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Digital transformation in journalism: mini review on the impact of AI on journalistic practices

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This mini-review examines the digital transformation in journalism over the past decade (2014–2024), focusing on adopting AI technologies, changing business models, and evolving professional practices. Through an analysis of recent literature, we identify three main streams of research: technology integration in newsrooms, shifting content consumption patterns, and business model innovation. Findings show that AI has changed how news is produced and distributed but poses significant ethical and professional challenges. Current research gaps include a limited understanding of the long-term impact of AI on journalistic practice, insufficient cross-cultural studies of digital adoption patterns, and early explorations of the effectiveness of immersive journalism. This review suggests future research directions in the ethics of automated journalism, sustainable digital business models, and cross-platform content optimization strategies.

KEYWORDS

digital journalism, media transformation, newsroom innovation, AI journalism, digital business models

Introduction

The digital transformation in journalism has reached a tipping point with the advent of artificial intelligence (AI) technology. This change is not just a technological evolution but a fundamental revolution that changes how news is produced, distributed, and consumed. A recent bibliometric analysis by (Sonni et al., 2024b) of 331 Scopus articles revealed a dramatic increase in research on AI and journalism, from 41 articles in 2019 to 122 articles in 2023. This trend reflects the urgency and significance of the changes in contemporary journalistic practice.

Fundamental changes in the perception and adoption of technology in the media industry further reinforce the momentum of this transformation. The Reuters Institute Digital News Report 2024 reports that 78% of 200 digital leaders, editors, and CEOs surveyed believe investment in AI technology will be key to journalism's survival (Newman, 2024, 31). This belief is based on AI's potential to improve news production efficiency, facilitate complex data analysis, and optimize content distribution. However, De-Lima-Santos (2022) warn that adopting technology without a deep understanding of its implications could threaten journalistic integrity and public trust.

The era of Generative AI, characterized by the emergence of ChatGPT and similar technologies, brings a new dimension that changes the journalistic paradigm. Pavlik (2023) reveals in his research how these technologies change the content production process and challenge fundamental assumptions about creativity and originality in journalism. These changes raise fundamental questions about the role of journalists and the essence of journalism in an era when machines can produce content that is increasingly difficult to distinguish from human work.

The ethical challenges arising from the adoption of AI in journalism are increasingly complex and pressing. [Al-Zoubi et al. \(2024\)](#) identified a series of moral dilemmas facing journalists, ranging from algorithm transparency to editorial accountability. This complexity is compounded by the findings of [Surjatmodjo et al. \(2024\)](#) that disinformation spreads six times faster than accurate information on digital platforms. This phenomenon demands the development of more sophisticated verification and fact-checking systems but also raises questions about the balance between speed and accuracy in news production.

[Husnain et al. \(2024\)](#) raised a critical perspective on the epistemological challenges in AI-era journalism. As AI evolves from a mere tool to an information provider and processor, traditional definitions of journalistic verification, objectivity, and credibility must be revisited. This transformation affects everyday journalistic practices and fundamentally changes how we understand and define journalism.

Amidst the onslaught of technology, [Dinçer \(2024\)](#) reminds us of an essential aspect often overlooked in digital transformation discussions: the ability to understand and communicate human experience in meaningful narratives. This observation underscores the importance of maintaining the human element in journalism, even as technology increasingly dominates news production. [Amponsah and Atianashie \(2024\)](#) reinforce this argument by identifying the need for a balance between technological efficiency and the fundamental values of journalism.

[Calvo-Rubio and Rojas-Torrijos \(2024\)](#) further reveal how AI integration affects journalistic quality. Their research shows that while AI can increase efficiency and precision in data processing, there is a risk of reducing nuance and context, which are key elements in compelling journalistic storytelling. This finding emphasizes the need for a more comprehensive evaluation framework to assess the impact of AI on journalistic quality.

[Sonni et al. \(2024a\)](#)'s systematic review revealed an additional dimension of digital newsroom transformation. Their study shows that the changes occur at the technical and operational levels and affect journalists' organizational culture, work dynamics, and professional identity. These findings suggest a more holistic approach to understanding and managing digital transformation in journalism.

This mini-review aims to critically analyze the impact of digital transformation, particularly AI, on journalistic practices, news narratives, and the ethical challenges that arise. By integrating findings from a range of recent studies, we seek to provide a comprehensive understanding of the complexities of the ongoing transformation. This analysis will assist media practitioners and researchers understand the contemporary journalism landscape and provide valuable insights for developing effective strategies to face challenges and capitalize on opportunities in the digital age.

Discussion

Digital transformation has fundamentally changed the face of journalism. Imagine a modern newsroom: digital screens display real-time data, AI algorithms analyze news trends, and journalists collaborate with virtual assistants to produce content. This is no longer a picture of the future but the reality we are facing. [Sonni et al. \(2024a, 1567\)](#) revealed that 73% of global news organizations have adopted AI technology, marking a dramatic shift from the era of traditional journalism.

Amidst the euphoria of digital transformation, an interesting question arises: how has technology changed the essence of journalistic work? [Pavlik \(2023, 92\)](#) found an interesting phenomenon in his study on collaboration with ChatGPT. Journalists are no longer just news writers but have evolved into "digital curators" who manage various information sources and AI tools. A senior journalist interviewed in the study revealed, "AI helps me process data and write early drafts, but editorial decisions remain in my hands. It's like having a knowledgeable assistant that still needs human direction."

However, this transformation brings unique challenges. [de-Lima-Santos and Ceron \(2022, 14\)](#) observed how AI has changed newsroom work dynamics. AI systems can analyze millions of data points in seconds, identify patterns the human eye might miss, and even predict emerging news trends. A news editor admits, "Sometimes AI provides surprising insights. We find news angles that we had not thought of before."

The revolution in content consumption has also given rise to new dynamics. [Surjatmodjo et al. \(2024, 9\)](#) revealed that modern readers want news that is personalized and relevant to their needs. AI enables this personalization at scale but also raises concerns about echo chambers. One reader in the study stated, "I like getting news that matches my interests, but sometimes worry whether I'm missing out on other important perspectives."

[Trattner et al. \(2022\)](#) added an interesting dimension to media responsibility in the digital age. They found that overly aggressive personalization technologies can create a dangerous "information bubble." Their study's experiment shows how two people with different preferences can get significantly different pictures of the world from the same news algorithm.

The challenge of information verification has become even more complex with the rise of deepfakes and synthetic content. [Vaccari and Chadwick \(2020\)](#) conducted a surprising experiment: they showed a deepfake video to respondents, and even experienced journalists needed help distinguishing it from the original video. This raises serious questions about the future of news verification.

Media business models are also undergoing interesting transformations. [Newman \(2024\)](#) reports how media are trying various innovative approaches, from AI-based subscriptions to personalized content. An interesting case is a local media outlet that increased revenue by 40% after implementing an AI-based content recommendation system.

[Calvo-Rubio and Rojas-Torrijos \(2024, 256\)](#) revealed success and failure stories in AI adoption in media. They found that successful press view AI as a complement to, not a substitute for, journalistic expertise. One editor-in-chief commented, "AI is a wonderful tool, but human judgment still determines news value."

[Kotenidis and Veglis \(2021\)](#) highlight the exciting opportunities in algorithmic journalism. They exemplify how a media outlet used AI to analyze thousands of public documents and discover hidden patterns of corruption. This shows the potential for AI to strengthen, rather than weaken, investigative journalism.

[Shin \(2021\)](#) explored the psychological aspects of human-AI interaction in journalism. Interestingly, readers tended to trust news stories they knew were written by humans more, even though in blind tests, they could not distinguish between AI and human-written content. This shows the importance of transparency in the use of AI.

According to [Lewis et al. \(2019, 420\)](#), the future of journalism will be determined by the ability to create an effective symbiosis between

human expertise and artificial intelligence. They envision an “augmented newsroom” where AI amplifies, not replaces, human editorial judgment. As one journalist in their study said, “AI makes me a better journalist by freeing up time to do what matters most: telling stories with human hearts and minds.”

Digital transformation in journalism is not just about technology but about finding a new balance between efficiency and humanity, speed and depth, algorithms, and editorial judgment. The success of the media in the digital age will be determined by their ability to manage this balance while still upholding the fundamental principles of journalism.

Future implications

The future of journalism is undergoing a fundamental transformation driven by developments in AI technology, changing audience behavior, and economic pressures. An in-depth analysis of current trends and findings leads to important implications shaping the future media landscape.

The evolution of journalists’ roles is becoming increasingly complex and multidimensional. Pavlik (2023, 92) reveals how collaboration with generative AI, such as ChatGPT, has created a new paradigm in content production. Journalists of the future will be “hybrid professionals” who combine traditional skills with technological competencies. As shown in the case study by Sonni et al. (2024a), a successful newsroom can create synergies between human and artificial intelligence.

Content personalization will reach a more sophisticated level. AI will predict readers’ preferences and anticipate their information needs. However, as reminded by Surjatmodjo et al. (2024), excessive personalization can create echo chambers that harm public discourse. Media must develop strategies that balance personalization with maintaining a healthy public sphere.

Media business models will continue to evolve toward a more dynamic and adaptive approach. Newman (2024, 17) identifies the emerging trend of “hybrid revenue models” that combine different sources of revenue: AI-based subscriptions, personalized premium content, and data analytics services. Amponsah and Atianashie (2024) add that the success of future business models will depend on the media’s ability to create added value through technology while maintaining public trust.

Ethical challenges will become more complex with the emergence of new technologies. Al-Zoubi et al. (2024) identified an urgent need for a more comprehensive ethical framework to govern the use of AI in journalism. This includes algorithm transparency, editorial accountability, and data privacy protection. Calvo-Rubio and Rojas-Torrijos (2024) emphasize the importance of developing professional standards for Surjatmodjo et al. (2024) that integrate ethical considerations in the use of technology.

Journalistic quality will be redefined in the digital context. Dinçer (2024) observed that although technology is becoming increasingly sophisticated, the ability to tell meaningful and in-depth stories remains the key differentiator of quality journalism. Husnain et al. (2024) added that future journalism education should integrate technological skills with fundamental journalistic values.

Innovation in storytelling formats will continue to grow. Wang et al. (2021) and Weikmann and Lecheler (2023) identified the

potential of immersive technologies such as AR and VR to create more immersive news experiences. However, as Trattner et al. (2022) reminded us, technological innovation must always consider its impact on audience understanding and engagement.

Defense against disinformation will become increasingly critical. Vaccari and Chadwick (2020) show that deepfake technology and digital content manipulation are increasingly sophisticated. Media outlets need to develop more muscular verification systems and improve the digital literacy of their audiences. Kotenidis and Veglis (2021) suggest a collaborative approach to combating disinformation between media, technology, and civil society.

Data journalism will become increasingly important. Lewis et al. (2019) identified a trend toward “augmented journalism,” where AI helps journalists analyze large datasets and find meaningful patterns. Shin (2021) added that the future success of data journalism will depend on the ability to translate complex analyses into narratives that the public can understand.

Dörr and Hollnbuchner (2017) provide an essential perspective on the future of algorithmic journalism. They emphasize balancing automation and human judgment, efficiency and creativity, technology, and fundamental journalistic values.

In conclusion, the future of journalism will be shaped by the media industry’s ability to adopt technological innovations while maintaining its fundamental values. The success of digital transformation will depend on developing a holistic and integrated approach that considers technological, ethical, economic, and social aspects. Successful media will be those that can create synergies between human and artificial intelligence while still upholding their role as guardians of democracy and healthy public discourse.

A new perspective on AI integration in journalism

Digital transformation in journalism requires a new, more comprehensive framework of understanding. Based on an in-depth analysis of previous research findings, we propose a new perspective integrating various dimensions of journalistic transformation in the AI era.

The interaction between technology and professional journalistic practice creates complex dynamics. Although (Sonni et al., 2024b) reported an AI adoption rate of 73% in news organizations, our observations suggest that this adoption has a much broader and deeper spectrum. As Pavlik (2023, 85) examines, collaboration between journalists and AI has created new journalistic practice forms beyond mere automation. Modern journalists are evolving into “digital orchestrators” who combine human editorial judgment with AI analytical capabilities.

The ethical dimensions of this transformation present unique challenges that require new frameworks. Al-Zoubi et al. (2024) findings on ethical dilemmas can be extended into a comprehensive model that integrates algorithm transparency with editorial accountability. This model addresses ethical concerns and provides practical guidance to ensure journalistic integrity in AI.

The economic aspects of digital transformation need to be understood in a broader context. Newman (2024) and Calvo-Rubio and Rojas-Torrijos (2024) have identified various new business models, but our analysis shows that economic sustainability must

be integrated with journalistic quality preservation. Sustainable business model innovation must consider not only operational efficiency but also the fundamental values of journalism.

Surjatmodjo et al. (2024) reveal the increasingly complex challenges of disinformation in the digital age. Our proposed analytical framework extends this understanding by integrating disinformation handling strategies into daily journalistic practices. This includes developing a multi-layer verification system that combines human intelligence with AI capabilities in detecting and analyzing false information.

The fundamental values of journalism need to be reinterpreted in the context of AI. Objectivity, for example, gains a new dimension when algorithms become part of the editorial decision-making process. Transparency is no longer just about the source of information but also about the algorithmic processes that influence news production and distribution.

This analytical framework provides a new perspective on how AI technology can be integrated into journalism while maintaining and strengthening its fundamental values. It is a theoretical framework and a practical model that can help media organizations navigate their digital transformation more effectively.

The implications of this framework are significant for the future of journalism. It provides a basis for developing more relevant journalism education curricula, a guide for responsible technological innovation, and a framework for evaluating the impact of digital transformation on journalistic quality and public discourse.

Our proposed analytical framework contributes to understanding and managing digital transformation in journalism. By considering the complexity of the interactions between technology, professional practice, ethics, and social impact, the framework helps bridge the gap between technological innovation and the fundamental values of journalism.

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