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From Automation to Transformation with AI-Tools: Exploring the Professional Norms and the Perceptions of Responsible AI in a News Organization

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ABSTRACT

In the wake of the frenetic evolutions in (generative) AI, this study evaluates how these emerging technologies could be deployed and implemented in a responsible way at a national news company in Denmark (*Berlingske Media*). By conducting expert interviews with 14 news workers from various departments across the four media titles at *Berlingske Media*, the study explores their perceptions regarding the use of (generative) AI tools, with a particular focus on two core internal dynamics of institutional theory: (1) *Journalistic Autonomy* and (2) *Ethical Considerations*. The findings reveal that perceptions of AI-tool usage are closely linked to the educational background of the news workers, interviewees that self-identify as "technologists" or "data scientists" hold more realistic views, whereas self-identified "editors" or "journalist" tend to attribute too much power and capacity to AI. These perceptions are also closely linked to the current uses of AI: Some participants express optimistic views, seeing AI as a valuable tool that enhances journalistic practices and efficiency. Others hold more skeptical views, emphasizing concerns about the potential impact on journalistic autonomy, such as algorithmic biases and the loss of editorial control.

KEYWORDS

Algorithms; Digital media; Generative AI; Journalistic autonomy; Newsroom innovation; Responsible AI

Introduction

The emergence of generative AI tools like ChatGPT and Dall-E has accelerated discussions around the use of artificial intelligence (AI) within news organizations, already changing where information moves and goes within the entire journalistic value chain (Acemoglu and Restrepo 2022; Caswell 2023; Diakopoulos et al. 2024). AI is defined in this study as a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs, such as predictions, content, recommendations, or decisions that can influence physical or virtual environments (Lorenz et al. 2023). Specifically in journalism, we understand AI as the deployment of applications that help to automate, augment, and transform news workers'

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gathering, production, verification, distribution, and moderation of news (Cools et al. 2022; Thurman 2019). In addition, the technology behind Large Language Models (LLMs) - systems trained on vast amounts of textual data to generate human-like language -have been around for at least a decade (Brants et al. 2007; Møller et al. 2025). However, because of the recent improvements of these LLMs, these technologies are relatively novel, as they have only become more introduced in workflows at the end of 2022 with the introduction of tools like ChatGPT and Dall-E. In this study, generative AI is regarded as a subset of AI which uses algorithms - the backbone of AI -to generate new data from existing data in the form of text, images, and videos (Diakopoulos et al. 2024). Therefore, "AI" is used in this study as an overarching term that also incorporates generative AI as a technology and a tool.

Over the last few years, AI tools have already resulted in new possibilities for news workers, like automated content generation, advanced text translation and summarization, and enhanced data analysis capabilities, which have diversified journalists' toolboxes (Cools et al. 2022). When news workers begin incorporating AI tools into their workflows, they are confronted with the professional norms that are inherently linked to journalism: norms like accuracy, accountability, authenticity, fairness, and transparency (Deuze 2005). Additionally, these tools might contain bias and inaccuracies and might lack the perspective of factual, nuanced reporting and critical thinking, which human news workers are inherently trained to provide (Møller 2024, Møller et al. 2025). Maintaining accuracy and credibility is paramount in journalism, and using AI tools introduces the need for continuous vigilance and monitoring in ensuring the reliability and authenticity of generated content, which has also been reflected in journalistic codes and guidelines (Cools and Diakopoulos 2024; Diakopoulos et al. 2024; Tandoc, Yao, and Wu 2020).

Although these AI tools have been somewhat institutionalized, these emerging technologies often remain opaque and complex to understand for news workers, leading to numerous utopian and dystopian perceptions (e.g., "AI is going to steal my job") (Cools et al. 2024; O'Neil 2016). Amidst these innovations, the utopian and dystopian perceptions of news workers matter in adopting and interacting with specific AI tools (Cools et al. 2024). More specifically, this study contributes to our understanding of the professional norms and perceptions of AI in at least two ways. First, it evaluates in a more structured way how these technologies are perceived in relation to the professional norms of journalism. Additionally, the perceptions also reveal the potential adoption of AI use within the journalistic value chain. Second, and keeping these perceptions in mind, the study maps the potential intra-organizational conditions required to implement AI responsibly.

This study provides unique empirical data that sheds light on integrating AI within one news organization with four media titles, namely *Berlingske Media*. The data collection was particularly timely as it marked the inauguration of generative AI. Research by Diakopoulos et al. (2024), for example, found that the use of AI was democratized because of the emergence of generative AI technologies, leading to a larger and more diverse group of news workers adopting these tools. With this democratized use in mind, we argue that our data maps how news organizations navigate this relatively novel AI landscape and what it means for the professional norms of journalism. We hope that the findings of this study contribute to the field of (digital)

journalism and the broader media industry as it maps the potential benefits, limitations, and ethical considerations associated with the rapid development and implementation of these technologies in newsrooms around the world.

The Impact of Technology on Journalism: The AI Newsroom

In recent decades, technology has influenced journalism as a process and as a product (Cools and Diakopoulos 2023; Pavlik 2000). For example, the rise of the Internet in the 1990s has caused news organizations' revenue models to be reevaluated, forcing newsrooms to innovate (Paulussen 2016). In addition, rampant digitization and the rise of social media platforms have dramatically changed news consumer behavior. Journalism has always been prone to technologies and digitization, but recent developments in AI have proved that algorithms have never been more able to sift and analyze considerable amounts of data (Pavlik 2000; Schapals and Porlezza 2020; Wu, Tandoc, and Salmon 2019). These tools have never been that prominent in the journalistic value chain, and they are working 24/7, making them peripheral workers in the news ecosystem that could augment, automate, and transform work processes (Cools and Diakopoulos 2024).

Although AI technologies are more advanced than the earlier digitization software in newsrooms, the way technology changes journalism at its core has remained relatively the same. As Pavlik (2000) proved in his pioneering study on why journalism has always been shaped by technology, the specific influence boils down to (1) the way they work; (2) the specific nature of its content; (3) the structure of the news organization and (4) the relationship between news outlets, its workers, and its audiences (229). In 2024, data-driven technologies and generative AI tools will be utilized by newsrooms across the entire news reporting process, from the gathering over the production to the distribution of news (Diakopoulos et al. 2024).

AI has been integrated into journalism in diverse ways, automating, augmenting, and transforming news gathering, production, and distribution processes (Cools et al. 2024). For instance, in the news gathering phase, AI is used for automated content aggregation and data collection, streamlining the retrieval of information. In production, these technologies facilitate tasks like automated writing, summarization, multilingual translation, and voice and speech synthesis. Advanced natural language processing (NLP) techniques, such as LLMs like GPT-4, play a pivotal role in generating human-like text and enabling context-aware translations and summarizations (Diakopoulos et al. 2024). Furthermore, generative AI supports news distribution through personalized content delivery, user engagement analysis, and search engine optimization (SEO), employing machine learning algorithms to analyze user behavior, segment audiences, and optimize content to enhance engagement and reach (Cools and Diakopoulos 2024; Simon 2024).

Despite these advancements, the impact of AI on journalistic norms and practices has raised important discussions among scholars. One critical concern is the potential for increased "datafication," where AI-driven metrics and personalization insights could reshape editorial decisions, potentially prioritizing audience metrics over editorial independence (Mejias and Couldry 2019). This shift might enhance audience targeting but could also challenge journalistic autonomy, a cornerstone of traditional journalistic

norms. Scholars, such as Beckett and Yaseen (2023) and Diakopoulos et al. (2024) warn that these developments could exacerbate biases, lead to inaccurate information representation, and diminish journalistic control over content creation. Journalists' responses to these shifts are often shaped by the implications for their professional roles (Møller 2024). Research indicates that the integration of AI introduces an "algorithmic turn" in journalism, described as an increasing reliance on data-driven technologies in newsroom practices (Napoli 2014; Uricchio 2011). This algorithmic turn fosters a dynamic of shared decision-making between journalists and AI tools, as seen in their capabilities to aggregate, label, recommend, and summarize data (Guzman and Lewis 2020). While these tools can enhance efficiency, they may also blur the boundaries of editorial autonomy, with journalists navigating the tension between technological reliance and maintaining traditional norms of independence. Additionally, scholars highlight the process of isomorphism - where newsrooms increasingly adopt similar AI-driven workflows -potentially reducing diversity in journalistic content and approaches (Napoli 2014). This shift underscores the importance of examining how these technological integrations reshape professional norms and the extent to which they align with or challenge core journalistic values. In summary, the interplay between AI adoption and journalists' attitudes towards its use presents a complex landscape of opportunities and challenges. While AI enables innovative practices, its influence on journalistic norms like autonomy requires careful scrutiny to ensure that its benefits do not come at the expense of the integrity and independence that define quality journalism. In the next section, it is argued that AI should be studied from an institutional theory perspective when evaluating the algorithmic turn in newsrooms.

AI in Journalism: Adopting an Institutional Theory Perspective

Institutional theory examines how organizations and industries conform to prevailing social norms, values, and rules (Napoli 2014). It emphasizes the role of institutions in shaping organizational behavior and practices. Applying this theoretical lens to AI adoption in journalism can shed light on the external pressures and internal dynamics that influence the integration of AI technologies in newsrooms (Diakopoulos et al., 2024; Helberger et al. 2022). For the scope of this study, we will only focus on the *internal dynamics*, namely the professional norms in the form of (1) *Journalistic Autonomy* and the (2) *Ethical Considerations* of news workers in implementing AI tools. These interconnected norms are selected in this study as they are paramount in navigating the challenges associated with AI adoption and ensuring that journalists retain control over their reporting process and uphold the principles of accuracy, fairness, and transparency (Moravec et al. 2020; Steensen 2011). These principles have also been front and center in current AI regulation like the AI Act and the Digital Services Act (DSA), and have been adopted in news organizations' guidelines (for an overview, see Cools and Diakopoulos 2023). In addition, these norms are inherently individual and are chosen over more collective professional norms like "newsroom culture" and "public accountability" (Napoli 2014). Below, both norms are explained more thoroughly in relation to the perceptions of the development and the implementation of AI.

The first norm, (1) *Journalistic Autonomy,* refers to journalists valuing their professional autonomy and judgment in decision-making processes. As soon as AI has been introduced into the news ecosystem, these technologies have had the potential to indeed affect the autonomy of news workers. Since autonomy is considered a core value of journalism (Deuze 2005), the increased deployment of AI could change how autonomy is defined and embedded in the newsroom's daily decision-making processes (Carlson 2015; Van Drunen and Fechner 2023). It needs to be rethought in the context of what Splendore (2016, 348) called "the increasing intervention of intervening factors." Augmented intervention could mean redefining the autonomy of news workers, as these tools will increasingly take charge of what Diakopoulos (2019, 400) called "autonomous decision-making". In 2024, research has shown that AI can support journalists in various ways, such as automating repetitive tasks, analyzing large datasets, or identifying patterns and trends (Diakopoulos et al. 2024; Simon 2022). However, scholars have argued that news workers and journalists find it is crucial to strike a balance between AI-driven automation and human judgment to ensure that they retain control over editorial decisions (Carlson 2015; Sjøvaag 2013). In other words, news workers are worried that they might lose control when AI systems are deployed, as they might also lose human oversight (Cools et al. 2022; Milosavljević and Vobič, 2019).

The second norm, (2) *Ethical Considerations,* is linked to how AI algorithms can introduce biases, perpetuate misinformation, or compromise privacy if they are not adequately designed and implemented. Scholars have underlined the importance of ethical guidelines and mechanisms for monitoring and mitigating risks in the age of AI, as it could lead to a better and a more granular understanding of what ethical use of AI means (Dörr and Hollnbuchner 2017). These guidelines, research has shown, could include transparency in AI decision-making processes and rigorous testing to address biases and discrimination, and regularly evaluating the impact of AI on journalistic values and practices (Cools and Diakopoulos 2024). In other words, these ethical considerations could be an integral part of the AI integration process to safeguard the public interest and maintain audiences' trust.

These two internal dynamics directly challenge the core role of what it means to work as a journalist in a digitized newsroom (Deuze 2005). Sjøvaag (2013) states that journalistic autonomy implies individual freedom and independence, as well as autonomous news organizations. Ethical considerations, in turn, consider moral dilemmas linked to developing and implementing AI (Cools and Diakopoulos, 2024). This study wants to evaluate, against the backdrop of contemporary evolutions of AI, these professional norms and to what extent they inform the perceptions of AI tools in news outlets. Earlier research on the perceptions of AI has merely focused on the specific frames that are apparent in media coverage. Fast and Horvitz's study (2017) explored how AI was portrayed in *The New York Times* over the years without differentiating between various frames. The study's findings indicated that positive perceptions of AI were more dominant in the coverage, highlighting its ability to enhance and automate daily life and provide valuable insights through its increased computing power. de-Lima-Santos and Ceron (2021) mapped the news industry's AI adoption based on JournalismAI projects from the London School of Economics (LSE). Although

they have provided examples of how AI tools are developed in journalism, they have not addressed the perceptions of journalists regarding these tools. This study wants to evaluate these perceptions in relation to these professional norms, triggering a more nuanced understanding of AI's impact in newsrooms. These perceptions could have direct impact on the uses of AI in newsrooms, and mapping these portrayals might reveal pertinent blind spots in how AI is understood and perceived. This brings us to the first research question:

RQ1: Do professional norms, like journalistic autonomy and ethical considerations, inform the perceptions of AI tools at a news organization?

When using AI responsibly in newsrooms, one must consider intra-organizational conditions facilitating its development and implementation. These conditions, like having editorial values and guidelines, have been evaluated in the past, but mainly in the context of contemporary newsroom innovation. For example, Westlund and Krumsvik (2014) evaluated intra-organizational collaborations among three departments in a news organization: the editorial staff, the sales department, and the IT department. They concluded that news workers involved in production (editorial staff) and sales are perceived to be significantly less interested in digital innovation work than their IT department colleagues. Similarly, Koivula, Saari, and Villi (2024), found that communication technology like *Slack* and *Teams* provides journalists with increased opportunities for sharing ideas between technologists and journalists.

Cools et al. (2024) found that physical meetings between journalists and engineering teams is a necessary intra-organizational precondition to induce trust for the responsible use of novel tools as they learn about training data (input) the algorithm or back office (throughput) and the initial analysis (outcome) (Dörr and Hollnbuchner 2017). Although there has been research on these intra-organizational conditions, they have merely focused on collaboration between stakeholders in the news ecosystem. The emergence of AI poses novel challenges for news workers, as journalists must grapple with issues surrounding the authenticity and trustworthiness of AI-generated content while ensuring transparency with their audiences. Therefore, this study wants to better understand which intra-organizational conditions could potentially facilitate the responsible use of AI in newsrooms, according to the news workers who are part of these organizations. In addition, we hope that this will further contribute to what responsibility in AI means, and for whom. This brings us to the second research question:

RQ2: What intra-organizational conditions could facilitate responsible AI according to news workers?

Methods

In this study, expert interviews were utilized as a means of collecting valuable empirical data at a national Danish media company, *Berlingske Media*. These interviews

offered the necessary flexibility to go deeper into the subjects' insights, interests, and areas of expertise. The interviews were conducted in person in May 2023 and lasted 60 min on average. To ensure confidentiality, participant names were anonymized and assigned identifiers (participants 1–14). The interview guide consisted of three sections: The first part established background information about the interviewee's job and educational background. The second part, "professional norms and perceptions," explores the interviewee's understanding of AI and responsible AI, along with their prior experience with AI tools. The third theme, "Intra-organizational conditions on AI," tackles the advantages and challenges of using AI at *Berlingske Media* and explores potential valuable AI applications in journalism. It also addresses transparency in disclosing the use of generative AI and the resources available for journalists to use AI responsibly. Overall, the themes cover a comprehensive range of topics related to AI implementation and its ethical implications in the context of journalistic processes at *Berlingske Media*.

Selection News Organization

*Berlingske Media i*s a prominent media organization based in Denmark with a rich history dating back to 1749. It encompasses four different titles: (1) BT: *BT* is a Danish tabloid newspaper that focuses on news, sports, entertainment, and lifestyle content. It covers a wide range of topics and targets a broad audience. (2) *Weekendavisen*: Weekendavisen is a Danish weekly newspaper that provides in-depth analysis, commentary, and cultural coverage. It offers a comprehensive review of current events, politics, arts, and literature. (3) *Berlingske*: Berlingske is one of the oldest newspapers in Denmark and is regarded as a quality newspaper that covers national and international news, business, politics, and cultural topics, catering to a diverse readership. (4) *Euroinvestor*: Euroinvestor is a financial news and information platform that focuses on financial markets, stocks, investments, and personal finance. Each title caters to specific audience segments and covers a range of topics, contributing to the overall media portfolio of the organization (DPG Media 2023).

Sampling Strategy

A purposive sampling strategy was employed to capture a comprehensive understanding of the perceptions surrounding the deployment of AI at *Berlingske Media*. The goal was to include diverse perspectives and insights from news workers across various departments within the organization, from the marketing department to the legal department to the editorial offices as their perceptions might inform the responsible development and implementation of AI. A total of 14 news workers were selected as participants for the study. The sampling process involved identifying key individuals with direct involvement or experience with AI tools in their daily work. The participants were approached through a combination of targeted recruitment *via* email and snowball sampling techniques. Initial contact was established through two department executives who provided recommendations for potential participants. Subsequently,

Table 1. Role description participants.

Role description
Sports editor, B.T.
Editor of news, Berlingske
Legal Department, Berlingske Media
Head of editorial development
Editor, Weekendavisen
Head of Audience
Head of development, IT
Head of development, data
Audience Development Specialist, Marketing
Digital Business Developer, Advertising
Editor-in-chief
Product manager, IT
Frontpage editor, Berlingske
Editor, B.T.

snowball sampling was employed, whereby participants were encouraged to refer to other news workers at the end of the expert interview who might have relevant experiences or perspectives. The sampling strategy aimed to capture a diverse range of viewpoints and expertise within *Berlingske Media*. The study sought to uncover the perceptions and implications of AI tool usage across different functional areas of the news ecosystem by including news workers from various departments. In Table 1, an overview of the interviewees job titles is given.

Analysis

Each interview was audio-recorded and then transcribed verbatim, ensuring accuracy for subsequent analysis. The transcribed interviews were examined using qualitative thematic content analysis to uncover recurring patterns and themes within the data. To address the research questions, the researchers devised a coding scheme derived from emergent patterns observed during an initial thorough reading of the transcripts (Corbin and Strauss, 1990). After conducting the initial coding process in NVivo software, a detailed and comprehensive coding scheme was developed, which allowed for the precise identification and differentiation of specific themes. Through the axial coding phase, the preliminary themes were further refined, building upon the initial open coding. In Table 2, the codebook is presented after the initial coding of the transcripts. The results were initially structured in accordance with the prevalent themes from the interview guide, which were "Perceptions of AI", "Possibilities and Limitations of AI", and "AI literacy". After, these initial themes were clustered in codes and subcodes: The code of "professional norms" was linked to "ethical considerations" and "utopian and dystopian perceptions of AI", followed by the code of "journalistic autonomy" and "AI literacy". The code of "conditions for uses of AI" is described in relation to the code of "potential (future) uses of AI" in the newsroom as well as their "possibilities and limitations". The code of "uses" is linked to the four phases of the news reporting, namely *(1) news gathering* (collecting information), *(2) news production* (structuring the information), *(3) news verification* (checking the information), and *(4) news distribution* (dissemination of the information).

Table 2. Codebook AI in Journalism, Berlingske Media.

Codebook
Artificial Intelligence in Journalism
Definition of AI
Responsibility in AI
Societal impact of AI
Intra-organizational conditions
Conditions for uses of AI
Uses of AI
1. News gathering
2. News production
3. News verification
4. News distribution
Future uses of AI
Limitation of AI
Possibilities of AI
Professional Norms
Ethical considerations
Regulating AI
Transparency
Transparency as requirement for trust
Journalistic Autonomy
Fear of AI
AI Literacy
Fear of losing job
Human oversight requirement

Results

Uses of AI at Berlingske Media

To better contextualize the results that will follow, we highlight current uses of AI at *Berlingske Media*. As conceptions of AI, and AI literacy and the conditions for the use of the technology are discussed, we believe it is valuable to describe the current uses at *Berlingske Media*. At the time of data collection, in May 2023, the broader organization was not yet actively experimenting with new uses of AI. Some participants mentioned during the interviews that their organization was relatively reluctant to deploy AI. However, there were some more established uses of AI that were implemented. Transcription was mentioned a couple of time, as some participants stated several tools that they used. Another use was speech-to-text technology that was used to read aloud the articles that are published on the website on a daily basis. Some participants mentioned that AI was also used in audience metrics tools to analyze news consumption behavior. The development and implementation of AI at *Berlingske Media* was rather limited, participants underlined, also in relation to other news outlets in Denmark like *Politiken* and Ekstra Bladet (part of *JP/Politikens Media Group*, a Danish media conglomerate) who have a longer standing tradition of actively experimenting with AI. Despite the limited deployment of AI in May 2023, several participants stated that they were interested in experimenting with generative AI technologies and tools.

Utopian and Dystopian Conceptions of AI

The participants' knowledge on AI varied—from utopian over more neutral to dystopian views—as some are actively confronted with AI in their work processes already,

whereas others have only heard of these technologies but don't have the impression that they have interacted with it. Some participants mentioned they were surprised by the invisibility of AI in search engines like Google and Bing or in transcription software which led them to conclude that these technologies were "passively present" in their work processes. This passive presence is also reflected in how AI is conceptualized by some of the interviewees. Participant 10 states that the technologies "takes a decision independently without a human knowing". Similarly, participant 1, defines AI as "a computer taking a decision without a human interfering". Apart from AI being independent, a number of participants mention that the technologies are automating processes like checking spelling or rewriting headlines, and are here to assist news workers. Participant 14 mentions that "AI offers assistance to work processes", and that it could help "in curating information". Some participants have the intention to attribute a myriad of capabilities to these technologies, describing it as a "sentient entity", like participant 4 stated:

> "Artificial intelligence is reaching beyond what we would be able to sort of think about. I don't know what artificial intelligence knows; I think it is just so beyond what we are able to grasp." (Participant 4)

When responsibility in AI is considered, participants mention concepts like "machine learning", "algorithms", and "big data" to "accountability" and the "ethical use of AI". Participant 5 states that accountability entails that "you are able to manually trace the decisions that AI is making". Participant 7 links responsible AI to the protection of personal data, and the GDPR in the context of the current and future regulatory frameworks of the European Union, making sure that there are appropriate guardrails in place. For some participants, responsible AI is directly linked to the appropriate perception and conceptualization of what AI can and cannot do in the light of newswork, which is also illustrated in the following anecdote. After the data collection of this study, downsizing was announced at *Berlingske Media*, leaving 16 news workers without a job. The editor allegedly stated in one of the company meetings that some of the staff would be replaced by AI. This dystopian conception, of AI taking jobs one-on-one, led to a three-day strike by the journalists. A representation of the capabilities of the technologies are therefore linked by participant 14 to responsibility in AI:

> "Using AI in a responsible way is definitely not a way to spare journalists down the road. It's a way to work smarter, and with a human in the loop. And to use the energy and the time and resources on the right things. So, I think that would be a responsible way for us to convince the journalists that we're not looking to replace them, but that we're looking to make your work even smarter, and better." (Participant 14)

The utopian and dystopian conceptions of AI prevail because there is not always structural training among news workers, some interviewees state. Partly because of these utopian and dystopian conceptions, some interviewees mention that they fear losing their job. Participant 4 says that some people will be out of jobs, but that is "a disadvantage for the individual, not so much for the company". Participant 1 highlights that news workers will still have jobs, but that maybe they will need to re-educate themselves. He or she states that you will have "to make money somewhere else, and you might have another job title, but you will still be working at *Berlingske*

Media". In the light of this apparent fear, participants mention that demystifying the capabilities of AI through education is vital. In the next section, AI literacy in the light of journalistic autonomy is discussed.

Journalistic Autonomy

In this study, AI literacy is seen as a prerequisite for news workers to exercise their autonomy effectively. AI literacy is embedded in their autonomy deliberately, as it empowers them to use AI in a responsible way, ensuring ethical reporting and upholding journalistic standards.

AI Literacy

Some participants mentioned the need for literacy on AI inside and outside *Berlingske Media* as a prerequisite for understanding these technologies. Although AI is present passively, some participants have started experimenting with these technologies because of the emergence of generative AI tools like ChatGPT and Bard. Participant 9 states that because of these tools, it has become widely accessible for everybody. Due to this democratization, it also started discussions which contributed to a better understanding of these technologies in itself. However, some participants didn't seem to make a difference between the uses of generative AI and AI in general. When asked about the difference between the two, participant 4 mentions that the two terms are interconnected, only stating that the major difference between generative AI and AI is that the first one is predominantly producing something like an image, a text, or a video. AI, on the contrary, the participant states, can also detect patterns or label content automatically.

Some participants emphasized the need for regulation and ethical guidelines as essential components of AI literacy. Participants express that *Berlingske Media* should establish clear ethical guidelines and policies for the use of AI in journalistic practices. During the data collection, there were no guidelines in place, and some participants expressed concerns of not having these "guardrails" in place. A few conditions were prevalent throughout the interviews. The first one was ***Human oversight requirement***: Participant 7 states they want to be in control when using AI tools. Similarly, participant 1 warns that "AI might result in a sort of laid backness" and mentions that they "need to stay in control of the creative process". Participant 12 states that there needs to be a human in the loop in the future when output from ChatGPT is used in their content. Another interviewee states:

> "There is a fine line between, you know, using it in a supplemented way and a tool to improve your journalism, rather than taking over the production of a text completely. If we would start the latter, I think that would be the beginning of the end for *Berlingske Media*, right?" (Participant 3)

Another requirement for guidelines to increase AI literacy is ***transparency***. Some participants are convinced that *Berlingske Media* should be transparent on the use of generative AI, both internally and externally. Internal transparency entails that journalists understand how the algorithm makes decisions, participant 5 states. External transparency is directly linked to disclosing which AI tools are used to the audience

or the news consumer. Participant 10 underlines that journalists need to be able to understand how specific decisions are being made by AI tools:

> "If you cannot open the lid and say, that's how it came to that decision, then I believe we should not use it (…) It needs to be able to explain itself, or at least, we need to make sure that the output is not biased in some way." (Participant 10)

As for external transparency, there is a dissensus among participants whether they should explicitly declare the use of AI tools towards their audience. Participant 9 declares that they should consider a specific threshold: When an article is more than 50% generated by AI, this should be mentioned in the byline or at the end of the article. Participant 2 states that news workers should ask themselves as a "rule of thumb, if ChatGPT did something for you, and a human would have done the same thing, would you mention him or her in the byline?".

A third requirement of having guidelines on the use of AI is to induce ***trust*** with their audience. To establish that trust, some participants mention that there needs to be a statement from the *Berlingske Media* management on how they will use generative AI and AI. Participant 5 underlines that they could integrate it in the quarterly report, and have a specific section on what their short- and long-term views are on the uses of AI tools. Participant 7 underscores that, in a time of artificially generated content, *Berlingske Media* needs to be a safe haven where humans write the analysis and produce high-quality information:

> "Trust is so vital for us. We really need our readers to trust us, and we need to do everything in our power to maintain that trust. So, if they get a sense that some content is produced by AI and we are not transparent about it, they might become suspicious. (…) So we need to be transparent about that. But I sincerely hope that we won't reach that point where we have to be transparent and it's already too late." (Participant 7)

Additionally, interviewees mention that there was no communication from the management on the use of generative AI specifically. Someone raised a question during a meeting in Spring 2023 of *Berlingske Media*, participants state, but that there was not a clear response to what extent news workers could experiment with it. Participant 12 states that he or she asked a question on generative AI in that meeting and that the response was that they want to be sure that the use of it is legal. Participant 11 underlines the urgency of having guidelines in place for the use of generative AI and AI:

> "Journalists just started using generative AI which means that we need a set of principles and ethics standards. We're really in a hurry. It's out there and people are just using it without having clear arrangements in place." (Participant 11)

Conditions for Future Uses of AI

Participants were asked to formulate the specific future or aspirational uses of generative AI and AI in relation to the news reporting process during the interviews. In this study and in the questionnaire that was shared with the participants, the news reporting process is divided into four phases that are inherently interconnected, namely ***(1) news gathering*** (collecting information), ***(2) news production*** (structuring

the information), ***(3) news verification*** (checking the information), and ***(4) news distribution*** (dissemination of the information). Participants see possibilities of AI tools throughout the entire reporting process, with a lot of potential applications in the gathering, production, and distribution phase. The news verification phase, however, is not as prevalent as news workers don't sufficiently trust AI to verify and factcheck information, interviewees state. Below, the findings from the different phases of the news reporting process are described. Additionally, the conditions for the use of AI within the newsrooms of *Berlingske Media* are formulated, considering both the possibilities and the limitations of the use of AI tools.

For the first phase, the ***news gathering***, interviewees mention potential uses in the light of "template journalism". Participant 8 underlines that it would be useful to have a tool that sifts through quarterly company reports. The interviewee sometimes works at Euroinvestor, a financial news platform, which is obliged to read these documents quickly to inform their audience before the stock exchange opens. Similarly, participant 3 states that journalists spend a lot of time finding information: "There will be a time where we change from Google to ChatGPT as it is a new entrance to the internet, right? So instead of trying to find all the material yourself, you can just ask ChatGPT to do it." Another use of AI in news gathering is translation. Participant 13 states that ChatGPT performs better than Google Translate:

> "When I need to translate a text, I prefer ChatGPT because it sounds more like Danish to me. It is especially good when I enter my own sources and put it straight into it. (…) It's a large language model, so it is quite good at this stuff. (…) I also use it to check my grammar." (Participant 13)

For the second phase, ***news production***, a lot of uses are linked to producing news, and most of the applications are directly linked to the first phase of news reporting, namely the gathering of news. Participant 5 mentions that it could be useful to have a tool that summarizes some of the news from the last 2–3 h: "In that way, I already have an overview of potential stories I want to work on that day". Similarly, participant 8, underscores the need for a "summarizer of live blogs" which allows them to repackage these short snippets of information into a more robust article for the physical newspaper the next day. The interviewee works at *Berlingske* and states that news workers spend a lot of time trying to bring together the different parts of liveblogs. Another use of AI in the news production phase is to help news workers to transcribe their interviews. Participant 9 states:

> "I've talked with a lot of the journalists and they lose a lot of time transcribing their interviews. I think that's a process that could be replaced by algorithms, right? Because it's not something controversial. And it's not something that results in less trust for the end user. It is about pure augmentation." (Participant 9)

News verification involves a lot of avoiding the use of AI, participants state. Participant 13 describes that fact checking content is something that is inherently human. "I would not verify information with AI, as it might hallucinate information", he or she states. Participant 4 argues that human oversight is mandatory when specific content is verified with AI. Similarly, participant 10 underlines that fact checking information is about agency as well:

> "An editor or a journalist will say, well, this looks right, I want to have my name on this because I verified that information, I think that's still going to be in human's hands." (Participant 10)

Lastly, for ***news distribution***, participants mention a wide range of AI uses, from news personalization over sharing and labeling content automatically. Participant 5 suggests that having "automatic content classification could help to structure their content more easily". In doing so, *Berlingske Media* will have a more structured overview of what kind of content is produced and distributed by the four titles. Participant 7, who works at *Weekendavisen*, mentions "the use of artificially trained voices to read aloud their articles". *Weekendavisen* produces long-form articles, and the author(s) of these articles normally need to read their own stories aloud. "I am really not afraid that this will result in less work for us", he or she states. Participant 11 argues that news personalization could be a valuable use of AI, taking into account values like content diversity:

> "AI will change how we publish our news. Personalization will allow us to share different forms of journalism to different kinds of people at different times of the day." (Participant 11)

Having outlined the potential uses of AI, the following section of the findings will highlight the ethical considerations of these technologies within a news organization. News workers realize that these AI tools have possibilities and limitations that need to be considered to guarantee a responsible use of these technologies.

Possibilities and Limitations of AI

The findings reveal some possibilities and some limitations when reflecting on the ethical considerations of AI at *Berlingske Media*. Each of them will be highlighted below.

Possibilities

One of the possibilities that was mentioned by participants, is that the use of AI might result in more ***efficiency*** of work processes altogether. Participant 11 mentions that he or she sees a lot of possibilities. "I think that in terms of safeguarding the survival of journalism in the future, I hope that AI will actually give us some resources to focus on what's original and creative and unique." Participant 9 adds that the use of AI will free up time from their mundane tasks. "AI tools allow us to spend as much time as possible on the things that matter to us as a news company or publishing company." Participant 14 links the use of AI tools to the watchdog function of journalism:

> "We are part of a democratic society, and we should hold the powers that be accountable. (…) I would rather have a journalist that spends time talking to sources and writing compelling stories instead of doing transcriptions." (Participant 14)

The second and third upside of using AI tools, interviewees mention, is linked to ***real-time news monitoring*** and ***enhanced content recommendation***. In the light of news personalization and curation, participant 12 mentions that monitoring of audience behavior with analytics software could "help to improve the news experience for their users". Participant 6 adds that AI will allow them to build better products

for their users. "I think if we cracked the code to provide a relevant and personalized news experience for our users with the use of AI, I think we're actually doing something that nobody else does right now." Participant 8 mentions that AI might change journalism more as a process than as a product in light of content moderation:

> "We could make faster news, and we could make more news, we could scale it. We could make it relevant for everybody. And our audience would be targeted in a relevant way. (…) So the product stays the same. We will have an article as a starting point, but the process will change in how we will make that article relevant to you." (Participant 8)

Limitations

Bias in AI tools was mentioned as a clear limitation. Participant 5 states that AI is "reinforcing existing systems and data, and they reinforce the discrimination that is already present on the internet. They amplify the bias and are good at reinforcing them." Participant 7 underlines that AI will "disappoint us in a lot of areas because of the bias". Because of this imminent bias, participant 3 mentions that they should not use AI to produce content as they are not aware "of what it's capable of right now". Similarly, participant 14 warns that because of this bias, they should not use generative AI tools:

> "The bias and hallucinations make ChatGPT useless for everyday journalism right now. I cannot trust it." (Participant 14)

In the light of generative AI, a second limitation is linked to the ***lack of accuracy and factual information.*** Participant 4 states that generative AI is capable of making up a different reality from the one we live in." Participant 8 warns that "it is sort of lying, and just making up things that aren't facts. It just taps into that issue of creating fake news and saying that the Holocaust didn't happen, or that people did something that they didn't do." Additionally, participants 5, 8, and 11 underline that the input data can limit the output when you want recent information. Participant 1 mentions that ChatGPT is only trained on data up until 2021 and tends to 'hallucinate':

> "I asked ChatGPT about the war in Ukraine, and it responded that it didn't happen. (…) Another hallucination. I think that's a really big issue. But again, I don't know what it will take to fix it." (Participant 1)

A third limitation that participants have mentioned is the ***lack of nuance*** in AI tools. Participant 13 states that "generative AI struggles to understand the broader context of news stories". Participant 2 adds that "AI can process and analyze data quickly, but it does not understand cultural and social nuances that we as journalists comprehend". Participant 5 concludes that *Berlingske Media* should not forget the human factor when using AI:

> "In the future, it's all about the human synthesis of information. And I've yet to see an AI in a meaningful coherent way synthesize information. Yes, it can find similarities and it can find patterns, but it's unable to see them. But the technical similarity or pattern is not always a story. Sometimes it's a lack of pattern that makes it really interesting for me, and an AI can't find that." (Participant 5)

Discussion and Conclusion

This study evaluated the internal dynamics that potentially influence the integration of responsible AI at a Danish news organization, namely *Berlingske Media*. Although AI was not officially deployed in May 2023 at *Berlingske Media*, several participants stated that they were actively experimenting with these AI technologies and tools. This study gathered empirical data that sheds light on integrating AI in the workflows of news workers within a newsroom setting. The research specifically contributes to the overall understanding of how AI might be implemented in a responsible way.

For the first research question (**RQ1**), we found that participants' perceptions differ notably in relation to their knowledge level of AI and how they reflect upon ethical considerations and journalistic autonomy when using these technologies. Overall, the data from the participants in our sample who self-reported as "AI savvy" believe that they have more accurate views of what AI can and cannot do. News workers in the sample who self-reported as "less AI savvy" did express that they were not always aware of what AI exactly entailed, and what the exact capacities of such technology was. More specifically, some of these "less AI savvy" news workers refer to AI as a technology that can become "sentient", potentially taking over their jobs' "one-on-one", and having the capacity to exceed human knowledge. In light of these general perceptions, some participants express optimistic or utopian views, seeing AI as a valuable tool that enhances journalistic practices and efficiency. Others hold more skeptical views -sometimes dystopian perceptions - emphasizing concerns about the potential impact on journalistic autonomy, such as algorithmic biases and the loss of editorial control. These results of utopian and dystopian portrayals have also been described and supported in earlier studies on AI and automation (e.g., Cools et al. 2024).

For our second research question (**RQ2**), mapping the intra-organizational conditions for AI, we conclude that news workers find that guidelines are one of prerequisites to facilitate responsible AI. Additionally, potential applications in the gathering, production, and distribution phase were formulated by news workers. The news verification phase, however, was not as much mentioned because news workers do not sufficiently trust AI to verify and fact-check information, which is similar to what Singer et al. (2011) found, although they were more focused on automation and participatory journalism. More recent work on the (non-)uses of generative AI by Diakopoulos et al. (2024) and Simon (2024) have drawn similar conclusions like this study, namely that AI is relatively distrusted for news verification as human oversight is required (see also Milosavljević and Vobič 2019). AI literacy is a second condition to facilitate responsible AI. Participants state that by experimenting with AI in their daily journalistic workflow, they encounter the possibilities and limitations of these technologies. One prominent possibility of using AI is efficiency, giving them resources on what is creative and unique. Another limitation is bias, as participants state that AI reinforces existing systems and data, reinforcing the discrimination and the biases that are already present on the internet.

Overall, adopting the institutional theory perspective and its internal dynamics was beneficial because participants expressed ethical considerations that AI can deinstitutionalize journalistic practice when there are no guidelines or regulatory guardrails in place. In addition, the theory does focus more on social and organizational aspects

and is sometimes less concerned with the specific technologies that are developed and implemented. The theory is also less preferable to predict how the process of (de)institionalization will evolve in the future.

This study has described that facilitating responsible AI in newsrooms begins with having guidelines in place to safeguard journalistic autonomy by having a human in the loop. Although guidelines are a necessary starting point to contribute to institutionalizing responsible AI, these principles should be translated to practices "on the ground", participants state. In doing so, establishing these guidelines will contribute to the literacy of AI in newsrooms, as de Haan et al. (2022) found that the use of AI is often invisible to news workers. A survey of the World Association of News Publishers (WAN-IFRA 2023) conducted in May 2023 revealed that half of the newsrooms were already experimenting with generative AI without knowing what these technologies could (not) do. The more significant ramifications of this study have also shown that newsrooms were not sufficiently prepared to work with AI actively.

Reflecting on the more significant ramifications of this study, we believe that increasing AI literacy across different departments within newsrooms in the form of workshops or trainings will be a prerequisite to debunking myths around these technologies. Helberger et al. (2022) have pointed to adopting a normative perspective on the role of journalistic AI and what values it should serve. Instigating discussion groups or workshops on the use of AI could potentially contribute to more realistic perceptions of these technologies. The anecdote the editor allegedly stated in a meeting that some of the staff would be replaced one-on-one by AI, illustrates that dystopian conceptions remain prevalent within news organizations . Cools and Diakopoulos (2023) have argued that the emergence of generative AI and Large Language Models (LLMs) have highlighted the need for newsroom guidance, not in the least because these tools have democratized the use of these technologies. This study has hinted on some of the future developments around the implementation of AI and generative AI in newsrooms and it will remain helpful to study the perceptions of these emerging technologies as they evolve. To this end, research by "citation withheld" has found that the emergence of generative AI technologies has further democratized the use of AI, resulting in a larger and more diverse group of news workers adopting these tools. With this democratized use in mind, we argue that our data has given a first glance on how news organizations navigate this relatively novel AI landscape and its implications for the professional norms of journalism.

This study has limitations. First, a case study of *Berlingske Media* makes the results contextual, and the specific findings of the perceptions of responsible AI cannot be generalized. Future studies should explicate the organizational features and conditions of news organizations when studying the development and implementation of AI and what responsible use means in relation to the use of the technology. Similarly, future scholarly work could focus on the role of journalism courses in relation to AI literacy and the responsible use of it. Second, the findings are timely in the sense that the data collection happened at the time where generative AI was "hyped" and thus very prominent in newsroom discussions. Future research could consider a longitudinal perspective of the perceptions and uses of responsible AI, potentially evaluating how journalistic labor is altered because of these technologies. In addition,

studies could evaluate other news organizations and adopt a comparative perspective, potentially focusing on the public broadcasters' and private news organization's approaches to the uses of AI. These shortcomings notwithstanding, we believe that further research and careful implementation strategies can help bridge the gap between the diverse perceptions of AI within news organizations like *Berlingske Media*, ultimately fostering a potential responsible and balanced integration of AI technologies in journalism.

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Ethical Approval

This study was approved by the Ethics Review Commission of The University of Amsterdam.

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