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Empirical Analysis and Validation of the Artificial Intelligence Application Management Model in Online Media of Khuzestan Province

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ABSTRACT

Recent developments in digital media indicate that artificial intelligence, as a strategic technology, can play a significant role in enhancing the production, processing, and management of news content. The present study was conducted with the aim of empirically analyzing and validating a management model for the application of artificial intelligence in online news platforms in Khuzestan Province. This research employed an exploratory mixed-methods design. In the qualitative phase, the components of the model were identified through semi-structured interviews with media managers, editors-in-chief, experienced journalists, and technical experts. Qualitative data were analyzed using a grounded theory approach through open, axial, and selective coding. In the quantitative phase, a researcher-developed questionnaire based on the qualitative findings was designed using a Likert scale and distributed among a purposively selected sample of media professionals. The validity of the instrument was assessed through expert judgment and construct validity indices, while its reliability was evaluated using Cronbach's alpha and composite reliability. The findings revealed that the management of artificial intelligence applications in online media encompasses multiple dimensions, including content production, data analysis, personalization, publication management, and ethical governance. Consequently, the development of a localized and structured model for the responsible utilization of artificial intelligence in online media is essential.

Keywords: Artificial Intelligence, Media Management, Online News Platforms, Management Model, Khuzestan Province.

Introduction

The media industry has undergone profound transformations over the past decade as a result of digitalization, platformization, and the rapid expansion of data-driven communication environments. Traditional media organizations are no longer merely producers and distributors of information; rather, they operate within highly dynamic ecosystems characterized by real-time information flows, algorithmic mediation, audience fragmentation, and intense competition for attention. In such an environment, artificial intelligence (AI) has emerged as one of the most influential technologies shaping the future of journalism and media management. AI systems are increasingly being integrated into newsroom operations, content creation, audience analytics, recommendation systems, editorial decision-making, and strategic planning processes. Consequently, the application of AI in media is no

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longer considered a technological option but rather a strategic necessity for maintaining competitiveness, sustainability, and relevance in the digital age (1-3). Recent analyses of global media trends indicate that AI technologies are transforming virtually every stage of the media value chain, from information gathering and verification to content production, dissemination, personalization, and audience engagement (4-6).

Artificial intelligence offers unprecedented opportunities for enhancing efficiency, accuracy, and productivity in media organizations. Automated journalism systems can process large volumes of structured and unstructured data within seconds, generate news reports, identify emerging trends, and support journalists in producing timely and data-driven content. Such capabilities enable media organizations to reduce operational costs while improving responsiveness to rapidly evolving information environments (6-8). AI-powered analytics can also facilitate evidence-based editorial decisions by identifying audience preferences, predicting content performance, and optimizing publication strategies. Smart newsrooms increasingly rely on algorithmic systems to support content curation, audience segmentation, and strategic planning, thereby enhancing organizational agility and performance (9-11). Furthermore, AI contributes to the personalization of news experiences by tailoring content to users' interests and behavioral patterns, thereby increasing audience engagement and loyalty in highly competitive digital environments (12-14). As a result, AI has become a central component of contemporary media innovation and transformation strategies (15-17).

The emergence of generative AI technologies has accelerated this transformation by introducing sophisticated tools capable of producing human-like text, images, audio, and video content. Generative AI systems are increasingly used to draft news articles, summarize reports, generate headlines, create multimedia content, and support investigative journalism. These developments have sparked extensive scholarly interest in understanding how AI reshapes professional practices and organizational structures within media institutions (18-20). Researchers argue that AI is gradually shifting journalism from a purely human-centered profession toward a hybrid model characterized by human–machine collaboration, where journalists and intelligent systems jointly contribute to content production and dissemination (8, 21, 22). In this context, AI can be viewed not merely as a tool but as an active participant in newsroom processes, influencing decisions, workflows, and organizational outcomes (22, 23). Such developments require media organizations to rethink existing management practices and establish new governance frameworks capable of effectively integrating AI into journalistic operations.

Despite these opportunities, the adoption of artificial intelligence in media also presents significant challenges and risks. One of the most frequently discussed concerns relates to algorithmic bias and the potential reproduction of social, cultural, and political inequalities through automated systems. AI algorithms are trained on historical datasets that may contain implicit biases, leading to discriminatory outcomes or distorted representations of social realities. Such issues raise serious concerns regarding fairness, accountability, and transparency in news production (24-26). The increasing reliance on opaque algorithmic systems also challenges traditional notions of journalistic accountability because audiences may not fully understand how content is selected, prioritized, or generated. Consequently, scholars have emphasized the importance of algorithmic transparency and explainability as prerequisites for maintaining public trust in AI-mediated journalism (24, 25, 27). Concerns regarding misinformation, manipulation, and the misuse of generative AI technologies further highlight the need for responsible governance and oversight mechanisms within media organizations (28-30).

Another major challenge concerns the impact of AI on journalistic authority, professional identity, and employment. The increasing automation of journalistic tasks has generated concerns about job displacement,

reduced editorial autonomy, and the erosion of traditional professional roles. Some journalists perceive AI as a threat to their occupational identity, whereas others view it as a valuable tool that can augment professional capabilities and improve productivity (18, 23, 31). Studies examining journalists' perceptions reveal a complex mixture of optimism and skepticism toward AI adoption, reflecting uncertainty regarding future professional responsibilities and ethical obligations (31-33). Moreover, AI implementation requires substantial investments in training, digital literacy, and organizational learning. Media organizations must ensure that employees possess the necessary competencies to work effectively with intelligent systems while preserving critical human capacities such as ethical judgment, creativity, and contextual understanding (5, 8, 21). Therefore, the successful integration of AI depends not only on technological infrastructure but also on human resource development and organizational culture.

The ethical and governance dimensions of AI have become equally important in contemporary media environments. International organizations have emphasized the necessity of establishing ethical principles that guide the development and deployment of AI technologies. Core principles such as transparency, accountability, privacy protection, human oversight, and social responsibility are increasingly recognized as essential foundations for responsible AI governance (26, 34, 35). Within media organizations, these principles require the development of clear policies concerning data governance, algorithmic accountability, content verification, and audience protection. Scholars argue that AI governance should be viewed as a strategic management function rather than merely a technical issue because governance mechanisms directly influence organizational legitimacy, audience trust, and long-term sustainability (36-38). The growing role of AI in shaping public discourse further underscores the importance of democratic accountability and ethical stewardship in media systems (26, 35, 39).

At the organizational level, AI adoption requires comprehensive managerial approaches that integrate technological, human, strategic, and environmental considerations. Studies indicate that successful AI implementation is influenced by factors such as leadership commitment, technological readiness, organizational culture, knowledge management capabilities, and strategic alignment with organizational objectives (5, 16, 40). Media organizations must develop infrastructures that support data-driven decision-making while simultaneously fostering cultures of innovation and experimentation. Knowledge management systems play a crucial role in facilitating organizational learning and enabling employees to leverage AI technologies effectively (40-42). Furthermore, strategic media management increasingly depends on the ability to integrate AI into organizational processes while balancing efficiency gains with ethical responsibilities and societal expectations (16, 38, 43).

In Iran, interest in the application of artificial intelligence in media has increased substantially in recent years. Domestic studies have explored various dimensions of AI adoption, including digital media management, intelligent content production, data-driven journalism, media governance, audience trust, media marketing, and technological innovation (40, 44, 45). Researchers have also examined challenges associated with infrastructure limitations, organizational readiness, professional transformation, and ethical concerns within the Iranian media context (32, 46, 47). Additional studies have emphasized the importance of AI for strategic media management, communication processes, and the development of smart media ecosystems capable of responding to evolving audience demands (14, 15, 48). Furthermore, investigations into media governance, public trust, and cultural consequences highlight the need for context-sensitive approaches that consider local social, cultural, and institutional conditions when implementing AI technologies (36, 49, 50). Nevertheless, despite the growing body of research, most existing studies have focused on specific applications or isolated dimensions of AI rather than providing comprehensive managerial

models capable of explaining how multiple factors interact to shape AI adoption and outcomes in media organizations (17, 30, 51).

The need for comprehensive and contextually grounded management models is particularly important for local and regional media organizations. Unlike large national or international media corporations, regional news platforms often operate under resource constraints, limited technological infrastructure, and unique cultural conditions. Local audiences may exhibit distinct information needs, linguistic preferences, and trust dynamics that influence the effectiveness of AI applications. Consequently, managerial approaches developed in global media environments may not be directly transferable to regional contexts without adaptation and localization (52-54). Khuzestan Province represents a particularly important context for examining these issues due to its cultural diversity, multilingual population, and evolving digital media landscape. Understanding how AI can be effectively and responsibly managed within such an environment requires empirical investigation that integrates international knowledge with local realities.

Although previous studies have generated valuable insights regarding AI technologies, journalism, media governance, audience engagement, organizational transformation, and ethical challenges, a significant gap remains regarding the development and empirical validation of a comprehensive management model for AI application in online news media, particularly within localized and regional settings (1, 8, 52). Therefore, the present study aims to empirically analyze and validate a management model for the application of artificial intelligence in online news platforms in Khuzestan Province by identifying its key dimensions, components, relationships, and contextual determinants.

Methods and Materials

In this article, the research method was designed as an exploratory mixed-methods design in two qualitative and quantitative phases. In each phase, the population, sample, data collection instrument, validity and reliability, and method of analysis are briefly described.

In the qualitative phase, the main objective was to identify the dimensions and components of managing the application of artificial intelligence in online news platforms in Khuzestan Province and to design the initial model. The statistical population of this phase included media managers, editors-in-chief, experienced journalists, and technical experts in the field of digital content who are directly involved in the management and production of news content on these platforms and have practical experience in using AI-based systems and tools. Sampling was conducted purposively, with emphasis on informational richness, and the sample size was approximately 5 to 10 participants; accordingly, the main criterion was achieving theoretical and informational saturation in the interviews rather than reaching a fixed number of respondents. The data collection instrument in this phase was a semi-structured interview, the questions of which were designed based on a systematic review of the literature and the research objectives and were gradually revised and completed during the interview process. Qualitative data analysis was conducted using the grounded theory approach based on the Strauss and Corbin model through open, axial, and selective coding, and qualitative content analysis was used to extract categories and the relationships among them. To ensure the validity/trustworthiness of the qualitative findings, Lincoln and Guba's framework, including credibility, transferability, dependability, and confirmability, was applied. Accordingly, participant review, triangulation of data and sources, and rich description of the context and participants were used. The reliability and stability of the data were also ensured through precise documentation of the data collection and analysis

procedures, preservation of interview and coding documents, and reanalysis of part of the data by a second researcher. The output of this phase was the initial model for managing the application of artificial intelligence in media, along with a set of operational components and indicators that formed the basis for designing the quantitative instrument.

In the quantitative phase, the objective was to empirically validate the conceptual model extracted from the qualitative phase and to test the relationships among the dimensions and components of managing the application of artificial intelligence in media. The statistical population of this phase included managers, editors-in-chief, journalists, and technical experts active in online news platforms in Khuzestan Province who had professional experience in these platforms and had encountered or worked with artificial intelligence systems in the processes of content production, editing, publication, and management. The sample was selected using non-random purposive sampling based on criteria such as job position, work experience, and familiarity with artificial intelligence technologies. The sample size was determined according to the requirements of partial least squares structural equation modeling (PLS-SEM), in such a way that it would have sufficient power to test the conceptual model. The main data collection instrument in this phase was a structured researcher-developed questionnaire, the items of which were formulated based on the components extracted in the qualitative phase and the review of theoretical literature. The items were measured using a five-point Likert scale ranging from “strongly disagree” to “strongly agree.” Content validity was assessed based on the opinions of experts in media management and artificial intelligence, and construct validity was examined through factor analysis and convergent and discriminant validity indices, such as AVE, the Fornell–Larcker criterion, and HTMT, within the SmartPLS software environment. The reliability of the questionnaire was examined and confirmed using Cronbach’s alpha, composite reliability (CR), and factor loadings above 0.70. Finally, data analysis was conducted using PLS-based structural equation modeling in order to assess the overall fit of the model, the explanatory power of latent variables, path coefficients, and the predictive validity of the model for managing the application of artificial intelligence in media, thereby stabilizing the final model of the article.

Findings and Results

To extract the factors affecting the application of artificial intelligence in media, the following table presents and classifies the layers and indicators related to innovation and its roadmap in recent domestic and foreign studies.

Table 1. Identification of Components Included in Foreign Studies

No.	Author(s) (Year)	Research Title	Identified Components
1	Young et al. (2025)	AI Governance Models in Digital Media	Policymaking, risk management
2	Peña-Fernández et al. (2025)	Artificial Intelligence Management in Local Journalism	Localization, resource management
3	Dodds et al. (2025)	The Impact of Generative AI on Professional Authority	Change management, professional ethics
4	Kazemi and Ali (2025)	Integration of Artificial Intelligence in News Organizations	Human resource training, leadership
5	Yang et al. (2025)	Human–AI Collaboration in News Production	Workflow optimization
6	Ansari et al. (2025)	The Role of Large Language Models in News Production	Content production, editorial supervision
7	Kheirjoo et al. (2025)	A Systematic Review of the Application of Artificial Intelligence in Journalism	Mapping research themes
8	Mahmood (2025)	Journalism, Media, and Artificial Intelligence	Conceptual modeling
9	Forja-Pena et al. (2025)	A Bibliometric Review of Artificial Intelligence and Journalism	Research trends

10	Hernández and Corsi (2025)	Discourses of Artificial Intelligence in News Media	Framing, narrative analysis
11	Osbay and Sak (2025)	Artificial Intelligence in Media Management	Strategic management, media marketing
12	Graefe (2024)	Guide to Automated Journalism	Automated content production, quality assurance
13	Hansen et al. (2024)	Managing AI Adoption in Media Organizations	Strategic planning, organizational leadership
14	Zamith (2024)	News Recommender Algorithms	Content personalization, audience analysis
15	Newman (2024)	Technology Trends and Digital Journalism	Digital transformation, media strategy
16	Ananny and Crawford (2024)	Seeing Without Knowing: Algorithms in Media	Algorithmic governance, opacity
17	Kim and Lee (2024)	AI-Based News Production Systems	System integration, efficiency
18	Kang et al. (2024)	Smart Newsrooms	Data-driven decision-making
19	Marconi (2024)	Newsmakers: Artificial Intelligence and Journalism	Innovation management, automation
20	Broussard (2024)	Artificial Unintelligence	Algorithmic bias, ethical challenges
21	Gynnild (2024)	Creative Artificial Intelligence in News Media	Innovation, news storytelling
22	Wu et al. (2024)	AI Support for Editorial Decision-Making	Predictive analytics, professional judgment
23	Helberger et al. (2024)	Artificial Intelligence, Democracy, and News Media	Regulation, social responsibility
24	Napoli (2024)	Social Media and the Public Interest	Platform governance, algorithms
25	Diakopoulos (2023)	Algorithmic Accountability in News Media	Algorithmic governance, transparency, editorial control
26	Lewis et al. (2023)	Automation and Augmentation of Journalism with Artificial Intelligence	Human–machine collaboration, newsroom processes
27	Beckett and Yaseen (2023)	Generative AI in Newsrooms	Content automation, ethics, productivity
28	Carlson (2023)	Artificial Intelligence and the Professional Authority of Journalism	Professional control, trust, legitimacy
29	Montal and Reich (2023)	Artificial Intelligence as an Actor in the Newsroom	Technological agency, accountability
30	Tandoc et al. (2023)	Journalists' Attitudes Toward Artificial Intelligence	Technology acceptance, perceived usefulness

The review of foreign studies indicates that international researchers have addressed diverse dimensions of the application of artificial intelligence in the field of media and have analyzed the factors affecting the adoption of this technology at technological, organizational, and environmental levels. However, the structural, cultural, and institutional conditions of media organizations in different countries can influence how this technology is accepted and used. Therefore, to achieve a more comprehensive understanding of the components affecting the application of artificial intelligence in media, it is also necessary to examine domestic studies. Accordingly, the most important components identified in domestic studies are extracted and classified below in order to provide, through comparison with the findings of foreign studies, a clearer picture of the state of research conducted in Iran and the dimensions emphasized by domestic researchers regarding the application of artificial intelligence in media.

Table 2. Identification of Components Included in Domestic Studies

No.	Author(s) (Year)	Research Title	Identified Components
1	Dehghani and Yousefi (2023)	Artificial Intelligence and the Future of Journalism in Iran	News automation, changing role of journalists
2	Ahmadi and Karimi (2023)	Application of Artificial Intelligence in Digital Media Management	Intelligent decision-making, organizational productivity
3	Rezaei (2022)	Data-Driven Journalism and the Role of Algorithms	Data analysis, content personalization
4	Mousavi and Sharifi (2023)	Ethics of Artificial Intelligence in News Media	Transparency, accountability, fairness
5	Ghasemi (2021)	Digital Transformation in Iranian Online Media	Technological innovation, change in media structure
6	Sadeghi and Hemmati (2023)	Intelligent Content Management in News Platforms	Automated content production, editorial control

7	Hosseini (2022)	The Impact of Artificial Intelligence on News Quality	News accuracy, publication speed
8	Najafi and Moradi (2021)	Online Media and Recommender Algorithms	Audience interaction, user loyalty
9	Zare (2023)	The Role of Artificial Intelligence in Media Governance	Policymaking, media regulation
10	Abbasi and Mohammadi (2022)	Challenges of Implementing Artificial Intelligence in Iranian Media	Infrastructure, human resources
11	Rahimi (2021)	Robotic Journalism: Opportunities and Threats	Automation, audience trust
12	Fallahi and Ahmadpour (2023)	Artificial Intelligence and Strategic Media Management	Strategic planning, competitive advantage
13	Akbari (2022)	Smart Media and the Future of Communication	Technological convergence, innovation
14	Jafari and Ghorbani (2021)	Intelligent Content Analysis in Online News Agencies	Natural language processing, text analysis
15	Naderi (2023)	Audience Trust in Algorithm-Based Media	Media legitimacy, transparency
16	Kazemi and Yaghoubi (2022)	The Role of Artificial Intelligence in Media Marketing	Audience behavior analysis, targeting
17	Taheri (2021)	Data Governance in Digital Media	Data security, privacy
18	Rostami and Bahrami (2023)	Artificial Intelligence and Editorial Decision-Making	Decision support, error reduction
19	Mirzaei (2022)	Media, Technology, and the Transformation of Journalism as a Profession	Changing roles, new skills
20	Soleimani and Mahmoudi (2022)	A Conceptual Model of Smart Media Management	Conceptual modeling, managerial dimensions

The findings of the systematic review showed that although numerous studies have addressed the technical applications of artificial intelligence in media, comprehensive managerial models with a localized and context-based approach, especially at the level of local and regional media, have received less attention. This research gap revealed the necessity of conducting the present study and integrating the findings of the literature review with field data obtained from experts.

Table 3. Conceptual Clustering of Components

Conceptual Cluster	Key Components	Foreign Sources	Domestic Sources
AI governance and policymaking	Establishing macro-level frameworks, control, and accountability	Young et al. (2025); Helberger et al. (2024); Napoli (2024); Diakopoulos (2023); Ananny and Crawford (2024)	Zare (2023); Taheri (2021)
Ethics and media legitimacy	Maintaining trust, transparency, and algorithmic fairness	Broussard (2024); Carlson (2023); Diakopoulos (2023); Dodds et al. (2025)	Mousavi and Sharifi (2022); Naderi (2023); Rahimi (2021)
Strategic management and leadership	Guiding media organizations in AI adoption	Hansen et al. (2024); Osbay and Sak (2025); Dodds et al. (2025)	Fallahi and Ahmadpour (2023); Ahmadi and Karimi (2023)
Technological infrastructure and resources	Technical, data, and security infrastructures	Kim and Lee (2024); Peña-Fernández et al. (2025)	Abbasi and Mohammadi (2022); Taheri (2021)
Human resource management	Training, skill development, and role transformation	Kazemi and Ali (2025); Lewis et al. (2023); Tandoc et al. (2023)	Dehghani and Yousefi (2023); Mirzaei (2022)
Intelligent content production and processing	Automation and analysis of news content	Graefe (2024); Ansari et al. (2025); Beckett and Yaseen (2023)	Sadeghi and Hemmati (2023); Jafari and Ghorbani (2021)
Editorial control and supervision	Quality assurance and professional authority	Carlson (2023); Wu et al. (2024)	Hosseini (2022); Sadeghi and Hemmati (2023)
Decision-making and media performance	Productivity and decision support	Kang et al. (2024); Wu et al. (2024)	Ahmadi and Karimi (2023); Rostami and Bahrami (2023)
Audience, market, and interaction	Personalization and loyalty-building	Zamith (2024); Newman (2024)	Rezaei (2022); Najafi and Moradi (2021)
Innovation and digital transformation	Competitive advantage and media sustainability	Marconi (2024); Gynnild (2024); Newman (2024)	Ghasemi (2021); Akbari (2022)

To transform the components and subcomponents identified from previous studies into a coherent conceptual model, it is first necessary to determine the logic governing the relationships among them and then organize these

components into classifiable macro-level dimensions. Since the factors affecting the application of artificial intelligence in media have a multidimensional and multilevel nature, merely listing them cannot provide a clear picture of the mechanism of influence and interaction among the factors. Therefore, in this study, the extracted components were classified into several main domains using a conceptual aggregation approach based on semantic and functional similarity. This classification reduced conceptual dispersion and made systematic and comparable analysis possible. The result of this process was the formation of a conceptual model in which the key components were organized into four environmental/institutional, organizational, technological, and human domains. The model shows how these domains interactively shape strategies for applying artificial intelligence in media and ultimately lead to performance-related, content-related, audience-oriented, and social outcomes.

To explain the managerial dimensions of applying artificial intelligence in news media in Khuzestan Province, in-depth and semi-structured interviews were conducted with experts and senior managers in this field. The purpose of this qualitative phase was to discover and extract localized concepts, challenges, opportunities, and requirements that have received less attention in the existing literature. The content analysis of these interviews was conducted using a grounded theory approach, including open, axial, and selective coding, which ultimately led to the identification of a set of axial categories and underlying components. The main findings derived from the interview texts and the identified components are presented below. These components constitute the foundation for designing the managerial model of the study and, in later stages, will be measured and validated through a quantitative questionnaire. To systematize the interview texts obtained from experts and identify the dominant orientation of their perspectives, the analysis of responses went beyond the extraction of initial codes, and an attempt was made to identify and distinguish the dominant dimensions in each expert's statements. This analysis showed that although the experts overlapped in many concepts, each placed greater emphasis on a specific dimension or component of managing the application of artificial intelligence in news media. Accordingly, the responses provided by the experts were categorized according to the "dominant dimension" so that the pattern of experts' conceptual focus and the diversity of their specialized viewpoints could be observed more clearly.

The experts' perspectives covered a wide range of managerial, technological, human, ethical, economic, and local dimensions, reflecting the multidimensional and complex nature of applying artificial intelligence in online news media. The focus of some experts on strategy and management, others on data and technical infrastructure, and still others on professional ethics, local identity, user experience, and media economics indicates that none of these dimensions alone can fully explain the phenomenon under study. This conceptual diversity formed the basis for extracting axial categories and developing the integrated research model. Through the integration of these dimensions, the groundwork was provided for designing a localized, responsible, and implementable model for managing the application of artificial intelligence in news platforms in Khuzestan Province.

Table 4. Components of the Final Conceptual Model

Main Component	Subcomponents
Core phenomenon	Integrated, locally oriented, and responsible management of the application of artificial intelligence in online news media in Khuzestan Province
Causal conditions	The need to increase the speed, accuracy, and efficiency of news production
	Increasing competition among online media and social networks
	Economic pressures and reduction of media financial resources
	Expansion of artificial intelligence technologies in the media industry
Contextual conditions	The cultural and local identity of Khuzestan Province
	Linguistic, ethnic, and social diversity

	The level of local audiences' trust in media
	The current status of online news media in the province
Intervening conditions	The organizational culture of the newsroom, including acceptance or resistance
	The level of human resources' skills and digital literacy
	The quality of technological and data infrastructure
	The degree of transparency and trust-building among audiences
Strategies	Designing a governance framework and human oversight of AI
	Defining the boundaries between human and machine roles in news production
	Gradual and phased implementation of artificial intelligence
	Localization of algorithms and data
	Continuous training of human resources
	Labeling and clarifying AI-generated content
Outcomes	Increased efficiency and quality of news content
	Enhanced audience trust and satisfaction
	Strengthened economic sustainability of media
	Preservation and reinforcement of local identity in news representation
	Intensified audience distrust
	Algorithmic bias and elimination of local narratives
	Organizational resistance and erosion of human capital

As shown in the table above, the categories extracted from the qualitative data analysis were organized within a coherent paradigmatic model that explains the core phenomenon of "integrated, locally oriented, and responsible management of the application of artificial intelligence in online news media in Khuzestan Province." The causal conditions indicate the structural and technological pressures that have pushed online media toward using artificial intelligence, whereas the contextual conditions highlight the specific cultural, social, and media-related characteristics of Khuzestan Province as the context in which this phenomenon is formed. In addition, intervening conditions play a decisive role in facilitating or weakening the process of AI deployment and can directly affect the success or failure of the adopted strategies. The identified strategies represent the conscious managerial approaches of media organizations in dealing with this emerging technology, which ultimately lead to dual outcomes. On the one hand, they may improve efficiency, content quality, audience trust, and the economic sustainability of media organizations; on the other hand, in the absence of responsible management, they may result in risks such as algorithmic bias, weakening of local identity, and increased audience distrust. This paradigmatic model formed the basis for designing the final research model and entering the quantitative validation phase.

In the causal conditions, economic pressures and survival requirements, on the one hand, along with the decline in traditional advertising revenues, dependence on traffic and user engagement, and the necessity of reducing operational costs, have compelled media organizations to use emerging technologies. On the other hand, developments in the media environment, including intense competition in the news market, the acceleration of the production and publication cycle, the explosion of data and user-generated content, and the decline in audience trust due to fake news, have created a context in which the continuity of media activity would be difficult without the use of intelligent tools. Alongside these factors, changes in audience expectations and behaviors, such as the tendency toward content personalization, cross-platform consumption, and sensitivity to speed, accuracy, and user experience, play an important role in pushing media organizations toward the use of artificial intelligence. Taken together, these causal conditions explain why the core phenomenon of the study is formed and highlight the necessity of conscious and purposeful management of artificial intelligence in news media.

Contextual conditions include three main dimensions: “human and skill resources,” “organizational structure and culture,” and “media technological infrastructure,” which function as the context for the formation and implementation of the core phenomenon. The level of data literacy and journalists’ familiarity with AI tools, human–machine hybrid skills, and managers’ readiness for data-driven decision-making play a decisive role in the successful implementation of AI. In addition, an organizational culture based on learning, innovation, and trust in technology can shape acceptance of or resistance to artificial intelligence. Moreover, access to structured and unstructured data, media digital maturity, and the existence of analytical and intelligent tools and platforms provide the technological context necessary for the effective application of artificial intelligence. Overall, these contextual conditions show that AI management in media is not merely a technological decision but a phenomenon dependent on human, organizational, and infrastructural capacities.

Furthermore, three categories of key factors play an intervening role: media policymaking and governance, including the absence of clear national frameworks, data and content regulations, and institutional monitoring mechanisms; professional risks and concerns, including fear of job elimination, reduced newsroom independence, and the possibility of algorithmic bias; and ethical and legal considerations, including user privacy, algorithmic transparency, and accountability for AI errors.

Accordingly, even if causal needs and contextual conditions are present, the intensity and direction of the influence of these factors determine the extent to which media strategies, such as human oversight, transparency, phased implementation, and localization, succeed and whether outcomes move toward trust, quality, and sustainability or toward distrust, professional conflict, and legal risks.

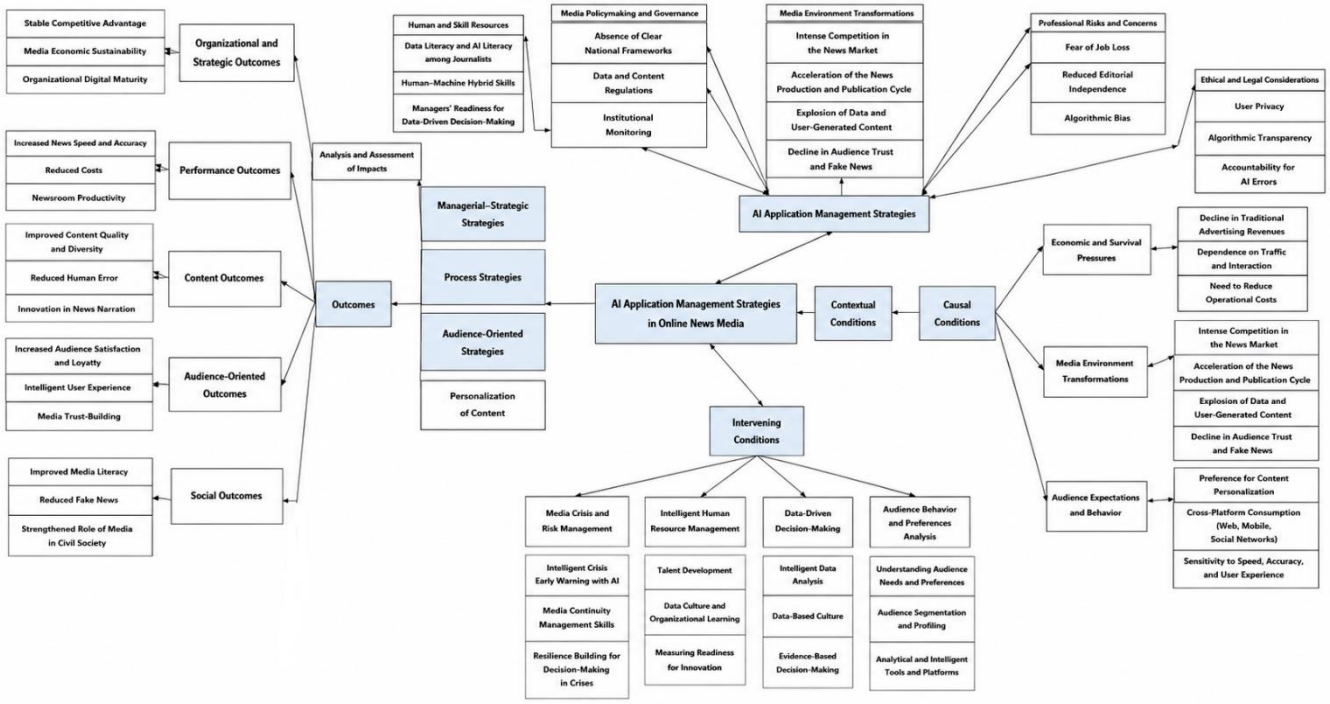

Figure 1. Conceptual Model of the Study

In this section, the structural equation modeling approach was used to examine the validity of the model. The fit of the research model was examined in three parts: the measurement model, the structural model, and the overall

model, in order to determine the extent to which the research model fits the data collected from the statistical sample.

To examine the existence or non-existence of relationships among variables, the significance of all relationships among the variables must be confirmed. If these values exceed the critical value, for example, the critical value of 1.96 at the 95% confidence level, this indicates the validity of the relationship between the constructs and, consequently, the confirmation of the research hypotheses. It should be noted that t-values only indicate the validity of the relationships and cannot be used to assess the strength of the relationships among constructs (Davari & Rezazadeh, 2013). The significance results for all paths are presented in the figure.

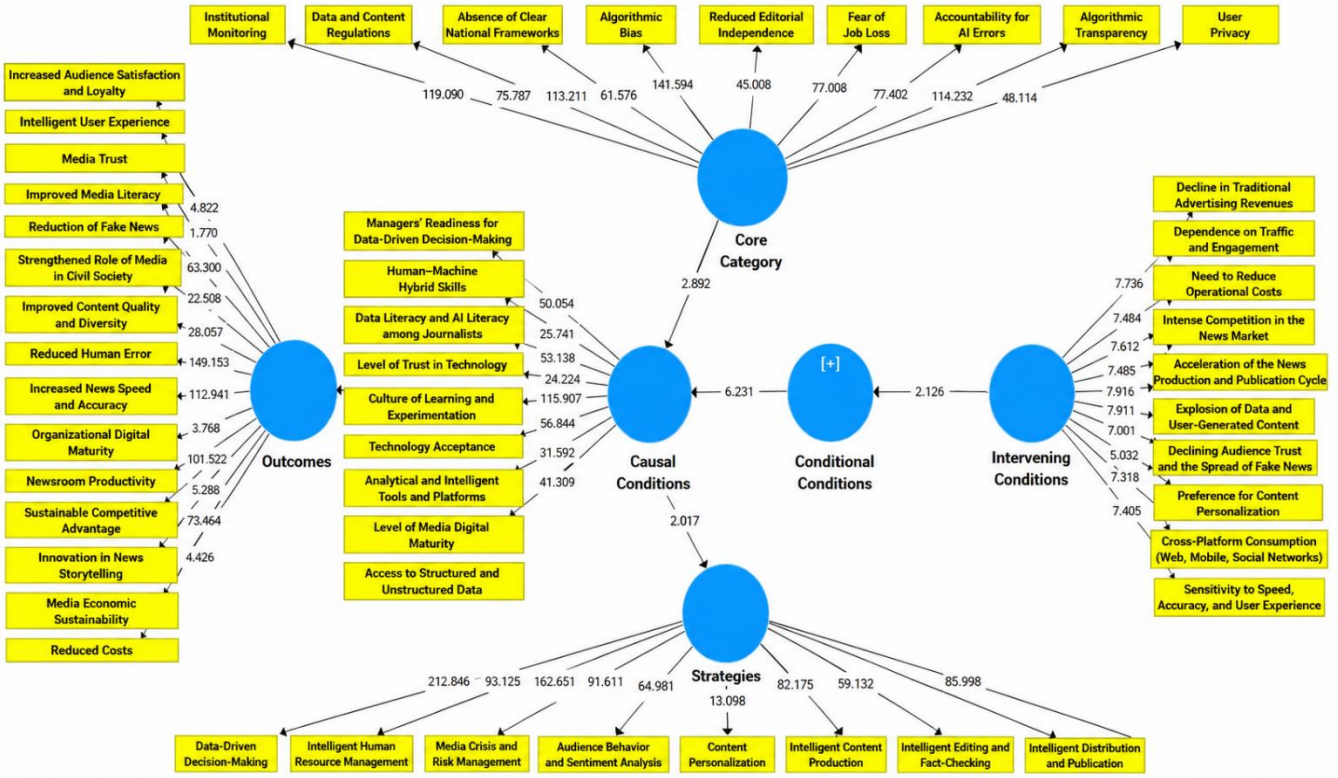

Figure 2. Significance Coefficients of the Model

As shown in Figure 2, the t significance level is confirmed for all paths of the model. This confirms the significance of all relationships among the latent variables of the study at the 95% confidence level, indicating the appropriate fit of the structural model. Significance coefficients determine the significance of the effects of variables and the confirmation or non-confirmation of the research hypotheses. In contrast, standardized path coefficients determine the strength of the effects of variables on one another. Figure 3 shows the standardized estimate of the model for examining the research hypothesis.

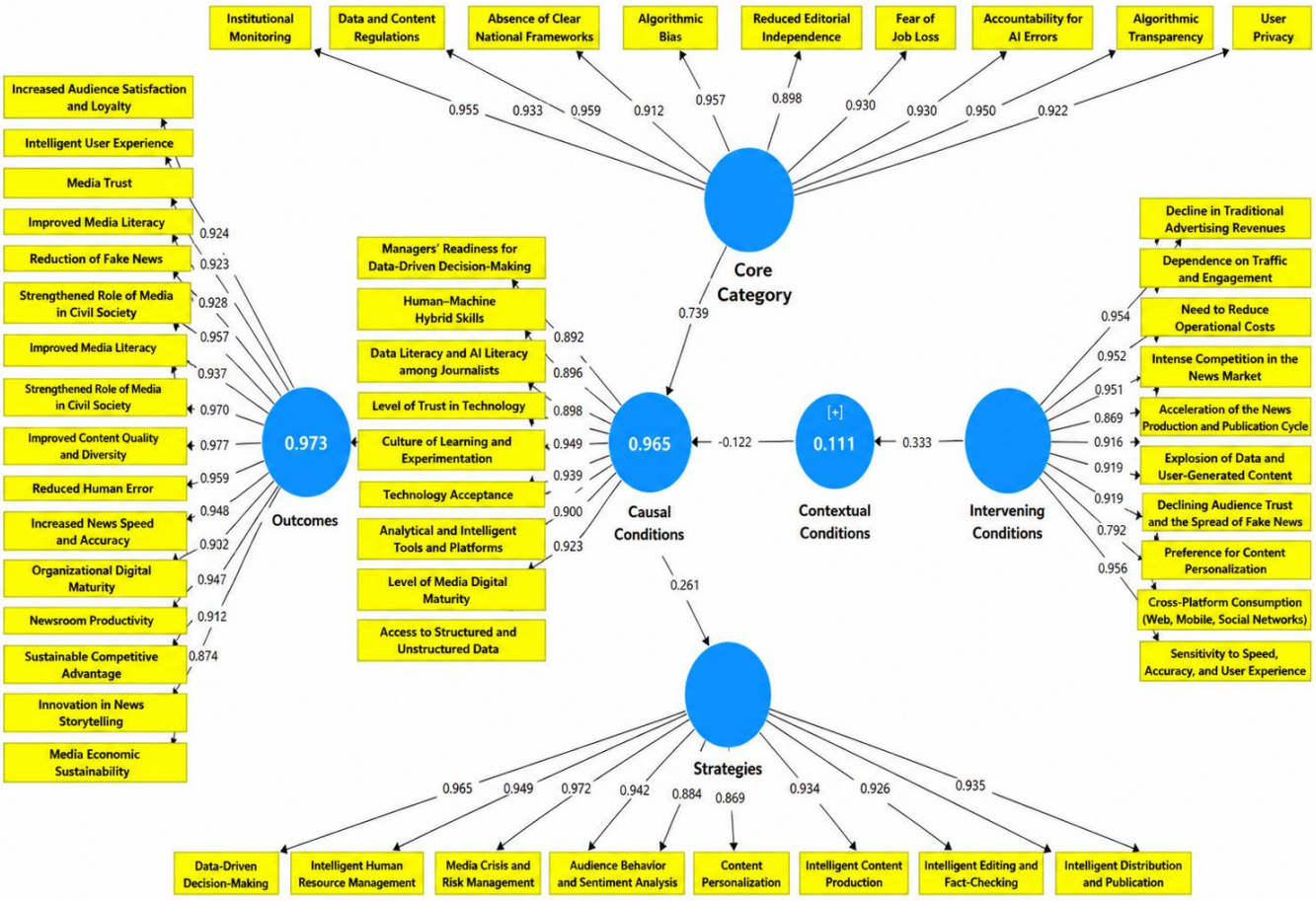

Figure 3. Standardized Estimate of the Model

Considering the existence of a mediating variable, the Sobel test was used to assess its significance. Accordingly, the Sobel test results showed that the test values, namely the z-values, were higher than 1.96; therefore, the mediating variable of live-streaming platforms was significant in the model. Thus, based on the model, the estimation results can be presented in the following table.

Table 5. Model Estimation Results

Independent Variable	Dependent Variable	Path Coefficient	t-Value
Causal conditions	Core category	0.33	2.357
Core category	Strategies	0.122	6.865
Intervening conditions	Strategies	0.739	2.753
Contextual conditions	Strategies	0.261	2.017
Strategies	Outcomes	0.468	2.052

It should be noted that the t-statistic in the above relationships was greater than 1.96; accordingly, the mentioned variables are statistically significant.

Discussion and Conclusion

The findings of the present study led to the development and validation of a comprehensive model for managing the application of artificial intelligence in online news media in Khuzestan Province. The results demonstrated that AI application management in media is a multidimensional phenomenon influenced by causal, contextual, and intervening conditions, which collectively shape managerial and operational strategies and ultimately lead to a range

of organizational, performance-related, content-related, audience-oriented, and social outcomes. The structural model exhibited satisfactory fit and all hypothesized relationships were statistically significant, indicating that the proposed conceptual framework provides a valid explanation of the factors affecting AI adoption and management in online news organizations. In particular, the results revealed that causal conditions exert a significant influence on the core phenomenon, while contextual and intervening conditions significantly affect the implementation of AI-related strategies. These findings confirm that the successful application of AI in media cannot be understood solely as a technological issue but rather as a complex managerial process involving organizational readiness, governance structures, technological capabilities, and environmental pressures.

One of the most important findings of the study concerns the role of causal conditions in shaping the adoption of AI in online news media. The results indicated that economic pressures, increasing competition, accelerated news production cycles, the proliferation of user-generated content, and changing audience expectations create strong incentives for media organizations to adopt AI technologies. This finding is consistent with contemporary perspectives suggesting that AI adoption in media is primarily driven by the need to improve efficiency, competitiveness, and organizational sustainability in increasingly complex communication environments (1, 2, 5). The growing pressure on media organizations to produce more content with fewer resources has encouraged the use of intelligent technologies capable of automating repetitive tasks and supporting editorial processes. Previous studies have similarly reported that digital transformation and technological innovation are becoming essential requirements for media survival in highly competitive markets (6, 9, 16). The findings also support research emphasizing that changing audience behavior, including demand for personalization, speed, and multi-platform accessibility, constitutes a major catalyst for AI implementation in journalism and digital media (12-14).

Another important result relates to the significance of contextual conditions. The findings demonstrated that human resource capabilities, organizational culture, technological infrastructure, and digital maturity significantly influence the effectiveness of AI management strategies. This result highlights the fact that the successful implementation of AI depends on much more than access to advanced technologies. Organizations require skilled personnel, supportive cultures, and adequate infrastructure to fully realize the benefits of AI systems. This finding is strongly aligned with studies indicating that digital transformation requires simultaneous development of technological and human capabilities (8, 21, 33). Hansen et al. argued that organizational readiness and leadership support are among the most important determinants of successful AI adoption in journalism (5). Likewise, research in the Iranian media context has emphasized the importance of infrastructure development, digital literacy, and organizational preparedness in facilitating AI implementation (40, 41, 46). The prominence of contextual conditions in the present study suggests that AI management strategies are likely to fail if media organizations neglect investments in human capital, organizational learning, and technological infrastructure.

The findings also revealed a significant role for intervening conditions, particularly media governance, professional risks, and ethical considerations. These results indicate that even when causal pressures and contextual capabilities are present, the success of AI implementation may be enhanced or constrained by regulatory frameworks, ethical concerns, and perceptions of professional risk. This finding is highly consistent with the growing body of literature emphasizing the importance of governance and accountability in AI-enabled media environments (24-26). The concerns identified by participants regarding algorithmic bias, editorial independence, transparency, accountability, and privacy reflect challenges that have been widely discussed in international research. Scholars have argued that public trust in AI-supported journalism depends largely on the transparency and explainability of

algorithmic processes (23, 27, 34). Similarly, concerns about job displacement and professional autonomy correspond closely with studies showing that journalists often perceive AI simultaneously as an opportunity and a threat (18, 31, 32). The present findings therefore reinforce the argument that AI governance must be integrated into media management frameworks rather than treated as a secondary or purely technical consideration.

The study further identified several strategic dimensions through which media organizations manage AI applications. These included data-driven decision-making, intelligent human resource management, media crisis and risk management, audience behavior analysis, content personalization, intelligent content production, intelligent editing and verification, and intelligent distribution and publication. The prominence of these strategies demonstrates that AI has evolved beyond isolated technological applications and is increasingly embedded within core managerial and operational functions. This finding supports previous studies describing the emergence of smart newsrooms characterized by integrated AI-supported workflows (6, 7, 9). Moreover, the importance of audience analysis and personalization strategies corresponds with evidence suggesting that algorithmic recommendation systems have become central mechanisms for increasing user engagement and loyalty (12, 13, 35). The emphasis on intelligent editing and fact-checking is also noteworthy because it demonstrates that participants view AI not merely as a content-generation tool but also as a mechanism for enhancing journalistic quality and credibility. This observation aligns with studies highlighting the growing role of AI in supporting editorial decision-making and content verification (10, 11, 44).

The results concerning organizational and performance outcomes further support the strategic value of AI in media environments. Participants identified outcomes such as increased news production speed, improved accuracy, enhanced productivity, digital maturity, reduced operational costs, and sustainable competitive advantage. These findings are consistent with studies demonstrating that AI technologies can significantly improve organizational efficiency and workflow optimization (5, 6, 8). The observed relationship between AI strategies and competitive advantage also supports strategic management perspectives emphasizing innovation as a source of organizational sustainability (15-17). Furthermore, the findings suggest that AI adoption contributes to digital maturity by enabling media organizations to transition from traditional operational models toward more intelligent and data-driven approaches. Such transformations are increasingly necessary as media organizations compete within digitally networked ecosystems characterized by rapid technological change and audience fragmentation (2, 3, 51).

The content-related outcomes identified in the study provide additional evidence regarding the transformative impact of AI on journalism. Participants reported improvements in content quality and diversity, reductions in human error, and increased innovation in news storytelling. These findings align closely with recent research indicating that AI can augment journalistic creativity and facilitate the production of more sophisticated and data-rich content (8, 19, 20). The reduction of human error through automated verification and analytical processes has also been documented in previous studies examining AI-assisted journalism (7, 10, 45). Moreover, the identification of innovation in storytelling as an outcome supports arguments that AI is enabling new forms of narrative construction and audience engagement, thereby expanding the creative possibilities available to journalists and media organizations (20, 39, 55).

The audience-oriented outcomes identified in the study are equally significant. Increased audience satisfaction, intelligent user experiences, and greater trust in media emerged as important consequences of effective AI management. These findings are consistent with previous research demonstrating that personalized content

delivery and enhanced user experiences contribute to audience engagement and loyalty (12-14). Importantly, the relationship between AI management and media trust highlights the importance of responsible implementation. While AI can strengthen trust through improved relevance and accuracy, poorly governed systems may undermine credibility through bias, opacity, or misinformation. This dual potential has been emphasized by scholars examining algorithmic journalism and media legitimacy (23, 25, 49). Therefore, the positive audience outcomes identified in the present study appear to depend heavily on the integration of ethical safeguards and transparent governance practices.

Finally, the identification of social outcomes such as improved media literacy, reduced fake news, and strengthened media contributions to civil society underscores the broader societal implications of AI management in journalism. These findings support arguments that AI can serve not only organizational objectives but also public-interest goals when deployed responsibly (26, 34, 35). The reduction of misinformation through intelligent verification systems corresponds with previous studies highlighting the potential of AI to improve information quality and support democratic discourse (3, 28, 39). Similarly, enhanced media literacy may emerge as audiences become more aware of AI-generated content and algorithmic processes. Overall, the results suggest that effective AI management can generate value at multiple levels, including organizational, professional, audience, and societal domains.

One limitation of the present study concerns its geographical focus on online news media in Khuzestan Province, which may limit the generalizability of the findings to other regions with different cultural, organizational, and technological conditions. In addition, the cross-sectional nature of the quantitative phase does not allow for examination of changes in AI adoption and management practices over time. The study also relied primarily on the perceptions of media professionals, which may be influenced by subjective experiences and organizational contexts.

Future research should examine the proposed model in different regional, national, and international contexts to assess its applicability across diverse media environments. Longitudinal studies could investigate how AI adoption evolves over time and how organizational learning influences implementation outcomes. Researchers may also explore specific dimensions of the model, such as algorithmic governance, audience trust, ethical decision-making, and human–AI collaboration, using mixed-methods and comparative approaches.

From a practical perspective, media organizations should develop comprehensive AI governance frameworks that integrate technological innovation with ethical accountability. Investments in digital infrastructure, employee training, and data literacy programs are essential for successful implementation. Managers should encourage organizational cultures that support learning, experimentation, and responsible innovation while maintaining meaningful human oversight over AI-supported processes. Furthermore, transparent communication regarding the use of AI technologies can strengthen audience trust and enhance the long-term sustainability of digital media organizations.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adheried in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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