructure (e.g., computing power).
	O2: Human Capital	O2.1: Talent Gap & Skill Deficit	The lack of employees with the necessary technical and analytical skills to leverage GAI effectively.
		O2.2: Employee Attitude & Readiness	Employees' attitudes towards GAI, ranging from curiosity and encouragement to resistance and inertia.
		O2.3: Need for 'Versatile Talent'	A new type of employee who blends traditional publishing expertise with modern technical skills.
	O3: Strategy & Management	O3.1: Adoption Strategy & Vision	The organization's overall approach, from proactive development of proprietary models to a cautious 'wait-and-see' stance.
		O3.2: Internal Support & Training	The presence or absence of formal encouragement, policies, or training programs like workshops and seminars.
		O3.3: Risk Management Processes	Internal processes established to mitigate GAI risks, such as mandatory human review or quality control checks.
Environment	E1: Industry & Market	E1.1: Business Model Uncertainty	The difficulty in evaluating the return on investment (ROI) and the lack of mature, replicable business models for GAI in publishing.
		E1.2: Competitive Dynamics	Increased competition, the risk of smaller players being marginalized, or the potential for tech monopolies.
	E2: Legal & Regulatory Context	E2.1: Copyright & IP Ambiguity	The uncertain legal status of AI-generated content, ownership, and potential for infringement. (This is a near-universal theme).
		E2.2: Data Security & Privacy Risks	Data leakage, especially when uploading proprietary publisher data to third-party AI platforms, and user privacy.
		E2.3: Demand for Governance & Standards	Requests for government or industry bodies to create clear laws, standards, and regulations for GAI use.
	E3: Partnerships & Ecosystem	E3.1: Collaboration with Tech Companies	Forming partnerships with technology firms to supplement internal capabilities (e.g., for computing power or specialized tools).
		E3.2: Need for Industry Alliance	Forming industry-wide alliances to share resources, create standards, and avoid redundant efforts.