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Evaluating the Impact of Natural Language Generation on Digital Journalism: Ethical, Practical, and Perceptual Influences

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ABSTRACT

This paper aims to explore how the revolutionary technologies Natural Language Generation (NLG) and Artificial Intelligence (AI) are affecting journalism, how these technologies are being applied in producing news articles, and how readers are taking this in, especially in the current world. Thus, the use of AI as a transformative tool in journalism modifies both content generation and its reception. The study looks at the reception of the audiences as well as the ethical implications of hypothetical AI-created content. For this study, a qualitative research approach was employed, including nineteen expert interviews with participants from different countries and an analysis of ten articles written by AI. The analysis is done based on the two aspects of artificial intelligence, which are the technical perspective and the social impact of the systems. The study shows that although articles written by AI can be regarded as efficient and more relevant from a factual perspective, they do not contain emotional saturation and contextual information, which is crucial for journalism. Practical concerns like bias, openness, and the changing journalism profession are all described in the study. In doing so, the research addresses the existing discussion on AI implementation in media in terms of possible risks and benefits of automating content production.

Keywords: *AI, Natural Language Generation, AI-Generated News, and Digital Journalism*

1. INTRODUCTION

The growth of AI has been best described as meteoric, which has impacted many industries, with journalism being among those with the biggest changes. In an attempt to suit the needs of the digital age reader, Newsrooms within media organizations have pioneered techniques such as Natural Language Generation. Through the transformation of structured data, NLG helps generate human-like narratives in the form of news articles in a relatively short time. But this technological progress gives rise to important and significant questions about the nature, morality, and reception of Artificial Intelligence-created material (Chataut et al. 2024).

In this paper, the authors aim to discuss AI presence in digital journalism, especially using NLG in automated news writing and its effect on reader perceptions. AI also offers to revolutionize productivity, tailor content, and control audience response. Yet, its adoption in journalism has its problems (Henestrosa & Kimmerle, 2024). Lingual biases, opaqueness around the supply of such content, and concerns with accountability and professionalism are all topics that need to be discussed. On these grounds, this research responds to the issue of how to promote the automated processes necessary for managing the vast amounts of written material available in today's globalized world while preserving the human factor, which has always been central to journalism (Cools & Diakopoulos, 2024).

Moreover, the study discusses the ethics of AI in news production as one of its major areas of analysis. This is done by posing and solving questions like algorithmic bias, how transparent AI systems ought to be, and how news organisations use these technologies. The paper also looks at how the role of the journalist is likely to change within an AI newsroom, focusing on

the argument that despite the use of the technology, the essence of journalism should continue to remain the interplay between human ingenuity and machine precision (Henestrosa & Kimmerle, 2024).

Thus, evaluating the strengths and weaknesses of AI in journalism, this thesis seeks to advance the discussion on the responsible integration of AI in media. It aims to help news organisations, policymakers, and technologists navigate the potential application of AI in journalism so that related implementation will not violate any ethical standards and diminish public confidence in this field. Thus, the study aims to fill the gap between IT adoption in the present environment and the humane core of journalism to ensure that integration of AI with human efforts in the new environment is achieved.

1.1 *Statement of the Problem*

The rapid advancements in Artificial Intelligence (AI), particularly in the form of Natural Language Generation (NLG), are significantly transforming the landscape of digital journalism. While NLG offers the potential to automate content creation at scale, it raises critical questions regarding the quality, ethics, and audience reception of AI-generated news. Despite the technological promise, there is a gap in understanding how these AI systems influence journalistic practices, especially in terms of content accuracy, emotional depth, and ethical standards.

2. LITERATURE REVIEW

The advent of Artificial Intelligence (AI), particularly through technologies like Natural Language Generation (NLG), has fundamentally transformed the landscape of digital journalism. NLG refers to the automated generation of coherent, human-like narratives from structured data, such as financial reports, sports summaries, or weather forecasts (Noain Sánchez 2022). This technology relieves journalists from routine tasks that require minimal creativity, allowing them to focus on investigative journalism and content that demands deeper insight. As AI tools evolve, they help enhance productivity, speed, and content delivery efficiency, presenting both opportunities and challenges for the future of journalism (Henestrosa & Kimmerle, 2024).

The application of AI in journalism can be traced back to the 1960s and 1970s, with early advancements in text synthesis. However, it was in the late 1990s and early 2000s that AI began making significant inroads into media organizations, initially for basic tasks like weather forecasts. Today, major news organizations are utilizing AI tools such as Wordsmith (Associated Press) and Heliograf (The Washington Post), which have proven effective in automating large volumes of content creation, such as earnings reports and live coverage of events like the 2016 Rio Olympics (Kevin-Alerechi et al. 2023).

Impact on Journalism and Content Quality: The abilities of NLG are quite astonishing, particularly in the areas of scalability and personalization. AI tools have the ability to produce large amounts of material that are customized according to the preferences, demographics, and geographical areas of readers. Storytelling is another thing that is improved with these systems, as reading is complemented with other multimedia features such as videos and pictures, which consequently make news readership more interactive and enjoyable (Cools & Diakopoulos, 2024). Also, the capacity of AI to scrutinize user actions and enhance when additional content is delivered further identifies that AI can benefit by captivating the audience and making the news relevant.

Nevertheless, there are also some serious ethical issues regarding the introduction of AI into journalism. The first problem is the bias of AI-written content. As AI systems are currently trained on existing computer databases, they tend to embrace the current bias in society, and consequently, this bias may be reproduced in the text that they create. This is a critical danger to the values of journalism in terms of accuracy, fairness, and unbiased aspects (Kevin-Alerechi et al. 2023). Moreover, the AI decision-making process has no transparency, which makes the process of accountability quite challenging because, in most cases, it is impossible to tell which party to blame for the malfunctioning of an AI model, journalists, or media outlets using the technology.

The subject of accountability in AI journalism is also connected to ethical concerns such as transparency and authorship. Outspoken opponents point to the need to mark AI-created content as such to keep readers and audiences confident in what they do and not mislead them about what the content they are reading is really all about. Moreover, ethical frameworks should be adopted by the news organizations to overcome these problems and make sure that AI tools are implemented in a manner corresponding to journalistic integrity (Henestrosa & Kimmerle, 2024). Being transparent about AI abilities and weaknesses will also allow news organizations to create the conditions under which the reader will have the tools to assess the situation when dealing with AI-based journalism.

Reader Perceptions and Cognitive Biases: Readers have widely different perceptions of AI-made content. Others value the pace, accuracy, and objectivity of the articles produced by AI, especially when it comes to a financial reportage or presentation of sports highlights. Nonetheless, some people claim that this

kind of material does not have the depth of emotions and views that human journalists attach to their work, and this aspect is vital to making their story interesting (Tesse 2024; Dörr & Hollnbuchner 2017). Such distrust is explained by the fact that there is a cognitive bias related to the excessive trust in artificial intelligence (automation bias) and hatred of the same (algorithm aversion), which influences how a person reads and even believes AI-generated pieces.

The Role of AI in Shaping Journalistic Practices: The role of AI has contributed differently to the practice of journalists as well. Instead of making journalists redundant, AI can be seen as an addition to the toolkit, which will enable the reporters to devote more attention to research, analysis, and critical thinking. These advancements in technology require that journalists acquire different skills, such as analyzing data and understanding how AI will impact their ethics. AI has also encouraged better cooperation in newsrooms since journalists collaborate with AI in an attempt to maximize content production (Oksymets 2024; Wagner 2022).

Challenges in AI Integration: Although AI integration has many benefits, it also has its share of difficulties in promoting AI use in journalism. Training AI systems with low-quality data requires subsequent reworking to fix the content produced. In case the information is incomplete or biased, such a gap is observed in the resulting contents, and doubts concerning the validity of the AI news produced can occur. Moreover, the involvement of expenses, technical difficulty, and compulsory understanding of AI applications is a complication that smaller news organizations cannot get through, which makes the widespread use of these tools more difficult (de Araujo 2018; Kevin-Alerechi et al. 2023).

Another concern is the potential for AI to generate fake news or manipulate public opinion. Given its ability to create realistic-sounding content, AI could be used to produce misleading or harmful narratives that undermine the credibility of journalism. To address these risks, it is crucial for media organizations to establish clear ethical guidelines and legal frameworks to prevent the misuse of AI technologies (Noain Sánchez 2022).

Future Outlook: Looking forward, AI is expected to play an even larger role in journalism, particularly through advancements in **live fact-checking, emotion-sensitive content,** and **immersive technologies** like **virtual** and **augmented reality.** These innovations could revolutionize how news is produced and consumed, enabling readers to experience stories in entirely new ways (Kevin-Alerechi et al. 2023). However, this future will depend on how well news organizations balance the **efficiency** of AI with the **ethical principles** that underpin quality journalism. By maintaining a balance between human creativity and machine efficiency, AI has the potential to improve the overall quality of journalism, enhancing both the speed and depth of news reporting while upholding ethical standards (Dörr 2015).

3. METHODS AND THEORY

3.1 *Methodology*

This research adopts a qualitative research methodology to explore the impact of Natural Language Generation (NLG) on digital journalism, with a specific focus on the ethical implications, quality of content, and reader perceptions. The methodology integrates both content analysis and expert interviews to provide a comprehensive understanding of how NLG is transforming journalistic practices and how they are being viewed by the audience.

The data for this study are derived from two main tools: the first is semi-structured interviews that the Author has with experts and artificial intelligence to answer questions through writing news articles about the topic. This paper also makes use of purposive sampling with the aim of having participants and articles echo the objectives of the research and provide a variety of samples (Jaakkola 2023). The first data set includes 22 interviews with professionals from the journalism, technical, and ethical media areas from different countries. The experts were chosen based on relevant professions and their connection to the subject matter. These questions were asked to learn more about the participants' point of view on the application of NLG in journalism, the difficulties faced, and the influence it creates in the respective field (Tesse 2024; Wagner 2022).

Participants were identified through email invitation messages, which included details of the study, including its aims, objectives, and ethical practices (Wagner 2022). With informed consent, the interviews were conducted through video conferencing means to enable access to participants outside the country. The interviews averaged 45 minutes to 1 hour in length and with the participants' consent, the interviews were recorded for subsequent transcription and analysis (Kevin-Alerechi et al. 2023).

The second tool consists of 10 AI-written articles; the authors will only present four articles as a sample in this paper. These articles, to which the AI tools utilized in this study were applied, are widely used in newsrooms. These articles were chosen in order to capture a variety of themes and professional writing typical for digital journalism (de Araujo 2018). The exclusion criteria

included the type of articles, on which they were based, and the scope of AI's participation in the creation of the piece. This made it easier to conduct an assessment of the nature and process through which articles that are produced by artificial intelligence are developed and perceived by the phenomenon's audience (Dörr & Hollnbuchner, 2017; Jaakkola, 2023).

The selection of AI-written articles for the qualitative content analysis was based on a purposive sampling strategy to align with the study's objectives. To identify AI-generated content, the Author utilized a systematic process involving reputable sources. This included accessing the official websites of news organizations such as Reuters and Deutsche Welle. Approximately 15 articles were copied from Reuters and 20 from Deutsche Welle, which were then analyzed using AI detection tools to filter out articles containing AI-generated content. This process was repeated across these news organizations, and four news outlets out of 10 were analyzed in this paper. The rigorous data collection phase spanned two months, from July to September 1, allowing sufficient time to identify and verify articles relevant to the research. This approach ensured the inclusion of credible AI-generated articles, maintaining the study's reliability and adherence to ethical standards.

When evaluating the effect of AI-written articles, the data was obtained from popular news websites that use NLG technologies. The articles were collected from the sources using AI in journalism, and articles of this format were developed using tools such as Wordsmith, Heliograf, and GPT-based systems (Verma 2024). The articles that were collected were retrieved through keyword searches in order to prevent articles that are unrelated to the topic of the research, but rather be specific to the research with reference to the three themes: automation, personalization, and ethical issues of journalism. Thus, every article became an object of the analysis in terms of verbs, structures, the overall and structural tone, and style to investigate how AI mimics human journalism (de Araujo 2018; Noain Sánchez 2022).

3.2 *Research Questions*

· How does the use of NLG impact the quality of journalistic content, specifically regarding accuracy, objectivity, and emotional depth?

· What ethical challenges arise from the use of AI in journalism, particularly in terms of bias, transparency, and accountability?

· How do readers perceive AI-generated news articles, and what are their attitudes toward content produced by artificial intelligence as compared to human-written journalism?

By exploring these questions, this research seeks to fill the existing gap in understanding the practical implications of integrating NLG in newsrooms and its impact on both journalistic standards and audience trust.

3.3 *Data Collection*

1. **Content analysis** of **10 AI-generated news articles** from reputable sources, focusing on a range of topics such as finance, sports, and real-time event coverage.

2. **Expert interviews** with 22 professionals, including journalists, editors, and AI technologists, to gather insights into the practical, ethical, and social implications of using NLG in digital journalism.

The content analysis was complemented by expert feedback to ensure a holistic approach to evaluating NLG's impact on journalism. By combining these two data collection methods, the research provides both empirical evidence from the content itself and theoretical insights from experts within the industry.

3.4 *Analytical Procedure*

The method used in analysis of this research study employs expert interview data, and AI-generated articles content analysis data (Verma 2024; Wagner 2022). The overall research approach is a qualitative content analysis; the specific research questions are designed to investigate the ethical and practical possibilities of the NLG for journalism and for the formation of the readers' attitudes. The content of the texts is coded for themes and values using thematic coding as well as a critical discourse analysis framework (Jaakkola 2023; Sánchez 2022).

With regard to data categorization and analysis of collected information, thematic coding and content analysis were applied. The expert interviews were semi-structured and divided into three parts, to which five participants agreed to answer on video, but the text data was transcribed for quicker analysis, and the NVivo software helped to consider patterns and themes that corresponded with the ethical, practical, and societal aspects of AI in journalism. Similarly, the syntactic, lexical, and even ideologmatic features of the articles were examined with reference to a framework used for the analysis of text produced by an AI (Tesse 2024). Drawing from critical discourse analysis as the theoretical foundation, this work is able to determine the discursive formations and ideological underpinnings in the content. The approach used in this work guarantees an exhaustive, in-depth analysis of the role of NLG in journalism. While analyzing the opinions of the specialists in the field and using the empirical data of

the texts written by AI, the goal of the study is to offer a comprehensive interpretation of the AI's impact on the sphere of digital journalism and the positions of those who read the texts or create them (Dörr 2015).

The study dataset includes 22 expert interviews selected for their professional expertise and relevance to the topic, with 7 to 30 years of experience. The interviewees represent a diverse range of countries, including Egypt, the USA, Canada, Germany, India, the Netherlands, Spain, Argentina, the United Kingdom, Brazil, Nepal, and Portugal. This geographical diversity ensures a wide range of perspectives and insights. The participants hold significant roles within renowned news organizations such as Reuters, The Washington Post, The New York Times, Cairo 24, Al-Masry Al-Youm, Deutsche Welle, and The Wall Street Journal. Additionally, some of the interviewees are esteemed lecturers and researchers at academic institutions, including Oxford University and Freie University in Berlin. One of them is the Author of "The Art of AI" Book, and another is the Author of the most popular and international guide #JournalismAI.

To identify these experts, the Author subscribed to LinkedIn Premium and conducted searches using the names of prominent news organizations. Through this method, the Author connected with approximately 200 professionals over three months from September to December 1, 2024, sending polite messages introducing my thesis topic and requesting their assistance. Out of those contacted, 22 experts agreed to share their insights. Communication with the participants was facilitated through various channels: 8 experts sent their responses as PDF files via email, seven participated in Zoom meetings, 3 shared their insights through phone calls, and 4 provided voice notes and written responses via chat applications as LinkedIn, DM of Instagram, and WhatsApp.

About 10 of the articles featured in the analysis were produced by AI-NLG tools from other platforms. This analysis focuses on systematically evaluating AI-generated news articles based on key dimensions: precision, objectivity, comprehension, media inclusion, moral issue, peopleization, audience awareness, and laws. This is an assessment tool that measures the compliance of generated content with existing journalistic standards and content relevance to its target audiences. In other words, the content of ten AI news articles will be analyzed in order to determine the strengths and weaknesses of the AI-generated news as opposed to conventional human-written media. This quantifiable assessment serves as critical background information for ascertaining the strengths and weaknesses of AI technological developments in news creation.

3.5 *Theoretical Framework*

The Diffusion of Innovation was developed by sociologist Everett Rogers in 1962 as a theory to explain the process of conveying innovations within a culture or social system. This theory is essential to use when studying the case of the implementation of Natural Language Generation (NLG) in automated news writing (Salaudeen 2023). It examines how change, which results from PERCEPTIONS of such innovations as being new or beneficial, takes place over time within individuals and organisations. The use of the theory is in its potential to detail how the NLG technology spreads in the digital journalism environment and the specifics that influence its adoption and implementation (Jamil 2022).

Innovation does not diffuse on a social system at once; rather, it does so successively in phases that are marked by various adopter categories: Innovators, Early Adopters, Early Majority, Late Majority, and Laggards. Innovators make decisions positively on new technologies; they are prepared to take risks in innovation, and early adopters are the first to implement decisions and readily accept changes. The early majority only take up the innovations if they have already been proven to work, and the late majority prefer to wait until everyone else is using the product. The last group, Laggards, needs consistent convincing and tangible evidence in order to alter some behaviors (Wagner 2022). It is important to comprehend these categories to develop appropriate tactics for advocating for the diffusion of NLG within journalism (Zou et al. 2023).

Figure 1. Diffusion of innovation theory model

The theory identifies five key attributes that influence an innovation's adoption rate:

1. **Relative Advantage** – How much better is the innovation compared to the existing alternatives?

2. **Compatibility** – The degree to which the innovation aligns with the values, needs, and practices of potential adopters.

3. **Complexity** – How easily the innovation can be understood and implemented.

4. **Trialability** – The ability to test the innovation before committing to its adoption.

5. **Observability** – The visibility of the innovation's results to others.

These factors are particularly relevant to NLG in journalism, as explained below. For example, the relative advantage of NLG is speed and the ability to produce a lot of news pieces. (Jamil 2022). However, the complexity of the system and possible integration with concepts familiar to journalists instead of AI technologies may become a problem. Likewise, the NLG tools demo and the possibility of seeing the real positive impact help reluctant users incorporate the technology into their processes (Zou et al. 2023).

Moreover, the Diffusion of Innovations Theory focuses on the social system and communication network in the adoption process. Opinion leaders, change agents, and media networks play central roles in transmitting information concerning NLG within the digital journalism environment. They generate awareness and influence perceptions of the innovation, making diffusion of the innovation possible (Hall 2024). Moreover, the theory's focus on the innovation-decision process highlights the stages individuals and organizations go through: Of these, the five distinct types of communication are knowledge ware, persuasion, decision, implementation, and confirmation. Knowledge of these stages gives the pathway towards the promotion of NLG (Salaudeen 2023).

In this context, goals and strategies of news organisations, journalists, and audiences are discussed as actors in the adoption of NLG. Five categories of adopters are then employed to determine their openness to the technology (Petersen & Cappa, 2024). NLG is supported by Innovators and Early Adopters in journalism; they are organizations that incorporate technology into their work and individuals who are open to change. Early Majority includes journalists and organizations that require proof of NLG's usefulness before adopting it. The Late Majority and Laggards are slow to adopt changes, and NLG must be planned in a way that will persuade such people to embrace the change (Oksymets 2024).

The theory also gives an understanding on the implications that accompany adoption of NLG in journalism. Some of the positive effects include the following; Efficiency, scalability and customization of the content provided in the news. But again, there can exist certain downsides like ethical issues, reduced direct human control, and possible problems for the journalistic profession. Thus, the research focuses on revealing the best practices for using NLG in journalism and combating the listed challenges (Wagner 2022).

By adopting this theory, the impact of NLG will be assessed using the factor premises of the theoretical framework. For example, relative advantage is measured by determining the extent to which the application of NLG enhances content creation speed and productivity. Compatibility is determined by checking how effectively NLG integrates with journalists' culture and practices. Complexity is covered by regarding the degree of difficulty of the NLG applications, while trialability and correctness are discussed based on case studies of the news organizations utilizing NLG (Prien & Goldhammer, 2024).

There are also the communication channels and networks, and social influence whereby an innovation is accepted due to the influence of members within a society. These 'opinion makers' are primarily senior journalists and media business people whose influence is bestowed upon them as key sources of information. There are positive endorsements from various stakeholders, such as tech developers of NLG and NLG industry advocates, in informing end-users about the usefulness of NLG and reassuring the public of its harmless nature. Analyzing such processes, the study defines conditions that can promote a supportive context for NLG implementation (Beckett & Yaseen, 2023).

Furthermore, communication channels and networks play an important role in influencing the acceptance of NLG in newsrooms. Senior journalists, editors, and media industry leaders act as **opinion leaders**, providing critical endorsements and guiding the media community in adopting AI tools. Positive endorsements from technology developers and advocates of NLG can reassure the public and journalistic stakeholders about the benefits and safety of AI technologies (Beckett & Yaseen, 2023).

Ultimately, this theoretical framework offers a comprehensive lens through which the adoption of NLG in journalism can be understood. It highlights the key enablers and barriers to NLG adoption, ensuring that the integration of AI in newsrooms is done ethically and responsibly. By recognizing the diverse requirements of different adopter categories and addressing ethical concerns, this research aims to support the successful integration of NLG technologies in journalism without compromising the integrity or trustworthiness of the profession (Lecturer & Okon, 2024).

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4. ANALYSIS AND DISCUSSION

Figure 2: by Reuters official website, "Ukraine drone targets second Russian long-range military radar, Kyiv source says" May 27, 2024

In Figure 2, Ukraine has launched drone strikes on Russian long-range radar facilities, which Ukrainian officials have confirmed, but independent evaluations of the damage are unavailable. A strike on May 27, 2024, hit the "Voronezh M" radar in Orenburg after a previous attack damaged the "Voronezh-DM" radar in Krasnodar. US media sources present satellite photos of possible damage at locations, but Reuters has not validated these findings, as independent verification proves difficult in conflict zones.

The report tries to stay neutral despite its wording choices and lack of Russian input, which might lead readers to interpret Ukraine's success stories as more important than understanding the full scope of the fighting. The failure to include multimedia features such as maps and infographics reduces the fullness of the coverage. Ethically speaking, military news coverage requires journalists to balance public information against privacy protection and military defense. The report could increase social stress, especially when using emotional wording. The article does well in presenting facts clearly, but fails to add storytelling depth and personal stories, which would help readers connect better with the content. Better international conflict reporting requires strict detail verification and ethical standards alongside human monitoring and mixed media formats.

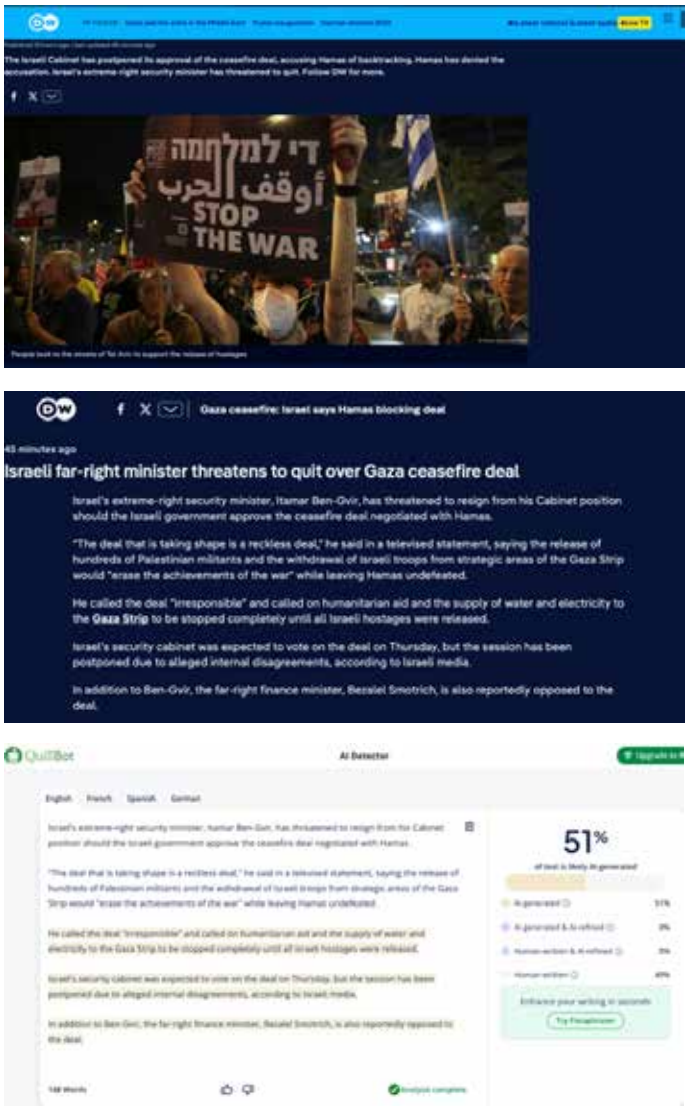

Figure 3: by the official website of Deutsche Welle, Gaza ceasefire: Israel says Hamas blocking deal

In Figure 3, Deutsche Welle Israel's peace negotiations with Hamas are stuck in the Security Cabinet because officials suggest Hamas abandoned the agreement, yet Hamas rejects these statements. The report provides fresh updates on Israel's political situation, including a far-right minister's possible resignation, plus their readiness for hostage return. This article supports its facts with official sources but minimally supports key claims such as Hamas breaches and utility cutoff effects. The article stays impartial, but calling groups "extreme-right" could affect audience perception, and the emphasis on Israel's political affairs reduces visibility of humanitarian challenges.

The clear presentation of information in this text ensures easy reading for all, but it lacks the detailed investigation that readers often seek when searching for complex explanations. Pictures enrich our understanding,

though the site needs better ways to interact with the content. Although the report aims at impartiality, it does not fully explore the humanitarian effects of Gaza's conditions, making it less thorough. The report offers an understandable event summary, yet it would improve with added research and unbiased reports that show how people suffered in the conflict.

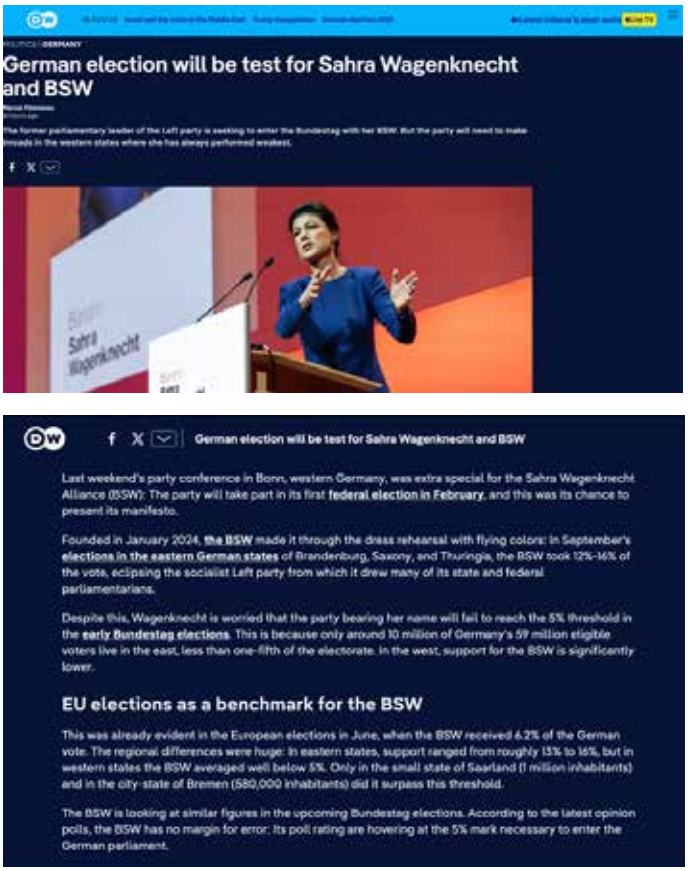

Figure 4: German election will be a test for Sahra Wagenknecht and BSW

In Figure 4, Sahra Wagenknecht's new BSW party prepares to test its strength during Germany's next election while achieving higher regional support in Eastern Germany versus Western states. To gain access to parliament, BSW must unite regions to gain the 5% national vote needed for federal representation. BSW currently shows 5% in current polls, representing both its attractiveness and risks.

The Deutsche Welle report uses precise data without favor while revealing both BSW's excellent performance and challenges across regional areas. Although the article provides some basic facts about BSW, it does not explore what policies set them apart or investigate why they perform differently across regions. The simple language and relevant image enhance understanding of the topic, but the absence of voter insight and interactive elements shortens the depth of information. The article reports BSW's electoral problems but fails to explore the party's policies or understand voter behavior.

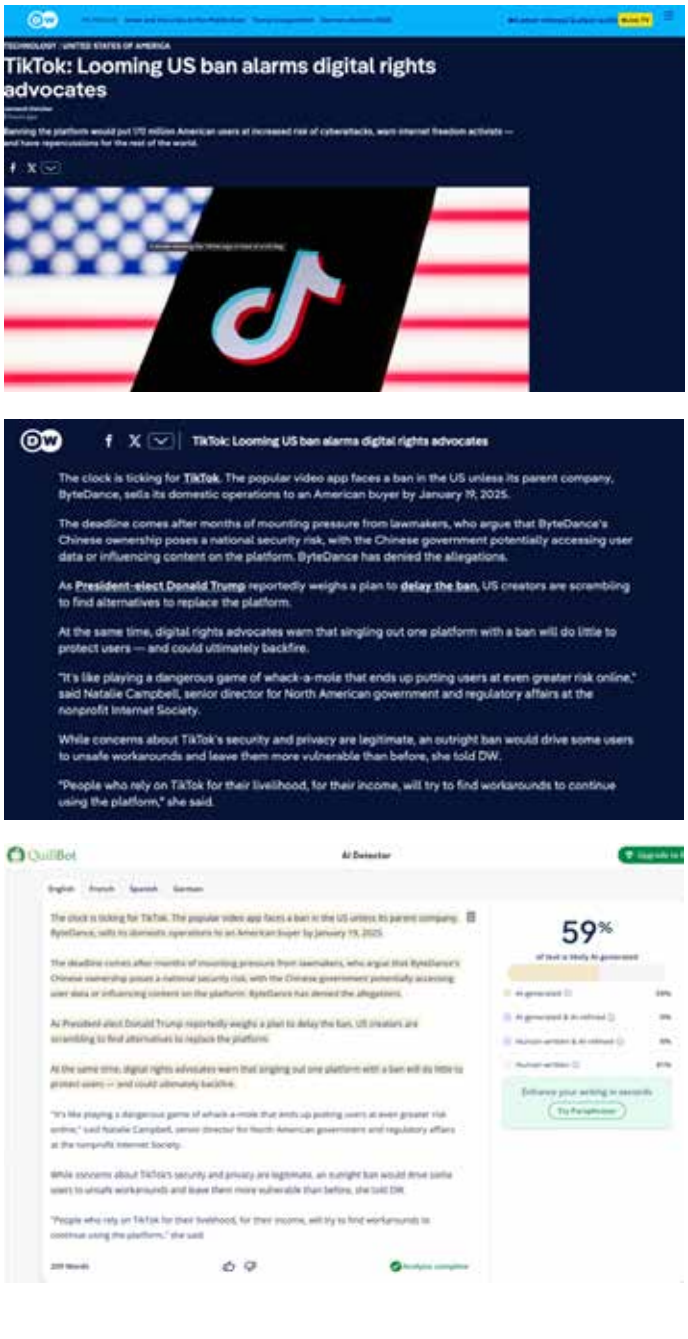

Figure 5: by the official website of Deutsche Welle, TikTok:

Looming US ban alarms digital rights advocates

Figure 5 covered the Deutsche Welle article, which examines how the US government wants to block TikTok starting January 19, 2025, unless ByteDance gives up control over its US operations. The security concerns about Chinese ownership led the US to ban TikTok, yet experts warn this could expose users to more threats and direct them toward less secure applications. Experts in digital rights express concerns about how the ban overlooks other cybersecurity problems. President-elect Trump wants time to assess the ban's implementation, though courts have yet to decide its legitimacy under existing laws.

The article reports details from ByteDance and digital rights experts to ensure factual accuracy. Lawmakers' assertions about Chinese government control receive minimal support from the evidence provided in this article. The article provides equal space for technology stakeholders and digital rights supporters, while its emphasis on user safety leans slightly towards civil liberties advocates. The Author writes in plain words without complex terms and includes expert comments to support the story. The inclusion of the US flag and TikTok logo creates support, but the story needs enriched multimedia features, including infographics or timelines. The article reports both sides fairly, yet fails to explore US legislators' motives or potential consequences for U.S.-China diplomatic relations.

Personal stories and professional opinions from experts show readers what the TikTok ban means for everyday users. Some readers may think the story needs more details about how national security affects this issue. The report adopts protective language to stay clear of legal trouble while its digital rights coverage may encounter pressure from lawmakers who support blocking access.

General findings of the Analysis of AI-Generated News based on the findings of the present study, the analysis of AI-generated news articles and images demonstrates that their use presents various ethical, practical, and legal concerns in the digital media context. AI-generated content poses the problem of mimicking different content without alerting viewers to the fact that the messages they receive are not accurate or true (Thomson et al. 2024). Key findings include:

Accuracy and Misinformation: Fake or manipulated information often surrounds AI-created content that is printed in news articles or images, as there are no guarantees of the legitimacy of such information. Such as creating fake images of political leaders or any political incidence, which most people believed as real thus contributing to increased senitization of the populace with the vice (Hausken 2024).

Neutrality and Bias: A lot of content created by artificial intelligence includes elements related to emotions, or politically driven language, and therefore, is not neutral. They hardly give a balanced view of an issue; this may give people certain perceptions that may be dangerous (Paik et al. 2023).

Ethical Concerns: The issue with AI-generated content is that there continues to be a lack of clear identification of content that has been generated by AI. It has resulted in pranking the public, subsequent dilution of confidence in media outlet, usage of fake news with an aim of fueling political or social empathy (Breuer & Jonsson 2023).

Audience Perception and Trust: Audiences over-realize artificial content, and if presented without disclosure, they respond emotionally to such content. Discovering such content is fake only depletes trust in media and social platforms (Matich et al. 2025).

Legal Implications: Fake news shared by the AI may lead to defamation or encouragement of hatred or causing tension of which may lead to legal suits and actions. This content can pressure platforms to remove it, or enhance the procedure through which they authenticate it to avoid legal consequences (Farouk 2023).

Regulatory Need: Such examples only demonstrate the need to regulate more rigorously, improve the labeling of AI content, and invest in competent fact-checking to counter the wrong use of AI in digital journalism and social media.

In general, based on the presented results, it becomes clear that it is crucial to regulate and apply AI properly, to teach journalists how to maintain ethical standards when working with AI-created content, and to educate people to be aware of the potential AI fake news.

The second research approach adopted was the in-depth interview. The incorporation of Artificial Intelligence (AI) and Natural Language Generation (NLG) into journalism has resulted in different opinions and ideas from the journalists, scholars, and other stakeholders. Some of the interviewees suggested that AI technologies are being implemented mostly at the tactical level of content production and curation with the most common applications being related to routine tasks like proofreading, transcription, summarization, data visualization etc. so that journalists can concentrate on the more strategic activities at the top of the value chain like investigating and telling the stories. However, some MAs acknowledged that for the genre of the report for which speed and accuracy of the process and results are crucial, such as financial reports or sports updates, AI is advantageous, whereas for the more sensitive,

emotional, and contextually charged tasks, it does not perform well (Nag 2025).

Issues of credibility and trustworthiness were discussed. The issue of credibility was constantly mentioned. Several of the specialists stressed that more often than not, AI systems employ prejudiced data sets, and thus, might reinstate errors as well as create false data. Some of them focused on the need to be transparent, thus proposing to label AI-produced content to ensure audience loyalty. Some of those interviewed noted that although younger, more tech-savvy people might like an AI news aggregator because of its speed, many readers will not want to read AI-produced news because of its impersonality and emotionless approach (Farouk 2023).

Other considerations include ethical issues that need to be understood and met before the implementation of the project can commence. Almost all the respondents concur that there is a need for operational guidelines when addressing bias, accountability, and transparency. Some interviewees have called for the use of AI in ways that will promote the creation of fake news and bias, while others are willing to allow AI use, subject to the supervision of humans, in order to adhere to professional journalism standards. Some also said it could lead to a weakening of traditional journalism qualities: investigative work and depth of coverage, along with exaggerating the threat of misinformation (Lehtimäki 2024).

However, some of the participants agreed that AI has the potential to level the playing field for news organizations of different sizes through the use of technology, efficiency, and automation. Some of them pointed to its capacity to widen access through multicultural and individualized sharing of content. Still, there was some general agreement that AI should be used to enhance, not abase journalism. Several of the interviewees explained that they are applying different approaches to human strengths since AI cannot emulate, guess, or mimic certain important human qualities like empathy, creative thinking, and critical thinking, among others (Gasnier 2024).

In response, some suggested that it was essential for journalists to become lifelong learners when it came to AI, and several encouraged journalists to partner with technologists to 'reengineer' tools for the newsroom. Some called on news organisations to train their employees, develop codes of ethics, and inform the public about the use of AI in media. In conclusion, AI is a novel tool that is replete with numerous opportunities for innovation and optimization; however, in order to optimize AI it is a necessity to apply reasonable transparency, and ensured accountability, as well as draw a reasonable balance of automated and manual oversight in order to ensure that the fundamental tenets of journalistic professionalism are not eroded as AI assumes a progressively more critical role as an enabler and a resource in news gathering and dissemination (Abuhamad 2023).

The researcher analyzed the impact of Natural Language Generation (NLG) on digital journalism, focusing on ethical concerns, practical implementation, and audience perceptions. While the qualitative content analysis results provide valuable insights into the structural and linguistic features of AI-generated content, it is equally important to incorporate the perspectives of experts in the field. Experts' opinions offer a deeper understanding of how NLG is reshaping journalism practices and provide critical insights into the technological, ethical, and societal implications that come with its implementation.

Experts' Insights and Theoretical Framework: The feedback from the interviewed experts aligns with the Diffusion of Innovation Theory (Rogers, 1962), which explains how innovations, like NLG, spread through society and influence their adoption. Experts from various news organizations and academic institutions highlighted the pivotal role that technological advancements like NLG are playing in journalism, but they also emphasized the importance of understanding its limitations and risks. For instance, while some experts praised the efficiency and scalability of NLG in generating routine news reports, others raised concerns about the ethical challenges, such as bias in AI models and the lack of emotional depth in AI-generated content.

These expert opinions underscore a critical aspect of Diffusion of Innovation Theory**,** where innovations are adopted gradually by different adopter categories: innovators, early adopters, early majority, late majority, and laggards. In the context of NLG, innovators and early adopters in media organizations are already leveraging the technology for tasks like financial reporting and sports summaries. However, the early majority, who are more cautious, may hesitate to fully integrate NLG due to concerns about content authenticity and the potential loss of human touch in journalism.

Additionally, experts' views on algorithmic bias and the transparency of AI systems connect to the Ethical Risk Management aspect of the theoretical framework. As highlighted by several interviewees, AI systems are only as unbiased as the data they are trained on, and thus, the ethical implications of using NLG in journalism need careful consideration. Some experts emphasized the need for transparency in how AI systems generate news, suggesting that news organizations should disclose when content is AI-generated to maintain public trust.

Linking Experts' Opinions with Results: The qualitative content analysis reveals that AI-generated articles, while technically proficient, often lack the emotional saturation and contextual understanding that human journalists bring to their stories. This finding echoes the concerns voiced by the experts during the interviews. For instance, experts pointed out that NLG, while effective at producing factual and data-driven news, does not account for the nuanced human factors such as empathy, intuition, and critical thinking that are central to good journalism.

One expert, a senior editor at a prominent news agency, noted that while NLG can quickly generate content for breaking news or routine reports, it is less effective in investigative journalism, which requires human insight and the ability to ask deeper questions. This insight from the expert directly relates to the results of the content analysis, where AI-generated content was found to be accurate in terms of data but lacking in emotional resonance and critical context.

Moreover, several experts discussed how AI in journalism could disrupt the traditional roles of journalists. They pointed out that while NLG can take over repetitive tasks, journalists must adapt by acquiring new skills, such as data analysis and understanding AI's ethical implications. This view aligns with the findings of the content analysis, where AI-generated articles were often limited in scope, highlighting the need for human oversight to ensure journalistic integrity.

Bridging Theory and Practice: In conclusion, the feedback from experts provides valuable context for understanding the broader implications of NLG in journalism. Their insights, when placed within the framework of Diffusion of Innovation and Ethical Risk Management**,** enrich our understanding of how NLG is reshaping the media landscape. While the content analysis results offer a detailed view of AI-generated content, the experts' feedback helps contextualize these findings within the ongoing debates about the role of technology in journalism and its ethical considerations.

By bridging the results of the content analysis with the theoretical framework and expert opinions, this study highlights the need for a balanced approach to integrating NLG in journalism—one that recognizes both the technological benefits and the ethical challenges that come with it.

5. CONCLUSION

The integration of Artificial Intelligence (AI) and Natural Language Generation (NLG) technologies in the field of journalism has opened up transformative possibilities that could redefine the future of news production. The ability of AI to automate the creation of news content, particularly in areas such as data analysis, text correction, visualization, and content formatting, has made it a valuable tool for media organizations. These technologies help streamline routine tasks like financial reporting, sports summaries, and weather forecasts, freeing up journalists to focus on more critical, investigative, and creative aspects of their work. However, the rapid adoption of these technologies also presents new challenges and risks that must be carefully addressed to preserve the integrity of the journalistic profession.

One of the primary concerns raised by the widespread application of NLG in journalism is the credibility and trustworthiness of AI-generated content. As AI systems are increasingly involved in content creation, ensuring the accuracy and objectivity of the information they produce is crucial. The ethical concerns related to AI-generated content include bias in training data, the potential for fake news generation, and the lack of transparency in how AI tools generate news articles. These challenges directly threaten the core principles of journalism, which are grounded in fairness, objectivity, and accountability. The issue of AI content's authenticity and transparency becomes even more pressing as the line between human and AI-generated content continues to blur. The public trust in journalism can be eroded if these concerns are not addressed properly, as audiences may begin to question the reliability and independence of news outlets using AI to produce content (Jones 2022).

To mitigate these issues, it is essential for media organizations to develop clear ethical guidelines regarding the use of AI. Journalistic ethics should be integrated into the design and deployment of AI tools, ensuring that AI-generated content adheres to the same high standards of accuracy and fairness as human-produced articles. It is also vital that transparency is maintained, with clear labeling of AI-generated content and disclosure of the processes through which AI is involved in news production. By making the mechanisms of AI's role in journalism visible to the public, news organizations can help preserve trust and ensure accountability for the content that is produced. This transparency is not only necessary for maintaining credibility but also for ensuring that ethical boundaries are respected in the automation of news.

Another critical issue with AI in journalism is its lack of emotional depth and contextual understanding. While AI excels in tasks that involve repetitive and technical work, it is inherently limited in its ability to understand and convey the human element that is so essential in journalism. Journalistic work is not just about reporting facts; it is about telling stories that resonate emotionally with readers, providing context, and making human

connections. AI, despite its advancements, lacks the ability to perceive the emotional and social nuances of a story or to engage with sensitive issues in a deeply human way. Therefore, AI should be seen as a tool to augment journalistic work rather than replace the critical human touch that remains central to journalism (Taylor 2024). The role of AI in the newsroom should be to support journalists in their work, allowing them to focus more on high-level tasks such as investigative reporting, data analysis, and critical thinking, while leaving the routine, repetitive tasks to AI (Davis et al. 2023).

Moreover, the ethical implications of AI in journalism cannot be overstated. The integration of AI requires a rethink of how news is produced and consumed. One of the most important ethical considerations is the prejudice in AI systems, which can perpetuate biases inherent in the data used to train these systems. AI models are only as good as the data they are trained on, and if the training data contains biases—whether cultural, racial, or gender-based—those biases will inevitably be reflected in the content generated by the AI. Furthermore, AI-driven news production can be opaque, with audiences often unaware of how AI tools operate and how they influence the content they consume. Therefore, it is crucial to implement ethical oversight that ensures AI is used responsibly in journalism, particularly with regard to its potential to perpetuate misinformation and institutional biases (Brown & Lee, 2024). The widespread use of AI could exacerbate these challenges if regulatory frameworks and ethical guidelines are not established to ensure transparency and fairness in the use of these technologies.

The study also emphasizes the need for education and training for journalists to navigate the evolving landscape of AI in journalism. As AI continues to advance, journalists must acquire new skills to work effectively with AI tools. Skills in AI literacy, data science, and ethical content production will become increasingly important. Journalists must also learn how to collaborate with technologists, data scientists, and other interdisciplinary teams to implement AI in a way that enhances journalistic practices while maintaining ethical standards. Additionally, continuous training in ethical AI use will help ensure that journalists remain sensitive to issues such as bias and transparency, and that AI tools are used to augment—not replace—their investigative and storytelling abilities (Wilson et al. 2025).

Looking to the future, AI holds the potential to revolutionize journalism, offering opportunities to democratize news production and improve accessibility. Smaller media outlets, which have traditionally struggled to compete with larger organizations, could benefit from the efficiency and scalability that AI provides. AI can help these organizations cover more ground, produce content more efficiently, and cater to a wider range of audience preferences (Anderson 2024). Furthermore, AI could enable more personalized news delivery, ensuring that individuals receive news tailored to their interests, location, and language preferences. However, while AI has significant potential, it must be deployed mindfully. Over-reliance on AI could lead to a loss of journalistic independence and a reduction in the diversity of perspectives presented to the public. If not carefully monitored, the use of AI could also exacerbate issues such as polarization and fake news, particularly if AI systems are used to manipulate public opinion or create misleading narratives.

Ultimately, the future of AI in journalism depends on how well the industry can balance the innovative capabilities of AI with its ethical obligations. The key to successful AI adoption in newsrooms will be ensuring that AI remains a supportive tool rather than a replacement for human journalists. By maintaining ethical integrity, transparency, and accountability in the use of AI, news organizations can enhance their efficiency, reach, and audience engagement while preserving the core values of journalism. The industry must continuously strive to ensure that AI's contributions are positive, that its impact on journalism remains beneficial, and that it serves the public good by strengthening democracy and promoting a free and fair press (Clark & Johnson 2023; Martin & Carter 2025).

In conclusion, while AI and NLG technologies offer exciting possibilities for the future of journalism, their adoption must be approached with caution and responsibility. By developing clear ethical guidelines, ensuring transparency, and providing ongoing training for journalists, the media industry can successfully integrate AI in ways that uphold journalistic values, maintain public trust, and continue to serve the public interest. The future of AI in journalism is indeed promising, but it must be shaped in a way that aligns with the ethical imperatives that have always guided the profession.

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