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Artificial Intelligence and the Future of Journalism: Risks and Opportunities

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Abstract. *Artificial Intelligence (AI) has become an increasingly prominent subject, drawing public interest and leading to a rise in both scholarly research and media attention. This article explores how AI is portrayed in journalistic contexts by the media in Brazil and Portugal, along with the challenges it introduces. Nonetheless, issues such as misinformation, ethical concerns, and potential threats to journalistic integrity received relatively little attention. The analysis highlighted major themes such as AI's dual nature as both beneficial and potentially harmful, the necessity for human oversight, and the difficulties media organizations face in adapting to these changes. Overall, the study indicates that the media in Brazil and Portugal tend to frame AI as a beneficial development for journalism, while often minimizing its risks and ethical dilemmas.*

Key words: *artificial intelligence; digital methods; journalism; media coverage; sentiment analysis.*

Recent advancements in Artificial Intelligence (AI) have brought transformative changes to virtually all sectors of society, including healthcare, education, finance, and especially the media. AI has become an integral part of how information is produced, distributed, and consumed, altering journalistic practices and reshaping the public's relationship with news. However, the origins of AI and its evolution into a powerful technological force trace back several decades.

The earliest discussions surrounding AI date back to the 1940s, a period marked by intense curiosity about whether machines could replicate human cognition. During this era, pioneering scientists such as Alan Turing began to propose theoretical frameworks for machine intelligence. Turing's seminal 1950 paper, *"Computing Machinery and Intelligence,"* introduced the concept of the "Turing Test"—a method for determining whether a machine could exhibit behavior indistinguishable from that of a human. These foundational ideas laid the intellectual groundwork for future developments in AI.

The formal establishment of AI as a distinct field occurred in 1956 at the Dartmouth Summer Research Project on Artificial Intelligence in the United States. This conference, organized by leading researchers including John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude Shannon, marked a significant milestone. The proposal submitted for the event described the goal of making machines "use language, form abstractions and concepts, solve kinds of problems now reserved for humans, and improve themselves." This visionary statement shaped decades of subsequent AI research.

One of the major contributions to AI's development during this period came from Claude Shannon, who is often regarded as the father of information theory. His work involved applying mathematical and statistical models to human language, which allowed for the prediction and analysis of linguistic patterns. Shannon's theories not only helped revolutionize telecommunications and cryptography but also laid the foundation for later advancements in natural language processing (NLP).

Over the decades, AI evolved through various stages—expert systems in the 1970s and 1980s, machine learning in the 1990s, and deep learning in the 2010s. These advances led to the emergence of Large Language Models (LLMs), a class of AI systems trained on vast datasets to understand and generate human-like text. LLMs, such as OpenAI's ChatGPT, Google's Gemini, and Meta's LLaMA, represent a major leap forward in natural language understanding. They are capable of engaging in coherent conversation, answering complex questions, composing articles, translating languages, and even performing creative writing tasks.

The rise of LLMs has sparked both excitement and concern. On the one hand, they offer unprecedented tools for communication, education, and productivity. On the other, they raise important questions about ethics, authorship, misinformation, and the potential loss of human jobs. In the media industry, for example, AI can assist journalists by automating repetitive tasks such as data analysis, transcription, and even content generation. Yet, this technological integration also poses risks to editorial integrity, journalistic standards, and the role of human oversight in newsrooms.

In summary, the story of AI is one of long-term evolution rooted in mid-20th-century scientific inquiry, culminating in technologies that are now deeply embedded in daily life. As society continues to grapple with the benefits and challenges of AI, understanding its origins and implications remains essential for responsible development and use.

In the following decades, numerous computer scientists made efforts to emulate human reasoning within machines, aiming to solve complex mathematical problems, develop planning capabilities, and even simulate activities like board games (Russell and Norvig 2016). Nonetheless, it was only in more recent years that AI became a tangible part of everyday life, largely due to its integration into smartphones and widespread internet services (Canavilhas and Essenfelder 2022). Today, nearly every digital task we perform is influenced or facilitated by AI algorithms, developed by major technology corporations such as Google, Microsoft, Meta, Amazon, and Apple. The constant presence of AI technologies in daily routines has significantly contributed to growing public engagement with the subject—but this is not the only driver.

The rise in popularity of ChatGPT and other forms of generative AI has further amplified public curiosity surrounding AI (Sanin 2023). This increased interest has led individuals to actively seek more information, prompting the media to produce a greater volume of AI-related content. Although journalistic coverage of AI has been steadily increasing over the past decade, AI-related articles still represent a relatively small share of the total news published each day (Nguyen and Hekman 2022). According to the authors, media attention peaked in 2018 before declining, indicating a potential "hype cycle" similar to that seen during the rise of big data (Nguyen and Hekman 2022). However, with the emergence of ChatGPT, a new wave of enthusiasm has taken hold—one that remains prominent and continues to provoke new questions and debates.

Alongside the growing public interest, there has also been a noticeable expansion in the use of AI tools within the media sector itself (Beckett and Yaseen 2023). For instance, Uzbek language AI models have been implemented in niche media outlets, as well as in mainstream television networks,. These developments reveal a gap in existing research: what perspectives douzbek media hold regarding the use of AI in journalism? What sentiments are expressed in their coverage of AI? This study seeks to explore these questions by examining the current challenges AI poses to journalism, as reflected through the lenses of media outlets in Uzbekistan

The integration of artificial intelligence (AI) in journalism has expanded notably in recent years, often described through terms like “computational journalism” (S. Cohen et al., 2011), “algorithmic journalism” (Anderson, 2013), and “automated journalism” (Nickolas, 2019). AI is increasingly used in newsrooms for analyzing data from diverse sources, converting text into audio and video, and detecting sentiment (Calvo Rubio & Ufarte Ruiz, 2021). Major media outlets such as The New York Times, The Washington Post, and the Associated Press have successfully implemented AI technologies in their operations (Chan-Olmsted, 2019). Similarly, Chinese organizations like the state-run Xinhua News Agency employ AI tools such as Media Brain to auto-generate news segments (Yu & Huang, 2021).

AI supports the development of news recommendation systems (Helberger, 2019; Túñez-López et al., 2021) and plays a pivotal role in data mining, trend analysis, topic identification, and fact-checking (Latar, 2015; Noain-Sánchez, 2022). Journalists frequently rely on online platforms, websites, and social media forums to discover stories quickly (Parratt-Fernández et al., 2021). In data analysis, AI not only aids in generating news content but also in understanding audience preferences (Chou et al., 2021). According to Charlie (Charlie, 2019), AI tools like machine learning, automation, and data processing are central to the news cycle—from gathering information to content creation and distribution. These technologies enhance competitiveness in today's fragmented media landscape (Chou et al., 2021).

Despite these advantages, AI implementation in journalism encounters several challenges. AI models are often developed for specific types of stories, meaning each new project may require new training, limiting cost efficiency (Stray, 2019). Investigative journalism using technologies like computer vision demands significant investment in infrastructure and skilled personnel (de-Lima-Santos & Mesquita, 2021). Moreover, AI systems frequently rely on outdated or biased datasets, raising serious ethical issues (Guzman & Lewis, 2020). The high costs of integrating AI also pose a financial burden on newsrooms (Broussard et al., 2019).

Although AI is not a universal solution, it offers innovative capabilities that require media professionals to deepen their understanding in order to effectively develop and apply these tools. Issues like power relations, the enforcement of AI-driven systems, and adherence to ethical and legal standards must be carefully examined (Broussard et al., 2019). AI algorithms often reflect the values and biases of their developers, and technology companies typically lack transparency in addressing algorithmic bias (Bird et al., 2016). Research has uncovered AI's reinforcement of social biases, such as gender (Bolukbasi et al., 2016), racial discrimination (Buolamwini & Gebru, 2018; Campolo & Crawford, 2020), and negative psychological impacts like lowered self-esteem or the spread of misinformation and violence (Haugen, 2023). These biases challenge the application of AI across different nations and cultural settings, as the embedded values may not seamlessly translate. Hence, any exploration of AI's role in journalism should be sensitive to varying global cultural contexts.

The UTAUT framework has gained traction in media journalism for examining how key factors—such as performance expectancy, effort expectancy, and social influence—affect technology acceptance. Research has also mapped out how UTAUT applies to journalists' adaptation to new technologies, including its evolution and future directions (Ahadzadeh et al., 2021; Peng & Miller, 2021; C. T. Pham & Thi Nguyet, 2023). UTAUT has been employed to analyze each phase of technology adoption, from early consideration to long-term use. Its core components include performance expectancy (the belief that technology improves job performance), effort expectancy (ease of use), social influence (peer pressure or support), and facilitating conditions (available technical and organizational infrastructure) (Venkatesh et al., 2003).

The research framework identifies four main research avenues: exploring antecedents of UTAUT constructs (Morris & Venkatesh, 2010; Morris et al., 2005; Venkatesh et al., 2004), interventions to promote adoption, moderating factors in UTAUT relationships, and new variables and outcomes. UTAUT has consistently demonstrated strong predictive power across various contexts and technologies (Venkatesh et al., 2012, 2016; Xu et al., 2017).

According to Venkatesh (2022), UTAUT offers a robust structure for evaluating adoption influences specific to particular technologies. These influences include individual traits such as personality (Thong, 1999), technological features like system quality (Venkatesh et al., 2007), environmental aspects such as innovation culture (Venkatesh & Bala, 2008), and intervention methods like training programs (Venkatesh et al., 2016). Personal factors like risk tolerance and eagerness to learn (Venkatesh, 2000), perceptions of AI model accuracy and transparency, and an organization's innovation-friendly atmosphere can significantly affect AI adoption. Furthermore, intervention strategies like training should be examined for their effectiveness in increasing usage (Venkatesh & Bala, 2008).

Numerous studies have validated UTAUT's reliability and adaptability, with results showing its superiority over competing models in predicting technology adoption. Bervell and Umar (2017) advocated for testing enhanced UTAUT versions with complex variables. Jacob and Pattusamy (2020) provided empirical evidence from Germany and India supporting UTAUT's validity in both contexts. Likewise, Abdullahi et al. (2021) used the model to examine e-learning adoption among Nigerian language teachers during the COVID-19 pandemic, finding it outperformed eight other frameworks.

Given these insights, the current study adopts UTAUT to guide future research on the individual, technological, environmental, and intervention-related factors influencing AI adoption in journalism. These recommendations could assist organizations in shaping effective adoption strategies and expanding the scholarly discourse on technology integration in media (Venkatesh, 2022; Zhang & Venkatesh, 2018).

UTAUT provides a comprehensive lens for identifying the variables that influence behavioral intention and usage patterns while accounting for moderating effects that may strengthen or weaken these relationships. Drawing from UTAUT, this study examines the impact of Performance Expectancy (PE), Effort Expectancy (EE), and Social Influence (SI) on an individual's intent to adopt new technologies. Additionally, Facilitating Conditions (FC) and Behavioral Intention are proposed as significant determinants of actual usage behavior (Venkatesh et al., 2003; Williams et al., 2015).

The integration of the Unified Theory of Acceptance and Use of Technology (UTAUT) into journalism research provides a robust analytical lens to understand how digital technologies—especially artificial intelligence—are being adopted within media organizations. As this study demonstrates, the constructs of performance expectancy, effort expectancy, social influence, and facilitating conditions remain central to explaining journalists' and media workers' willingness to engage with emerging tools. However, the rapidly evolving nature of AI technologies demands that these models be contextualized and updated to reflect new dynamics such as algorithmic decision-making, automated content production, and data-driven editorial strategies.

Our analysis highlights the critical need for ethical considerations and transparent governance in the adoption of AI-powered systems, particularly in investigative journalism and editorial processes. Furthermore, organizational culture, technological infrastructure, and journalists' digital competencies play pivotal roles in determining successful implementation. As media industries continue to undergo digital transformation, the UTAUT framework serves not only as a diagnostic tool but also as a guide for designing more human-centered and socially responsible innovation strategies in journalism.

Future research should explore longitudinal applications of the UTAUT model in journalism, incorporating variables such as trust in AI, perceived loss of editorial autonomy, and the psychological impact of algorithmic surveillance. Addressing these elements will enhance our understanding of the socio-technical landscape of modern journalism and ensure that technological advancement aligns with the democratic and ethical imperatives of the profession.

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