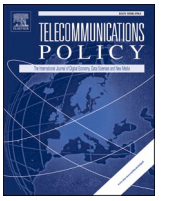
Telecommunications Policy 49 (2025) 102990

Contents lists available at ScienceDirect

Telecommunications Policy

journal homepage: www.elsevier.com/locate/telpol



Safeguarding media freedom from infrastructural reliance on AI companies: The role of EU law

M.Z. van Drunen

Institute for Information Law, University of Amsterdam, the Netherlands

A B S T R A C T

An emerging body of journalism studies research has shown how media organizations are growing dependent on external companies to provide AI tools used to inform the public, and the infrastructure needed to develop and deploy these tools. Concurrently, EU lawmakers and legal scholars have developed new regulatory and normative frameworks to safeguard media freedom from large technology companies. However, this work focuses on platforms' control over access to large audiences; it remains unclear how AI companies' power over infrastructure inside newsrooms challenges media freedom. This paper therefore explores how European law should address the challenges to media freedom posed by the media's dependence on the infrastructure controlled by AI companies. It does so in two steps. First, it evaluates why the media's dependence on AI companies poses a challenge to the fundamental right to media freedom. It finds that media organizations' loss of control over the values embedded in the AI tools they use to inform the public poses the most pressing challenge. Second, it explores the suitability of existing EU law to address three conditions (algorithmic opacity, lock-in effects, and resource disparities) for the media's infrastructural reliance on AI companies. It finds that existing EU law does not adequately address these conditions. However, especially horizontal regulation targeting AI tools and the underlying cloud infrastructure do offer regulatory tools that can be applied or adapted to safeguard media freedom from infrastructural reliance on AI companies.

1. Introduction

Who controls the technologies the media uses to gather, produce, and distribute news? An emerging body of journalism studies research indicates that the answer to this question is: external AI companies, and more specifically, Microsoft and its partner OpenAI, Google, Amazon, and Meta (Beckett & Yaseen, 2023; Kristensen & Hartley, 2023; Simon, 2023). The high costs and pace of AI development make it challenging for media organizations to develop AI in-house (Beckett & Yaseen, 2023; Cools et al., 2024; Simon, 2022), as they have done with previous technologies (van Drunen & Fechner, 2022). Media organizations therefore increasingly procure their AI tools from AI companies. Going further, they rely on AI companies for the resources needed to develop and deploy AI, such as cloud computing and storage, research and datasets, and money for media innovation projects (Fanta & Dachwitz, 2020; Papaevangelou, 2023; de-Lima-Santos et al., 2023). Existing literature has mapped the media's technological reliance on external companies under the umbrella term 'infrastructural capture', constituting a situation where the media "becomes incapable of operating sustainably without the physical or digital resources provided by the organizations it formally oversees" (Nechushtai, 2018).

The media is only one of many sectors making use of (and potentially growing dependent on) AI companies' services.[1] Yet the media's dependence on AI companies is arguably particularly problematic. To be able to fulfil its role in democratic society, the media needs to be able to decide how to inform the public independently from public and private actors. It is therefore traditionally afforded

This article is part of a special issue entitled: AI & digital media ecosystems published in Telecommunications Policy.

E-mail address: m.z.vandrunen@uva.nl.

[1] For example, Vlist, Helmond, and Ferrari have shown how AI companies target a wide variety of specific sectors, ranging from education, to manufacturing and logistics, and indeed the media (van der Vlist et al., 2024).

https://doi.org/10.1016/j.telpol.2025.102990
Received 9 October 2024; Received in revised form 27 March 2025; Accepted 4 May 2025
Available online 9 July 2025

protection that goes beyond that afforded to other sectors, and indeed other actors making use of their right to free expression. In the EU, this additional protection is based on the right to media freedom in art. 11(2) of the Charter and the European Media Freedom Act (EMFA).

Infrastructural capture presents a novel challenge to media freedom. The editorial board, ownership, and income sources of media organizations can remain exactly the same, while within newsrooms editorial decision-making is shaped by AI systems supplied by external companies. This influence on editorial decision-making largely falls outside the scope of (the literature on) the legal tools with which media freedom has traditionally been safeguarded, such as media ownership regulations, guarantees for the independence of editors, or standards for the safety of journalists (Koltay, 2024; Oster, 2015). More recent literature and legal frameworks such as the EMFA do emphasize the need to safeguard media freedom (and freedom of expression more broadly) from large technology companies. However, they focus on social media platforms' power to control media organizations' access to audiences (Kenyon & Scott, 2020; Klonick, 2017; Koltay, 2024; Napoli, 2019; Pickard, 2019; Quintais et al., 2023; Tambini, 2021a,b; EMFA reictal 4, articles 18-19).[2] Finally, in past years authors have begun to analyze AI as a media technology, assessing AI companies' responsibilities for the speech and how media concentration law can be adapted to limit their increasing power (Abiri, 2024; Seipp et al., 2024).[3] However, what remains largely unclear is how AI companies' control inside newsrooms threatens media freedom, and how EU law could address this challenge.

In this article I analyze how EU law should address the challenges to media freedom posed by the media's dependence on the infrastructure controlled by AI companies. I aim to make two main contributions: to identify when this dependence becomes problematic from a European media freedom perspective, and to explore the suitability of existing EU law to address the conditions for it. Section 3 draws on normative theories of media freedom and literature from journalism studies on the media's dependence on AI companies to evaluate how different aspects of media freedom are impacted by the different layers of AI infrastructure. Section 4 identifies three conditions for the media's dependence on AI companies from the journalism studies literature, and analyses the extent to which existing regulation protecting the media from technology companies as well as horizontal regulation of AI (infrastructure) addresses these conditions. Prior to these analyses, however, it is necessary to describe the background of the media's reliance on AI companies by clarifying a few key terms.

2. AI, platforms, and infrastructure in the media

In line with the AI Act and OECD, I use the term AI to refer to a machine based system "designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and 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" (AI Act art. 3(1); OECD, 2024).[4] That is not to say that technologies that fall outside the scope of this definition do not pose similar challenges. However, two characteristics of AI exacerbate the media's reliance on external companies compared to other technologies. The first is its costs. The data, money, computing power, and expertise necessary to develop AI systems, as well as the high pace of AI development, make it challenging for media organizations to develop their own AI systems, rather than procure them from external AI companies (Luitse, 2024; Simon, 2024). The second is its utility. AI can automate a number of complex tasks that are useful to the media, such as identifying statements that need to be fact checked and summarizing or producing text, and thereby potentially increase efficiency and improve editorial decision-making (Beckett & Yaseen, 2023; Commission, 2023c, p. 150; Diakopoulos et al., 2024; Simon, 2024). This combination of high costs and value confronts media organizations with a difficult choice. They can opt not to use AI and fear falling behind their competition, they can invest in creating their own AI tools that may be out of date quickly after development, or they can adopt the AI tools supplied by external companies (Beckett & Yaseen, 2023; Simon, 2023).

The term 'platform' is typically used in literature on infrastructural capture as a shorthand to refer to the large US tech companies that develop the AI systems the media uses. However, in the context of AI the term is misleading.[5] Platforms are typically defined as facilitating interactions between different parties, such as advertisers and publishers or users and media organizations.[6] This element is lacking in the relationship between media organizations and the companies from which they procure their AI tools, which more resembles a traditional business-to-business relationship. Additionally, the term platform fails to capture the power these companies exercise over AI through their control over the cloud computing services, research, foundational models, and funding schemes used to deploy and develop AI. I will therefore use the broader term 'AI companies' to refer to the companies that supply AI tools to the media.

Finally, much of the literature uses the term 'infrastructural capture' to describe and problematize the media's dependence on AI

[2] EMFA recital 4, articles 18–19. See more broadly, also accounting for platforms software development kits and advertising dashboards (Cohen, 2023).

[3] See also prior to the media's reliance on AI companies and focused on technologies built by media themselves (Ananny, 2018a; Helberger et al., 2020) Finally, see Porlezza's analysis of how EU policy documents (largely refrain from) engaging with AI's implications for the media (Porlezza, 2023).

[4] Journalism studies research uses different definitions, generally focusing on the use of machine learning, see e.g. (Beckett & Yaseen, 2023; Ferrari et al., 2023; Jones et al., 2022; Simon, 2023), See especially Ferrari et al. on the need to avoid rigid categorizations and account for the ways in which "computational infrastructure, foundation models, and consumer-facing applications" are intertwined.

[5] Or rather, more misleading than usual, the term platform implies platform companies provide a neutral space in which others can interact (Gillespie et al., 2014).

[6] DSA art. 3(i).

companies. This concept has been of key importance to start and structure research on the topic of this article. However, it is limiting for two reasons. First, the term capture (and the definition of 'infrastructural capture') indicate that the main problem with the media's dependence on AI companies is that AI companies will use their power over the media to intentionally interfere with reporting, for example by stifling critical stories or influencing the editorial values embedded in AI systems for political purposes. However, as Nechushtai already indicated in her article introducing the concept and subsequent research has confirmed, this is only one potential challenge posed by the media's dependence on AI companies, and not necessarily the most important one. I will therefore rely on Simon's more descriptive term 'infrastructural reliance' (Kristensen & Hartley, 2023; Nechushtai, 2018; Papaevangelou, 2023; Simon, 2023).

The second problem is that 'infrastructural capture' largely leaves undefined what 'infrastructure' is.[7] In part, this is also the power of the concept. Infrastructure's broad nature makes it possible to assess overarching trends regarding AI companies' control over the media, despite the differences between the ways in which media rely on AI companies and the rapid pace at which new AI tools are developed (Beckett & Yaseen, 2023). At the same time, the vagueness of the term infrastructure opens up space for research that maps ever more ways in which AI companies exercise control over the media. For example, researchers have categorized the media's internal AI tools, platforms' own content recommendation algorithms, advertising systems, cloud computing and storage, mobile devices, and foundational models under the umbrella of infrastructural capture (de-Lima-Santos et al., 2023; Kristensen & Hartley, 2023; Nechushtai, 2018; Papaevangelou, 2023; Schiffrin, 2021; Simon, 2022).[8] While this demonstrates the media's general reliance on large tech companies, it often remains unclear why these forms of control are problematic or how they are related. For example: why is it a problem that media companies deploy AI on Google Cloud as opposed to their own servers? And how is this related to their reliance on the advertising infrastructure supplied by Google?

In this article I focus on the infrastructure on which media organizations rely to deploy AI tools, and which poses a challenge to media freedom. This concept offers a rich history of scholarship on why independence of the media ought to be protected, which is a useful foundation from which to assess the potentially problematic nature of infrastructural reliance.[9] Additionally, media freedom allows us to identify when infrastructural reliance is problematic from a fundamental rights perspective, and where states have an obligation to address the media's infrastructural reliance on AI companies.

3. AI infrastructure and media freedom

3.1. A brief introduction to media freedom

This article focuses on a strand of media freedom common in recent theories of European media freedom. These emphasize, firstly, that media freedom exists (Barendt and Barendt, 2007; Koltay, 2015; Oster, 2015; Tambini, 2021a). This is in contrast to the US context, in which the view that the media does not and should not be afforded any more protection that provided to any speaker under the right to freedom of expression remains prevalent. Though that approach has not disappeared, most recent European media freedom theories, the inclusion of media freedom as a distinct right in the EU Charter, as well as the EMFA emphasize fundamental rights law requires states to ensure media freedom above and beyond the protection afforded to other actors.[10]

Second, they emphasize states' positive obligation to safeguard media freedom from private actors. This is driven by the argument that states cannot realize media freedom if they do not take active measures against the private parties that exercise power over the way the media can inform the public (Charney, 2020; Kenyon and Scott, 2020). This old argument has gained new force in recent years due to the control platforms have amassed over the way information is distributed online (CoE, 2019; Charney, 2020; Koltay, 2015; Tambini, 2021a). In that context, non-intervention by the state would not safeguard media freedom, but simply allow platforms to set the conditions under which the media can inform the public (Kenyon and Scott, 2020). Section 4 will explore in detail what active measures states can take to adhere to their positive obligation to safeguard media freedom in the context of the media's infrastructural reliance on AI companies.

Thirdly, media freedom is argued to be instrumental. The media is not afforded additional protection because it has an inherent right to such protection, but because a healthy media system is necessary to promote public values.[11] In particular, media freedom is typically argued to be necessary to enable democratic self-government by ensuring the public's access to high quality, independent information on which they can base their political opinions (Ananny, 2018b; Bayer, 2024; Charney, 2020; Tambini, 2021a). Media

[7] See for a good treatment of the term in the context of platforms (Cohen, 2023) See also (Kristensen & Hartley, 2023).

[8] See for an in-depth analysis of tech companies' control over non-AI infrastructure such as underseas cables and internet exchange points, and the implications for the media (Sjøvaag et al.).

[9] I draw primarily on literature on European media freedom, supplemented with more general work on media freedom or the role of media in freedom of expression that follows a similar logic.

[10] Rowbottom convincingly argues that this is because the economics of publishing and the need for specialization push toward the development of separate institution that gathers and disseminate information to the public. This group is afforded special protection to ensure it is able to use its power to realize public values (Rowbottom, 2018) See for an in-depth analysis of the (lack of) specific privileges afforded to the media across Europe, and the extent to which we can speak of 'European' media freedom (Koltay, 2024).

[11] The instrumental nature of media freedom is also an important argument for states' positive obligation to safeguard media freedom; the media cannot fulfil its role in democracy if private actors can pressure media organizations to change their reporting (Barendt and Barendt, 2007; CoE, 2016; CoE, 2018, 2018; Koltay, 2015).

freedom, in short, is not about the media itself, but rather about what the media can do for society by informing the public (Lichtenberg, 1987; Rowbottom, 2018; Tambini, 2021a). This differentiates media freedom from the overarching right to freedom of expression, which is also argued to be important for (among other things) the self-development of the speaker (Koltay, 2024; Oster, 2015). One important implication for infrastructural reliance is that media freedom is not engaged unless AI companies' control over infrastructure does not impact the way the media is able to inform the public.

This approach to media freedom is contested. Fundamental rights were originally envisioned to protect against state power; the notion that they should also apply in horizontal relationships extends them beyond this purpose to instead restrict the autonomy of private actors (de Mol, 2014; Frantziou, 2019). Even if one accepts states have to safeguard fundamental rights against interferences by private actors, a distinct right to media freedom separate from the general right to free expression arguably makes an unjustified distinction between traditional media actors and other contributors to the public debate, such as NGOs, bloggers, or citizen journalists (Barendt, 2015; Charney, 2020; Cram, 2022; Verza, 2025; Magyar Helsinki Bizottság v, 2016).Moreover, affording the media special rights could create its own threats to media freedom, as some actor would have to decide which media get privileges, and which do not (Tambini, 2021c).

It is not the purpose of this article to contribute to media freedom theory regarding the existence and personal scope of media freedom. Disagreements over these questions are ultimately driven more by the perceived role of the media in democratic society and the desirability of states' active support for that role, and are not fundamentally changed by AI companies' newfound power in newsrooms. However, two links between this aspect of media freedom theory and infrastructural reliance are important to note. First, infrastructural reliance arguably particularly affects the power relationship between private AI companies and media organizations, which rely on AI infrastructure to develop, deploy, or use AI tools to contribute to the public debate. In that sense infrastructural reliance further strengthens the need for approaches to media freedom that focus on states' obligation to protect the media from private actors in order to ensure it can continue to fulfil its role in democratic society.[12] Nevertheless, it should be noted that the challenges posed by infrastructural reliance depend on the normative theory one adopts, and under other approaches to media freedom states have no fundamental rights obligation to intervene in the relationship between media and AI companies. Second, the notion that media organizations may be particularly impacted by infrastructural reliance does not necessarily mean solutions to infrastructural reliance should be available exclusively to the media. As noted in section 4 and the conclusion, there are good arguments to ensure the algorithmic transparency needed to scrutinize AI infrastructure and the resources needed to develop new AI tools are widely accessible. This would have the further benefit of avoiding the dangers involved in regulation which gives the media valuable privileges that can be taken away. In short, while it is important to ensure law addresses the specific challenges infrastructural reliance poses to media freedom, the solutions to these challenges should not necessarily be restricted to the media.

3.2. *The AI infrastructure that matters to media freedom*

In light of the connection between media freedom and the media's ability to determine how to inform the public, it is already useful to distinguish between a number of different forms of infrastructure that matter to media freedom (Table 1).

The first concerns AI tools media organizations use to take or support decisions about how to inform the audience.[13] Media law has traditionally used the concept of editorial control to capture the different ways in which media organizations determine to what information their audience is exposed. In European law, editorial control can be defined as influence over the way information is gathered, produced, and distributed (van Drunen, 2023).[14] AI tools used in these processes almost by definition shape the ways in which the media informs the public. As a concrete example, consider Google Pinpoint. Google pitches this as "a research tool for journalists" that uses its AI and search technologies to "help them find patterns in data, identify new potential stories, or easily find a quote they need" (New funding, 2024). In doing so it necessarily highlights some patterns and stories over others. Similarly, Google markets its Vertex AI Matching Engine as enabling media organizations to recommend articles similar to those a reader has engaged with in the past (Google, 2023). Here too, the news recommender system will show readers one set of stories but necessarily excludes others – such as stories on topics they do not typically engage with, or perspectives that differ from their own (Helberger, 2019; Vrijenhoek et al., 2024). In addition to AI tools used for specific editorial decisions, AI companies supply tools that inform or influence editorial decision-making in general (Cohen, 2023; Hesmondhalgh et al., 2023; Poell et al., 2021; Sjøvaag et al., 2024). For example, engagement metrics and advertising systems used by media organizations influence how the success of a news story is measured, and in turn influence the editorial decisions taken by journalists and editors (Anderson, 2011; Belair-Gagnon et al., 2020; Lamot et al., 2021). Similarly, dynamic paywalls can have a significant influence on the news users can access without payment (Kristensen & Hartley, 2023; Simon, 2024).

It is also necessary to consider the conditions that determine which AI tools the media can develop or deploy. Media organizations deploying an AI tool do not do so in a vacuum; their ability to choose what editorial or supporting AI tool best fits their purposes is in part constrained by the resources needed to deploy AI tools. Literature on infrastructural reliance emphasizes in particular the role of cloud infrastructure. Technologically sophisticated organizations can rely on the machine learning models, computing power, and storage space offered through Google's, Microsoft's, and Amazon's cloud infrastructure to develop and deploy their own AI tools.

[12] Similarly, the power of platforms over the media has renewed interest in media freedom theories which focus on the need for states to actively safeguard the media from private actors.

[13] See also Jones et al.'s, suggestion news organizations focus on controlling "editorially significant" AI (Jones et al., 2022).

[14] See for an alternative categorization (Simon, 2024).

Table 1
An overview of the relevant AI infrastructure for media freedom, derived from existing typologies of infrastructural capture and analyses of the most-used AI tools in the media (Beckett & Yaseen, 2023; Diakopoulos et al., 2024; Kristensen & Hartley, 2023; Simon, 2022, 2023).

Infrastructure	Subtype	AI tools and resources
Editorial AI	Gathering information	Story/trend detection; data analysis; Fact-checking/claim-matching; Optical character recognition
	Producing information	headline or content generation; summarization; text-to-speech, visualization; style matching, simplification
	Distributing information	Recommender systems; chatbots
Supporting AI	AI that influences editorial decisions	Dynamic paywalls; advertising; subscription management; engagement metrics
AI resources	Resources to develop AI	Foundational models and research; training data; cloud computing; funding for media innovation projects
	Resources to deploy AI	Cloud storage; training programs

Alternatively, companies such as Google also offer a suite off off-the-shelf journalistic AI tools running from their cloud infrastructure (Carugati, 2023). In both cases, AI companies' cloud infrastructure offers media organizations a cheap, stable, scalable, and easy-to-use way to experiment with AI, without having to make a long-term investment (Carugati, 2023; Simon, 2023). AI companies further facilitate the use of their AI tools and cloud services through partner and news innovation programs, which for example train journalists in the use of a specific suite of tools (Nechushtai, 2018) (van der Vlist et al., 2024). As section 4.2 explores in further depth, once media organizations rely on cloud infrastructure to run their AI tools and have trained their journalists in the use of specific AI tools, lock-in effects can make it challenging to switch to AI tools offered by a different provider.

Finally, AI companies influence the resources that determine what AI tools are available for media organizations to develop or choose between in the first place. For example, AI companies exercise control over the technical resources used in AI development, such as foundational models that can be finetuned to more specific purposes, datasets to train AI new systems, and research into the performance and development of AI systems (Ahmed, et al., 2023; Beckett & Yaseen, 2023; Terzis, 2023; Vrijenhoek, 2023).More directly, AI companies can shape the AI tools media organizations develop themselves through funding for media innovation projects (Fanta & Dachwitz, 2020; Papa & Kouros, 2023; Papaevangelou, 2023; de-Lima-Santos et al., 2023). Finally, Luitse argues that AI companies exercise significant control in the bottom and middle of the cloud stack on which AI is developed through the practice of abstraction: collapsing multiple technical operations into a single line of code, speeding up development processes while at the same time limiting organizations' ability to scrutinize and modify these operations (Luitse, 2024).

3.3. Infrastructural reliance's challenges to media freedom

Media freedom supports democratic self-governance in a number of different ways (Rowbottom, 2018). The specific challenge infrastructural reliance poses to media freedom differs depending on the role media freedom is expected to play. Given the wealth of literature already available on the rationale behind media freedom, in the section below I focus on the challenges posed by infrastructural reliance, and only briefly summarize the existing literature on the importance of the different roles of media freedom.

3.3.1. AI infrastructure's challenge to the media's public watchdog role

Traditionally, media freedom has been particularly important to ensure the media is able to scrutinize powerful actors. Such scrutiny is necessary to ensure actors across society, whether in government or in the private sector, are ultimately accountable to the public (Oster, 2015). The media's public watchdog function is accordingly protected strongly under European fundamental rights law. [19 para. 18, 36, 90, 103, 127] It is for example engaged when journalists' safety is threatened as a result of their critical reporting, or when spyware is used to identify the sources on which media organizations rely to expose wrongdoing.[15]

Infrastructural reliance's threat to the media's public watchdog role is one of the main focuses of the literature on infrastructural capture. Indeed, the concept itself is defined in terms of the media's dependence on actors they "formally oversee" (Nechushtai, 2018). There is a clear tension between the need for independent scrutiny of AI companies' societal impact, and the media's increasing reliance on these same companies. It is however important to unpack exactly how infrastructural reliance could challenge the media's public watchdog function (Kristensen & Hartley, 2023).

There is little literature that alleges AI companies use their control over AI tools to stifle critical reporting, for example by preventing potential critical stories from being identified in trend- and story-detection tools. Indeed, while such interference may be technically possible, it is only viable if a media organization uses AI tools provided and controlled by an AI company to scrutinize that same company (de-Lima-Santos et al., 2023; Fanta & Dachwitz, 2020; Kristensen & Hartley, 2023; Papaevangelou, 2023).Much of the reporting on AI companies, however, relies on traditional methods rather than AI tools. To the extent literature focuses on the ways in which AI companies can abuse the media's reliance on their technologies, it is by noting the pressure AI companies could exert on the media's traditional reporting by adapting or cutting off access to technological resources on which media organizations rely. For example, Kristensen and Hartley note the potential that AI companies could adapt the advertising algorithms on which critical media organizations rely to monetize their news (Kristensen & Hartley, 2023; Nechushtai, 2018; Simon, 2023). Conversely, infrastructure

[15] See e.g. EMFA recital 19, article 4.

that holds personal data can pose a threat to the media's source confidentiality.[16]

However, current evidence suggests the primary way in which AI companies challenge the media's public watchdog role is with the money they provide for news innovation projects.[17] This funding bolsters AI companies' image among the newsrooms that cover them, potentially creates chilling effects due to the danger that funding is removed following critical reporting, and expands AI companies' influence over journalists' associations that are used to distribute funding (Bell and Schiffrin, 2021; Fanta & Dachwitz, 2020; Kristensen & Hartley, 2023; Papaevangelou, 2023; Simon, 2022). While problematic, this aspect of AI companies' challenge to the media's public watchdog role has little to do with AI, and reflects more traditional forms of financial control over the media. As such, traditional policy measures that ensure the media's financial sustainability (such as subsidies for media innovation projects) may be the most suitable regulatory solution.

3.3.2. AI infrastructure's challenge to the media's ability to inform the public

A second key function of media freedom is to ensure the media is able to provide reliable information on which individuals can base their political opinions. As the ECtHR has repeatedly emphasized, journalists 'should enjoy the necessary protection and independence to exercise their functions comprehensively, because it is they who keep society informed, and this is an indispensable requirement to enable society to enjoy full freedom" (Oster, 2015). From the perspective of democratic self-governance, the media is one key source of information fueling a public debate about the issues facing democratic society, and how they should be addressed (Ananny, 2018b).

The challenge to media freedom in this context is not so much that AI companies control the AI tools the media uses to inform the public. Rather, it is that media companies *don't* fully control these tools (Jones et al., 2022; Kristensen & Hartley, 2023; Simon, 2023). As such, media organizations' ability to influence the values embedded in AI tools and control their impact on the way the public is informed is limited (Simon, 2024). This challenge materializes regardless of AI companies' intentions.[18] An AI company that does not care about the way the media informs the public and simply views the media as just another sector in which they can sell their technologies, must still make choices about the goals for which their system is optimized and the data it is trained on. These choices impact the editorial decisions taken with AI tools (Papa & Kouros, 2023; Simon, 2024).[19] Research on journalists' perceptions of external AI tools used in newsrooms shows they are particularly concerned over bias embedded in AI tools, the extent to which they miss information, and inaccuracies in their output (Beckett & Yaseen, 2023; Diakopoulos et al., 2024).

The most direct way for this challenge to the media's control to materialize, is when AI companies supply AI tools media organizations use to take or support editorial decisions. The impact of the AI tool depends on the specific role it plays in the editorial process. For example, AI tools used to gather news (such as Google PinPoint) can impact the diversity and comprehensives of reporting by bringing certain stories to journalists' attention over others, while AI tools used to produce news impact its accuracy and style. Conversely, OCR tools that make text machine readable have a comparatively limited impact on the information journalists gather and relay to the public. Turning to more indirect ways in which this aspect of media freedom is impacted, the infrastructure used to deploy or develop AI only matters to the extent to which it constrains the editorial values embedded in the AI tools the media can deploy. This can for example occur due to the values embedded in the resources used to develop new AI tools, or due to lock-in effects limiting media organizations' ability to switch between AI tools (see in further detail section 4.2).[20]

If infrastructural reliance challenges media freedom by constraining the media's ability to decide how to inform the public, the necessary follow-up question is: what range of options should be open to media organizations?[21] Here it becomes necessary to disentangle what is to be achieved by enabling the media to provide access to information. In part, this concerns the quality and reliability of the information provided by the media (Pickard, 2020; Rowbottom, 2018). Democratic self-governance requires that individuals have access to high quality information on which they base their political opinions. For this purpose, media freedom is often tied to and contingent on the media's adherence to its duties and responsibilities, most notably the need "to provide accurate and reliable information in accordance with the ethics of journalism." (Fressoz and Roire v, 1999) From this perspective, media freedom is primarily engaged when the editorial values embedded in AI infrastructure are at odds with the values that safeguard the reliability of journalism, such as accuracy, objectivity, and transparency that allows journalists to verify AI's output.

Media freedom's role to enable access to information is also intertwined with diversity (Informationsverein Lentia and Others v, 1993; Kenyon and Scott, 2020; Oster, 2015). Enabling individuals to form informed political opinions requires that they have access to a range of information on the different topics relevant to their democratic society, as well as viewpoints reflecting the diversity of political outlook on those topics. Exposure to the viewpoints of different societal groups is also argued to be important because it increases tolerance (Vermeulen et al., 2022).[22] From this perspective, media freedom is challenged when the values embedded in AI infrastructure limit the political viewpoints or topics the media covers. This can occur, for example, when AI tools used to gather

[16] See relatedly (Criddle, 2023).

[17] It should however be noted that the research on which this article draws was conducted before the 2024 US election, and the resulting deepening relationship between technology companies and the Trump administration. See section 4.2 for preliminary suggestions on the way non-discrimination requirements may protect critical media from interferences with their technological infrastructure.

[18] See more generally on technology companies viewing themselves as offering tools rather than influencing editorial policy (Wu et al., 2019).

[19] See similarly on platforms as infrastructures for cultural production e.g. (Poell et al., 2021).

[20] See more broadly (Terzis, 2023).

[21] See in a freedom of expression context (Kenyon and Scott, 2020).

[22] Ananny makes a broader version of this argument that emphasizes how access to diverse information enables individuals' self-development (Ananny, 2018b).

information work less well to analyze information in a small language or dialect. On the level of resources used to develop AI tools, the Microsoft News Dataset (created to enable the training of news recommender systems) is argued to be particularly useful to train recommender systems to optimize for engagement, and less useful for recommendations that show users a diverse set of political news articles (Vrijenhoek, 2023). Going further, if the goal of media freedom is to support the audience's access to information, it also becomes important to consider how infrastructural reliance challenges the media's ability to inform different audiences (Rowbottom, 2018). After all, the media cannot effectively support democratic self-governance if it is only able to inform some groups that participate in democratic society, and not others. In that context, the stye and format in which news can be presented using the AI tools provided by external AI companies become relevant. For example, AI models may be particularly good at informing the English speakers in a particular society, but less useful to inform those who speak a smaller language on which little training data was available.

On a more fundamental level it is necessary to assess whether (and to what extent) the media should also have the freedom to adopt different approaches to their democratic role (Helberger, 2019). Deliberative models of democracy prioritize calm, rational discourse through which society ultimately agrees on the right policy solution. Conversely, agonistic approaches to democracy emphasize the importance of enabling conflict while ensuring different societal groups do not perceive each other as enemies, while more participative approaches emphasize the need to give a platform to different societal groups (Helberger, 2019; Rowbottom, 2018; Sax, 2022). The values embedded in the AI tools available to media organizations can constrain their ability to fulfil their role under a particular democratic system, for example because safety features built into AI tools steer it away from giving answers in a more confrontational style.

3.3.3. Power over the information supply

Finally, an important function of media freedom is to ensure the dispersal of the power to shape public opinion (Neuberger, 2018; Seipp et al., 2023b). This goes beyond the question of *how* the media can inform the public, and addresses *who* is able to decide how the public is informed. The need to disperse opinion power between different independent actors is rooted in the media's role in representative democracy.[23] By deciding how and which topics are covered, the media has the power to shape public opinion, which in turn affects the ways in which society addresses the problems it faces. This is a form of political power– and a representative democracy that is based on the notion that individuals have an equal right to participate in self-governance requires that this power is distributed in a way that allows different societal groups equal chances to communicate (Baker, 2006; Kenyon and Scott, 2020; Lichtenberg, 1987; Schulz, 1998).

Seipp has recently analysed extensively how AI companies' infrastructural power further expands their opinion power and what the implications are from a media concentration law perspective, focusing on the need to include AI companies' technological power in media concentration assessments and consider its impact on the sustainability and independence of local journalism (Seipp et al., 2024). From a media freedom perspective, two additional issues are worth highlighting. First, infrastructural reliance particularly impacts media organizations whose values do not match those embedded in the tools provided by AI companies. These organizations must compromise on their values, build their own AI tools or forego the use of AI altogether. This disproportionately affects smaller media organizations. As Kristensen and Hartley note, "large media corporations often have the resources to decide whether to "outsource" their infrastructure" (Kristensen & Hartley, 2023; Simon, 2024). For example, already a number of larger media organizations have opted to create or adapt their own AI tools (e.g., BloombergGPT, ChatDPG, or the Washington Post's Heliograf), either to retain their editorial, commercial, or strategic independence or to sell these products to other media companies (Cools et al., 2024). Infrastructural reliance's disproportionate impact on smaller media is particularly problematic because the European media system contains a large number of smaller media organizations, which can be an important way for marginalized or unpopular views to enter the public debate (Commission, 2023c, p. 150).

Second, it is important to consider AI companies' long term control over AI development. Luitse argues convincingly that AI companies steer how AI can be developed by, for example, controlling application development pipelines and stimulating the development of services in specific sectors that fit into their existing infrastructure. In so doing they set the conditions determining what kind of AI tools can be developed in the first place (Luitse, 2024).[24] This fits into a broader line of research into AI companies' efforts to extend their reach, influence, and user base by engaging third-party developers and businesses in their ecosystems, for example by promoting the use of "proprietary developer tools and infrastructure to create complementary apps and services" (Jacobides et al., 2021; Narayan, 2023; van der Vlist et al., 2024). This has three important implications for media freedom. First, it locks in the media's dependence on AI companies by making it more challenging to develop AI tools outside the infrastructure controlled by AI companies. Second, it means control over the role technology plays in the media system is increasingly placed outside the hands of media organizations, and in the hands of large technology companies. Third, this trend too disproportionately affects smaller media organizations, which lack the resources to cope with the fast pace of AI development by continually analyzing the AI landscape, assess which tools (if any) fit their approach, and revise their long-term strategic vision if necessary.[25]

[23] For an excellent in-depth analysis of opinion power and its roots in the ECHR, as well as EU and constitutional law, see (Seipp, Helberger, et al., 2023).

[24] See also (de-Lima-Santos et al., 2023) arguing AI companies can also set the standards for media innovation through their funding projects.

[25] See for example on the challenges local newsrooms face (Wilczek et al., 2024) (Beckett & Yaseen, 2023; Commission, 2023c, p. 150).

4. Mapping regulatory solutions to mitigate infrastructural reliance

How might EU law address the media's infrastructural reliance on AI companies? While infrastructural reliance poses a wide array of challenges to media freedom, existing literature has identified a limited number of conditions enabling infrastructural reliance. These are in particular the lack of algorithmic transparency media organizations need to know how an AI tool impacts their editorial values; the lock-in effects of cloud infrastructure that prevent media organizations from switching between AI tools; and the lack of resources needed to develop alternative AI tools. These conditions echo technology companies' existing strategies to leverage their power in new sectors, as studied in literature on phantomization and sphere transgression (Barwise et al., 2018; Sharon & Gellert, 2023; van Dijck et al., 2018). Law and legal literature have accordingly developed several regulatory tools that could be used to address the conditions for infrastructural reliance, such as transparency, interoperability, and data access obligations.

4.1. The lack of algorithmic transparency media organizations require to make an informed choice about using AI tools

The lack of algorithmic transparency is an old issue, both in the media and in general (Diakopoulos & Koliska, 2017; Pasquale, 2015). AI exacerbates it for the media due to its complexity, the fact AI tools for the media are often externally provided (limiting media organizations' insight compared to the tools media they develop inhouse), and its ability to automate tasks that were previously largely carried out by human journalists and editors (Jones et al., 2022; Simon, 2023). These factors limit the media's ability to know how an AI tool impacts editorial values, which in turn prevents them from making an informed decision about the ways in which they should and should not rely on AI tools to inform the public (Simon, 2022). The Paris Charter on AI and journalism, for example, emphasies "AI systems used by the media and journalists should undergo an independent, comprehensive, and thorough evaluation involving journalism support groups. This evaluation must robustly demonstrate adherence to the core values of journalistic ethics" (Reporters Without Borders, 2023).

Algorithmic transparency challenges media freedom on several levels. First, transparency is a necessary precondition for several of the strategies journalists use to exercise control over AI tools. Studies in particular highlight journalists' desire to know what they can rely on AI tool to do (in order to prevent inaccuracies and errors) and what information it misses (in order to know where it steers journalistic attention). Recognizing the limits of such individual oversight, authors have also emphasized the need for media organizations that deploy or develop AI tools to be able to exercise broader oversight over their impact on editorial values, particularly their reliability and bias (Beckett & Yaseen, 2023; Diakopoulos et al., 2024; Jones et al., 2022; Simon, 2023). Such transparency would for example require structural evaluation of the output of AI tools, the bias inherent in the training data, and foundational models on which media organizations can build further AI tools (Beckett & Yaseen, 2023; Jones et al., 2022; Simon, 2023). Finally, at a macro level transparency is needed to enable a broader, strategic conversation about the relationship between media and AI companies. In that context Jones, Jones, and Luger argue the current lack of transparency means journalists "are ceding power in the conversation about, and the material re-shaping of, the profession" (Jones et al., 2022).[26]

Algorithmic transparency provisions in EU law targeted at the media address only a small aspect of these problems. The EMFA's and DMA's transparency rights for publishers focus on the technologies used to measure audiences and associated ad revenues. In both the EMFA and DMA publishers are afforded general information on the methodology of these systems, and non-aggregated data on their outputs. This is a welcome shift, as these technologies can impact editorial decision-making by shaping how media organizations measure the success of their news stories, which audiences they pursue, and how news is monetized through advertising or subscriptions (Anderson, 2011; Belair-Gagnon et al., 2020; Lamot et al., 2021). Yet the obligations are heavily focused on the media's dependence on platforms to reach audiences and the associated ad revenues. They do not provide the media with information on the AI tools used inside newsrooms to take editorial decisions, or the underlying infrastructure.

The lack of media-specific AI transparency obligations means media organizations must rely on information AI companies publish voluntarily or in accordance with horizontal legal frameworks. The AI Act is arguably the most significant development in that context. However, many of its provisions do not apply to the AI tools used by the media, as they do not meet the requirements to be classified as either prohibited or high-risk (the types of AI systems to which the bulk of the AI Act applies) (Helberger and Diakopoulos, 2022, 2023). Going further, the majority of the AI Act's provisions require the publication of general, aggregated information about for example a system's capabilities and training data.[27] It is questionable whether such general information will enable media organizations to assess the impact of AI on the a specific editorial values to which they adhere, especially as neither media organizations nor media regulators are involved in the operationalization of these rules. Finally, the AI Act has neither the goal nor the transparency obligations to enable a broader debate about the power shifts that result from the more wide-spread use of AI in the media.[28]

Nevertheless, even if the AI Act largely does not apply to the media directly, some aspects of its approach to transparency do form a useful starting point for future regulatory solutions to ensure the transparency needed for media freedom. Indeed, the AI Act's focus on ensuring the deployers of AI system understand its purpose and capabilities dovetails with media organizations' need to understand how it impacts their editorial values. Particularly important here is that the focus is broader than an AI tool's risks. From a media

[26] See for the media concentration law aspects of this issue (Seipp, Helberger, et al., 2023) See for an analysis of the ownership of AI tools used in the media, identifying also insufficiently transparent companies (Martin, 2024).

[27] E.g., article 53(1) AIA.

[28] Worse, by requiring AI providers to mitigate the risks of their system and inform deployers on how the system ought to be used, the AI Act pushes providers to exert more control over the way media could use AI systems to inform the public (Helberger, 2024).

freedom perspective, algorithmic transparency is not only relevant to assess when an AI tool has a negative impact, but also to make it possible to evaluate how a value such as diversity is promoted (Helberger, 2019).[29] In short, transparency of AI in the media must move beyond a risk-based approach, and more broadly enable scrutiny of how and under whose control AI tools impact editorial values.

A key question throughout this discussion is who is able to make AI transparent. This is important because it determines who can scrutinize AI tools and the values embedded in them, and take part in the public debate on AI's impact on the way media inform the public. Accordingly, the need public transparency has been argued for convincingly in the platform governance context by for example Leerssen, as well as Rieder and Hofmann; more recently Ferrari, van Dijck and van den Bosch have similarly called for public inspectability of foundational models (Ferrari et al., 2023; Leerssen, 2023; Rieder & Hofmann, 2020). The AI Act, however, larges leaves the power and responsibility to scrutinize AI systems to AI companies and regulators. The public, independent researchers, or the media are not provided with access to non-aggregated data on AI systems' output and training data, and must instead rely on AI companies' interpretation of this data as disclosed through (for example) technical documentation. In addition to being too general to afford media organizations sufficient insight in the impact of AI on their editorial values, this affords AI companies a problematic amount of power over media organizations' understanding of AI's impact on their editorial values.

These goals, the need for many actors to be able to scrutinize AI and access to large amounts of data to do so, are in tension. To safeguard data protection and commercial interests, powerful data access rights often have a more restrictive personal scope. Going further, regulation that provides a right to access data does not necessarily translate into public scrutiny if the resources needed to process this data and go through data access procedures are not in place.[30] Finally, media organizations that do have the resources to scrutinize the AI tools they use may refuse to make the results public to limit reputational damage or maintain their relationship to AI companies, resulting in a duplication of effort and limiting the media's ability to know how AI tools impact their editorial values. To address these issues, it is necessary for policymakers to go beyond regulating access to data, and also create the conditions needed for a wide array of media organizations to benefit from data access (Helberger et al., 2024). At a minimum this would require that the results of research based on data access requests are made publicly accessible.[31] Going further, policymakers could organize and fund collaborations between media organizations that need to know how AI tools impact their editorial values, and academic researchers or data journalists with expertise in scrutinizing AI systems. In this context policymakers can build on existing projects media-academia partnerships to build or study the deployment of AI tools.[32] It is particularly important that these efforts focus on those media organizations that otherwise would not have the resources to effectively scrutinize AI.

4.2. *Lock-in effects preventing media organizations from switching between AI tools*

Lock-in effects are a second condition enabling infrastructure reliance's threats to media freedom (Simon, 2024). As noted in section 3, media organizations rely heavily on the cloud infrastructure provided by Amazon, Microsoft, and Google. This infrastructure scales well and easily integrates with other AI tools and related services offered by these same companies (Piasecki & Helberger, 2025; Simon, 2023; Sjøvaag et al.). Once media organizations have integrated AI companies' cloud infrastructure with the AI tools and other software they run, however, switching to a different provider poses significant challenges (Piasecki & Helberger, 2025; Simon, 2023; Vipra, 2023). It requires media organizations to ensure the new AI tool or cloud service they deploy can interact with the other parts of their system, all while the journalists and audience members can continue to use their services (Beckett & Yaseen, 2023). Because the various components of AI companies' cloud infrastructure are designed to integrate with one another, it can be challenging to replace one component with that of another provider or a media organization's own design (Piasecki & Helberger, 2025).

It should be noted that the literature indicates some media organizations do not perceive significant lock-in effects (Simon, 2023). One potential reason for this is that while switching is technically possible, it is complex, costly, and requires considerable technical expertise (Beckett & Yaseen, 2023; Simon, 2023). As such, particularly media organizations that are smaller or lack the technical expertise needed to switch may be particularly vulnerable to lock-in effects. Additionally, as Kristensen notes, "large media corporations often have the resources to decide whether to "outsource" their infrastructure", and as such are in a position to decide how much they wish to avoid lock-in effects (Kristensen & Hartley, 2023).

Lock-in effects enable infrastructural reliance's challenge to media freedom in several different ways, requiring different regulatory solutions.[33] Most immediately, as Simon notes, once media organizations are unable to (easily) switch to a different cloud provider, they are vulnerable to arbitrarily changing conditions (Simon, 2023). Several studies indicate media organizations are particularly concerned about price increases (Beckett & Yaseen, 2023; Piasecki & Helberger, 2025; Simon, 2023). This aligns with the broader literature on AI and cloud infrastructure, which argues control over the cloud infrastructure on which AI is deployed is an important

[29] Another adaptable aspect of the AIA is the database of AI systems provided for in art. 71 AIA. Including AI systems used in media in this database would enable at least general oversight over the role different AI companies play in the media system.

[30] Article 40 DSA serves as a prime example of these issues.

[31] See analogously art. 40 DSA.

[32] See e.g. the collaborations in the (Cools et al., 2025; Associated, 2024) Analogously policymakers can support research into the ownership of AI tools in the media, as they have done for media ownership concentration analyses more generally (see for example the European Media Ownership Monitor and the Media Pluralism Monitor). This may also be a useful intermediary step before further data access regulation, as funding media ownership analyses was before art. 6 EMFA.

[33] One option not discussed here is the creation of a European cloud system (Rone, 2024). Such a system could, depending on its set-up, facilitate the interoperability and fair contractual relations discussed in this section.

way for AI companies to monetize AI (van der Vlist et al., 2024). Such price increases would not be immediately problematic from a media freedom perspective, unless they undermine the financial sustainability of the media (leaving it more vulnerable to outside pressures). Changes that limit the ways media organizations can use AI tools to which they have locked in would pose a more immediate challenge to media freedom. Examples are changes in the way media can customize AI tools, transparency that is made available about their functioning, or AI companies' ability to use data generated by media, further limiting their ability to create competing alternative AI tools (Carugati, 2023). The Journalism Cloud Alliance, a consortium of investigative journalists, in particular emphasizes "the significant expenses" associated with cloud computing, as well "privacy and security risks when using cloud providers that simultaneously develop artificial intelligence (AI) models which could compromise sensitive data" (Journalism Cloud, 2024). In all these cases, changing conditions are particularly problematic when they are applied selectively in response to critical reporting or to support (or suppress) a political viewpoint.

Existing EU law does not directly address media organizations' dependence on cloud companies. The DMA does regulate cloud computing services that hold significant market power. However, like the DSA the DMA focuses on companies that control access to large groups of users; in the case of the DMA, it only applies to gatekeepers that (among other criteria) provide a service with at least 45 million monthly active end users. This is a poor fit for cloud services whose primary customers are businesses rather than end users, and indeed the Commission has not yet designated any cloud service provider as a gatekeeper under the DMA (Bania & Geradin, 2024; Carugati, 2023). Going further, while the DMA does limit the conditions gatekeepers can impose on their users, it focuses on economic concerns such as the ways in which gatekeepers can combine data or use it to compete with their business users.

From a media freedom perspective, the more problematic cases arise when editorial decision-making is constrained, for example when AI companies limit how media companies can use or customize AI tools deployed on their cloud infrastructure, or impose arbitrary price hikes in order to suppress or promote specific viewpoints. In that context, non-discrimination or contractual fairness guarantees would be more suitable regulatory measures to prevent AI companies from imposing conditions for the use of their cloud infrastructure that challenge media freedom.[34] Non-discrimination obligations in national legislation on the relationship between platforms and media offer a starting point from which to develop such measures. For example, to protect diversity of opinion article 94 of the German Medienstaatsvertrag prohibits platforms from discriminating between journalistic content. Its definition of discrimination leaves platforms free to set the general criteria determining the accessibility of content, but prohibits systematic deviations from these criteria in relation to specific content without an objectively justifiable reason (Mazzoli, 2021; Schneiders, 2021).[35] Such an approach would prevent AI companies from retaliating against a specific media organization by increasing the price or changing the conditions of use of cloud infrastructure, though they would not address changes that affect the media as a whole. For that purpose, more appropriate solutions would be the collective bargaining rights such as those advocated by the Journalism Cloud Alliance, or the interoperability requirements discussed below (Journalism Cloud, 2024).[36]

Lock-in effects also challenge media organizations' ability to decide how to use AI in line with their own editorial values. For example, a media organization may wish to stop using an AI tool because it is revealed to be biased, its functionality is changed, or because the media organization decides it needs to inform the audience differently in response to societal developments. In any such case, media organizations' inability to switch between AI tools effectively locks media organizations into the values embedded in those tools. Going further, As Luitse has argued, AI companies' control over the entire AI development pipeline in cloud infrastructure allows them to set the conditions under which AI can be developed. This in turn allows them to determine what options are (and are not) open to media organizations developing AI using their cloud infrastructure (Ahmed et al., 2023; Luitse, 2024; Piasecki & Helberger, 2025). In short, media's inability to switch between cloud infrastructure providers limits their ability to escape the constraints that infrastructure imposes on the way they use AI for editorial decisions.

One potential regulatory solution to these lock-in effects is interoperability (Beckett & Yaseen, 2023; Jacobides et al., 2021; Simon, 2023; Sjøvaag et al., 2024). The Data Act contains numerous obligations to facilitate switching between the providers of cloud computing services. Cloud computing service providers are for example required to facilitate data portability, remove switching charges, and ensure a provider that switches to their service enjoys an equivalent level of functionality (Carugati, 2023; Piasecki & Helberger, 2025). These obligations could for example address the challenges media organizations face in exporting results of machine learning (Simon, 2022). However, the overall extent to which these provisions address lock-in effects in the media is unclear. Not only has little research been carried out on the Data Act's interoperability obligations for cloud services; current journalism studies research is insufficiently specific about the way in which lock-in effects materialize in the media sector. The extent to which lock-in effects in the media differ from those in other sectors, and the suitability of the Data Act to address lock-in effects despite these differences, is an important area for future interdisciplinary research. It should be noted in this context that media freedom offers protection that goes above and beyond what is required for other speakers or businesses – in that sense, the level of interoperability required to safeguard media freedom is relatively high.

[34] See on contractual fairness (Seipp et al., 2024).

[35] Article 51 of the Canadian Online News Act similarly prohibits digital news intermediaries from unjustly discriminating against news businesses, or subjecting them to an undue or unreasonable disadvantage.

[36] Collective bargaining of course would face its own issues regarding EU competition law, and responses such as those by platforms to the Australian and Canadian news media bargaining codes.

4.3. Addressing the resource disparity to build AI tools

The root cause of infrastructural reliance is that media organizations perceive a need to use AI, but do not have the resources to develop AI tools that perform better than what they can obtain from AI companies.[37] The disparity in resources between media organizations and AI companies is vast and multifaceted. Media organizations lack the expertise, money, and technical resources (such as data and computing power) AI companies can invest in AI tools that can automate editorial processes (Fanta & Dachwitz, 2020; Piasecki & Helberger, 2025; Simon, 2023). Addressing this resource disparity is a significant challenge for the media and media policy, given the size of AI companies' advantage. Yet it is important not to disregard this option completely. The regulatory solutions discussed so far mitigate the media's infrastructural reliance on AI companies by allowing media organizations to make an informed choice about if, how, and which external AI tools to use. However, they would not change the fact media organizations are dependent on external companies for AI tools used to inform the public, nor do they allow media organizations to determine how such AI tools function. If we take seriously states' obligation to safeguard a pluralistic media system in which different independent media organizations can choose how to inform the public according to their own values, regulatory policy that enables them make an informed choice between a few AI companies is insufficient.[38]

Recent EU media policy has begun to engage with the need to enable the media to develop new technologies. In particular, the EU's Media Action Plan "aims to boost European media and help maintain European cultural and technological autonomy in the Digital Decade." (Commission, 2020) The Commission recommendation on editorial independence accompanying the EMFA similarly points to the importance of enabling the media to invest in new technologies to keep pace with innovation (Commission Recommendation, 2022). Arguably the most prominent new way in which resources are made available to the media is through the creation of a European media data space, which aims to increase access to existing data through interoperable sharing environments (Commission, 2022a). Additionally, policy measures focus on increasing the media's access to existing funding schemes and enabling knowledge sharing between media organizations.[39] While a full evaluation of these policies goes beyond the scope of this article, two trends in particular limit their potential to realize media freedom in the context of AI.[40]

First, EU media innovation policy often takes a narrow view of the type of innovation that should be stimulated, focusing on the ways in which technology can be used to increase engagement and reach. For instance, the Commission recommendation accompanying the EMFA focuses on "harnessing of data to better understand audience preferences" in order to retain and increase audiences, and "boosting engagement, including transparent algorithms used to improve content recommendations and adapt paywalls" (Commission Recommendation, 2022). The Media Action Plan has a similar focus, both in the initial communication laying out the overall strategy as well as subsequent funding calls that aim to stimulate the use of AI and other technologies in the media (Commission, 2022b, 2023a, 2023b). Though research on the execution of EU such funding projects is limited, Helm argues that here too long term, abstract values such as diversity risk losing out to more measurable short-term approaches (Helm, 2024).[41]

This focus on increasing engagement and reach is understandable. The media faces significant financial pressures due to the loss of audiences and the associated revenue to platforms (Newman et al., 2023). Technology arguably could help the media compete for the attention of the audience and regain some of this revenue. Reach is also important to the media's democratic role. The Media Action Plan and several funding schemes make the argument European media organizations produce high-quality content, and technology can help them deliver this content to larger audiences (Commission, 2022b, 2023a, 2023b). While this argument is valid, it should be noted that content creation and technological distribution are not separate processes. As a long history of journalism studies research shows, making journalists and editors more aware of audience preferences can impact the ways in which they produce content, particularly when they know the visibility of their articles is dependent on engagement by the audience (Bodó, 2019; Lamot et al., 2021). Without careful attention for the ways in technology can help media reach larger audiences without compromising editorial values, EU media policy risks stimulating a type of media innovation that emulates the engagement-oriented platform algorithms that have been the subject of extensive criticism.

More fundamentally, framing technology as a way to increase the distribution of news misses the values that are embedded in AI tools themselves. For example, it does not account for the ways in AI distribution tools can offer individuals more diverse recommendations tailored to their information needs, or the ways in which AI tools used to produce news can enable more comprehensive investigative reporting (Fridman et al., 2023; Helberger, 2019; Stray, 2019). Nor does it address journalists' concerns over the reliability, bias, and comprehensives of the AI tools they currently use (Beckett & Yaseen, 2023; Diakopoulos et al., 2024). This is particularly problematic because part of the challenge to media freedom lies in the threat that newsrooms are forced to embrace AI companies' commercial values embedded in their AI tools or funding for AI development (Beckett & Yaseen, 2023; de-Lima-Santos et al., 2023; Simon, 2024; Simon, 2022). By paying insufficient attention to the way AI can be developed to promote editorial values, European media innovation policy is at risk of failing to provide media organizations with a meaningful alternative to the external AI

[37] See on media organizations' motivations to adopt AI (Beckett & Yaseen, 2023; Diakopoulos et al., 2024; Simon, 2024).

[38] See more fundamentally on the risk that by focusing on managing our dependence to AI companies law relinquishes our ability to scrutinize and change the infrastructure (Terzis, 2023).

[39] See on the need for the collaboration stimulated by these policies for example (Jones et al., 2022) See for an analysis of the challenges and potential of knowledge exchange policies in the context of the media (Zambelli & Morganti, 2023).

[40] See for a description and analysis of national and EU media innovation policies (Brogi & Sjøvaag, 2023) See for a broader critique of the regulation of AI companies' power for example (Terzis, 2023).

[41] See also on the advantages of larger media organizations in collaborative innovation projects (Zambelli, 2024).

tools on which they depend.

Second, existing EU media policy to stimulate innovation heavily focuses on increasing access to data. The lack of data needed to train AI is indeed a significant challenge, and EU efforts to create an infrastructure to enable the sharing of data between media organizations may help to address it (Commission, 2022b). However, as Srnicek argues with regard to European innovation policy more broadly, this focus on data neglects the other resources that are necessary to develop AI – in the context of the media two significant lacking resources are technical expertise and money (Simon, 2023; Srnicek et al., 2022). When developing AI tools that promote editorial values media organizations face additional challenges. These concern, for example, the difficulty of defining and making abstract values of diversity measurable; the lack of continuous cooperation between editorial and engineering departments; and a lack of internal algorithmic transparency that allows editors to exercise control over the way AI tools are designed to promote editorial values (Bodó, 2019; Cools et al., 2024; Grün & Neufeld, 2021; Møller, 2023; Smets et al., 2022; Vrijenhoek et al., 2024).

It is important to consider the potential negative implications of EU media innovation policy that only partially addresses the media's disadvantages in AI development. First, unless EU media policy comprehensively considers the conditions that need to be in place for media organizations to develop AI, increasing access to data risks providing another resource that AI companies are better equipped to use (Srnicek et al., 2022). Second, when developing AI that matches their editorial values, media organizations face additional obstacles, such as the lack of research on how to technically operationalize abstract editorial values such as diversity. Ignoring these obstacles would allow media policy to strengthen the media's ability to use AI, but not (as is crucial from a media freedom perspective) use AI in accordance with their own editorial values. Third, it is important to consider whether the AI tools media organizations are empowered to build strengthen their reliance on AI companies' underlying infrastructure. Incentivizing media organizations to build data- and compute intensive technologies that they have to use AI companies' infrastructure to train and run would afford the media more control over specific AI tools, but at the cost of strengthening their reliance on AI companies' infrastructure to deploy and develop those tools (Whittaker, 2021).

5. Conclusion

This article evaluated how EU law can safeguard media freedom from the media's infrastructural reliance on AI companies. It aimed to make two contributions: to provide the first comprehensive assessment of the challenges infrastructural reliance poses to media freedom under European law, and to explore the suitability of the existing legal framework to address the conditions for the media's infrastructural reliance on AI companies. Table 2 provides a basic overview of the challenges and potential regulatory solutions to the media's infrastructural reliance on AI companies.

The most immediate new challenge infrastructural reliance poses to media freedom is that the media loses control over the values embedded in the AI tools used to inform the public. This affects both individual media organizations' control over the AI tools they use to inform the public, as well as the ability of the media as a whole to influence the role technology plays in the media system. This challenge is particularly pressing for smaller media organizations, which lack the resources to develop their own AI tools or infrastructure and make an informed decision about where they depend on AI companies (Beckett & Yaseen, 2023; Jones et al., 2022; Simon, 2024). Finally, it is important to note that this challenge is not necessarily the result of AI companies' interest in the media specifically, but materializes even if AI companies simply view the media as another sector to which to sell their technologies.

Current EU law that aims to safeguard media freedom largely fails to address the challenges infrastructural reliance on AI companies poses to media freedom. This is in part because the EU has long left media regulation, and the protection of media freedom especially, to the Member States. However, it is also because EU regulatory measures that aim to strengthen the media's position against large technology companies focus on the control over access to large audiences that platforms have amassed over the past two decades (van der Noll et al., 2015). Infrastructural reliance concerns a different form of power, namely AI companies' control over the technologies used inside media organizations to gather, produce, or distribute news.

To address AI companies' power over the media, however, media freedom regulation does not need to start from a blank slate. While the media's dependence on AI companies poses unique challenges to democracy, the conditions enabling these challenges are

Table 2
Overview of challenges to media freedom, where they materialize in AI infrastructure, and potential regulatory solutions.

Media freedom function	Challenge and where it materializes in AI infrastructure	Regulatory solutions
Safeguard the media's public watchdog role.	Dependency on cloud infrastructure and AI tools that can be adapted or cut off to interfere with critical reporting.	Non-discrimination and interoperability requirements
	Dependency on money from media innovation projects to develop new AI tools.	Financial sustainability of quality journalism
Enable the media to inform the public.	Inability to scrutinize and control the values embedded in AI tools.	Algorithmic transparency and modification rights.
	Inability to switch to AI tools that match an organization's values due to lock-in effects of cloud infrastructure.	Interoperability requirements.
	Homogenization of editorial values due to the same AI tools replacing editorial decision-making across newsrooms.	Expanded access to the resources needed to develop AI tools.
Power distribution.	Expansion of AI companies' opinion power due to their control over editorial and supporting AI tools.	Expand access to resources needed to develop AI tools; include infrastructural reliance in media concentration analyses;
	Disproportionate impact of infrastructural reliance on smaller media organizations.	Ensure regulatory solutions are attuned to the needs of small media organizations.

not unique. A lack of algorithmic transparency, lock-in effects, and resource disparities have been found across the various domains in which AI companies operate. This research has shown that horizontal regulatory frameworks such as the AI Act and the Data Act do offer tools that can be adapted or applied to address these conditions. Protecting media freedom through such horizontal legal frameworks has significant advantages. Any law aiming to specifically protect media organizations from AI companies will have to identify exactly which media organizations will be protected, creating space for discriminatory decision-making that poses its own challenges to media freedom (Seipp et al., 2023a). Moreover, additional media freedom legislation to address the media's dependence on AI companies faces significant challenges on both the national level (given AI companies' power and cross-border nature) and the EU level (given the political sensitivity and EU's limited legal competence to regulate media freedom).

An important area of future research concerns the role media law and policy can play to enable media organizations to use AI in line with their own editorial values. Legal literature on the media's use of AI has focused on the media's responsibility to use the technology responsibly, and safeguard values such as diversity and accuracy. Much less attention has been paid to the conditions that need to be in place for media organizations to be able to control how it uses AI to inform the public. However, as this paper has shown, the development of AI tools that match the media's own editorial values faces significant challenges existing media policy insufficiently addresses. That is problematic from a media freedom perspective, as it reserves the ability to determine how AI is used to inform the public to those AI companies and large media organizations that have the resources to determine how AI is developed. To address this challenge, more research is needed on the resources media law and policy can provide to empower a wide range of media organizations to determine how they should use AI to inform the public.

Finally, this article has a number of limitations. First, its approach to media freedom as a right that requires states to actively protect media from private actors such as AI companies is contested, especially outside the EU context. Second, the article focuses on EU law. While the EU is in a better position to address the cross-border, powerful AI companies on which the media relies, it does not have a long history of media law. National media law may therefore hold other useful solutions that can be adapted to address the media's reliance on AI companies. Third, this article relies on existing literature, which clarifies the general challenges posed by AI's opacity, lock-in effects, and resource disparity, but is as of yet insufficiently specific about the exact ways they materialize in the media. Detailed interdisciplinary analyses of the ways in which specific conditions for infrastructural reliance constrain media freedom, how the challenges the media faces differ from those of other sectors reliant on AI companies, and how horizontal regulation can be applied or adapted to safeguard media freedom are a key area of research going forward.

Funding

This research was supported by the Dutch Research Council (NWO) project "The AI, Media & Democracy Lab" (project nr. NWA.1332.20.009). For more information about the lab and its further activities, visit https://www.aim4dem.nl/.

Declaration of competing interest

Max van Drunen co-authored a chapter in a book project that received funding from Microsoft while writing this article. Further information on this project is available at: https://www.ivir.nl/rethinking-news-and-media-law-in-europe/

Acknowledgments

I would like to thank Agustin Ferrari Braun, Hannes Cools, and Theresa Seipp for their valuable feedback on earlier versions of this article. All errors are mine.

References

Informationsverein Lentia and others v.(1993). Austria).
Fressoz and Roire v.(1999). France).
Magyar Helsinki bizottság v. Hungary.(2016).
Commission Recommendation (EU) 2022/1634 of 16 September 2022 on Internal Safeguards for Editorial Independence and Ownership Transparency in the Media Sector. (2022).
Abiri, G. (2024). Generative AI as digital media 15th anniversary edition. *Harvard Journal of Sports and Entertainment Law., 15*(2), 279–332, 2024.
Ahmed, N., Wahed, M., & Thompson, N. C. (2023). The growing influence of industry in AI research. *Science, 379*(6635), 884–886. https://doi.org/10.1126/science.ade2420. Mar. 2023.
Ananny, M. (2018a). *Networked Press Freedom: Creating Infrastructures for a Public Right to Hear*. MIT press.
Ananny, M. (2018b). *The Partnership Press: Lessons for Platform-Publisher Collaborations as Facebook and News Outlets Team to Fight Misinformation*. Tow Center for Digital Journalism.
Anderson, C. W. (2011). Between creative and quantified audiences: Web metrics and changing patterns of newswork in local US newsrooms. *Journalism, 12*, 5. https://doi.org/10.1177/1464884911402451. Jul. 2011.
Baker, C. E. (2006). *Media Concentration and Democracy: Why Ownership Matters*. Cambridge University Press.
Bania, K., & Geradin, D. (2024). The regulation of cloud computing: Why the European Union failed to get it right. *Information and Communications Technology Law, 33*(1), 99–113. Jan. 2024.
Barendt, E. (2007). Freedom of speech in the media. In E. Barendt (Ed.), *Freedom of speech* (Vol. 0). Oxford University Press.
Barendt, E. (2015). Media freedom as a fundamental right. *Journal of Media Law., 7*(2), 307–311. https://doi.org/10.1080/17577632.2015.1108601. Jul. 2015.
Barwise, T. P., & Watkins, L. (2018). In M. Moore, & D. Tambini (Eds.), *The evolution of digital dominance: How and why we got to GAFA* (pp. 21–49). Oxford University Press.
Bayer, J. (2024). *Digital Media Regulation within the European Union*. Nomos.
Beckett, C., & Yaseen, M. (2023). *Generating change: A Global Survey of What News Organisations are Doing with AI*. LSE.

Belair-Gagnon, V., Zamith, R., & Holton, A. E. (2020). Role orientations and audience metrics in newsrooms: An examination of journalistic perceptions and their drivers. *Digital Journalism, 8*(3), 347–366. https://doi.org/10.1080/21670811.2019.1709521. Jan. 2020.
Bell, E. (2021). Do technology companies care about journalism. In A. Schiffrin (Ed.), *Media capture: How money, digital platforms, and governments control the news* (pp. 291–296). Columbia University Press.
Bodó, B. (2019). Selling news to audiences – A qualitative inquiry into the emerging logics of algorithmic news personalization in European quality news media. *Digital Journalism, 7*(8), 1054–1075. https://doi.org/10.1080/21670811.2019.1624185. Sep. 2019.
Brogi, E., & Sjøvaag, H. (2023). *Good Practices for Sustainable News Media Financing*. Council of Europe.
Carugati, C. (2023). *The Competitive Relationship Between Cloud Computing and Generative AI. Bruegel Working Paper No. 19/2023*, 2023.
Charney, J. (2020). *The Illusion of the Free Press*. Bloomsbury Publishing.
CoE. (2016). *Recommendation of the Committee of Ministers to Member States on the Protection of Journalism and Safety of Journalists and other Media Actors*. Council of Europe. Technical Report #CM/Rec(2016)4.
CoE 2018. (2018). Recommendation of the committee of ministers to member states on the roles and responsibilities of internet intermediaries. *Technical Report #CM/Rec*, 2.
CoE. (2019). *Declaration by the Committee of Ministers on the Financial Sustainability of Quality Journalism in the Digital Age. Technical report #Decl(13/02/2019)2.* Council of Europe.
Cohen, J. E. (2023). Infrastructuring the digital public sphere. *Yale Journal of Law & Technology, 25*, 1. May 2023.
Commission. (2020). *Europe's Media in the Digital Decade: An Action plan to support Recovery and Transformation*. Technical Report #COM(2020) 784 final. Commission.
Commission. (2022a). *Commission Staff Working Document on Common European data spaces*. Technical Report #SWD(2022) 45 final.
Commission. (2022b). *Digital Europe Programme (DIGITAL) call for Proposals Cloud Data and TEF (DIGITAL-2022-CLOUD-AI-03)*.
Commission. (2023a). *Citizen Facing European TV and Video News Portal for Streaming, Search and Translation of European TV and video news and Political Documentaries Produced or Transmitted by Accredited Public and Private Media in EU Member States*. Technical Report #CNECT/2023/479833.
Commission. (2023b). *Creative Europe Programme (CREA) Call for Proposals Creative Innovation Lab*. Technical Report #CREA-CROSS-2024-INNOVLAB.
Commission. (2023c). *The European Media Industry Outlook* (p. 150). Technical Report #SWD(2023.
Cools, H., Helberger, N., & de Vreese, C. (2025). Co-creating research at the AI, media, and democracy lab: Reflections on the role of academia in collaborations with media partners. *Journalism*. https://doi.org/10.1177/14648849251318622 (Feb. 2025).
Cools, H., Van Gorp, B., & Opgenhaffen, M. (2024). Newsroom engineering teams as "Survival Entities" for journalism? Mapping the process of institutionalization at *the Washington post*. *Digital Journalism, 12*(2), 171–190. https://doi.org/10.1080/21670811.2023.2195115. Feb. 2024.
Cram, I. (2022). *Liberal Democracy, Law and the Citizen Speaker: Regulating Online Speech*. Bloomsbury Publishing.
Criddle, C. (2023). *TikTok spied on me* (Why?). Financial Times.
de Mol, M. (2014). *De directe werking van de Grondrechten van de Europese Unie*. Wolf Legal Publishers.
de-Lima-Santos, M.-F., Munoriyarwa, A., Elega, A. A., & Papaevangelou, C. (2023). Google news initiative's influence on technological media innovation in Africa and the Middle East. *Media and Communication, 11*, 2. Apr. 2023.
Diakopoulos, N., Cools, H., Li, C., Helberger, N., Kung, E., & Rinehart, A. (2024). *Generative AI in Journalism - The Evolution of Newswork and Ethics in a Generative Information Ecosystem*. Associated Press.
Diakopoulos, N., & Koliska, M. (2017). Algorithmic transparency in the news media. *Digital Journalism, 5*(7), 809–828. https://doi.org/10.1080/21670811.2016.1208053. Jul. 2017.
Fanta, A., & Dachwitz, I. (2020). *Google, the Media Patron. How the Digital Giant Ensnares Journalism*. Otto Brenner Foundation.
Ferrari, F., van Dijck, J., & van den Bosch, A. (2023). Observe, inspect, modify: Three conditions for generative AI governance. *New Media & Society*. https://doi.org/10.1177/14614448231214811. Nov. 2023.
Frantziou, E. (2019). *The Horizontal Effect of Fundamental Rights in the European Union: A Constitutional Analysis*. Oxford University Press.
Fridman, M., Krøvel, R., & Palumbo, F. (2023). How (not to) run an AI project in investigative journalism. *Journalism Practice*, 1–18. https://doi.org/10.1080/17512786.2023.2253797. Sep. 2023.
Gillespie, T. (2014). In T. Gillespie, P. J. Boczkowski, & K. A. Foot (Eds.), *The relevance of algorithms. Media technologies: Essays on communication, materiality, and society* (pp. 167–194). MIT Press.
Google. (2023). Recommending news articles using vertex AI matching engine. https://cloud.google.com/blog/products/ai-machine-learning/recommending-articles-using-vertex-ai-matching-engine.
Grün, A., & Neufeld, X. (2021). Challenges experienced in public service media recommendation systems. In *Proceedings of the 15th ACM conference on recommender systems (New York, NY, USA, Sep. 2021)* (pp. 541–544).
Helberger, N. (2019). On the democratic role of news recommenders. *Digital Journalism, 7*(8), 993–1012. https://doi.org/10.1080/21670811.2019.1623700. Sep. 2019.
Helberger, N. (2024). FutureNewsCorp, or how the AI Act changed the future of news. *Computer Law & Security Review, 52*, Article 105915. https://doi.org/10.1016/j.clsr.2023.105915. Apr. 2024.
Helberger, N., & Diakopoulos, N. (2022). The European AI Act and how it matters for research into AI in media and journalism. *Digital Journalism, 11*(9), 1751–1760. https://doi.org/10.1080/21670811.2022.2082505. Jul. 2022.
Helberger, N., & Diakopoulos, N. (2023). ChatGPT and the AI Act. *Internet Policy Review, 12*, 1. Feb. 2023.
Helberger, N., Goga, O., Spielkamp, M., & Schade, S.. *T*he Role of Research and Researchers in AI Governance [Conference Presentation]. CPDP.ai 2024, Brussels. https://www.youtube.com/watch?v=4Yu2BMa0jqs.
Helberger, N., van Drunen, M. Z., Eskens, S., Bastian, M., & Möller, J. (2020). A freedom of expression perspective on AI in the media. *European Journal of Law and Technology, 11*, 3. Dec. 2020.
Helm, P. (2024). How platform power undermines diversity-oriented innovation. *Internet Policy Review, 13*, 2. Jun. 2024.
Hesmondhalgh, D., Valverde, R. C., Kaye, D. B. V., & Li, Z. (2023). Digital platforms and infrastructure in the realm of culture. *Media and Communication, 11*(2), 296–306. https://doi.org/10.17645/mac.v11i2.6422. Jun. 2023.
Jacobides, M. G., Brusoni, S., & Candelon, F. (2021). The evolutionary dynamics of the artificial intelligence ecosystem. *Strategy Science, 6*(4), 412–435. https://doi.org/10.1287/stsc.2021.0148. Dec. 2021.
Jones, B., Jones, R., & Luger, E. (2022). AI 'Everywhere and nowhere': Addressing the AI intelligibility problem in public service journalism. *Digital Journalism, 10*(10), 1731–1755. https://doi.org/10.1080/21670811.2022.2145328. Nov. 2022.
Journalism Cloud, Alliance. (2024). *Journalism cloud Alliance Fact Sheet. Global Forum for Media Development & Organized Crime and Corruption Reporting Project*. https://gfmd.info/cloud-alliance.
Kenyon, A. T., & Scott, A. (Eds.). (2020). *Positive free speech: Rationales, methods and implications*. Hart Publishing.
Klonick, K. (2017). The new governors: The people, rules, and processes governing online speech. *Harvard Law Review, 131*, 1598–1670, 2017.
Koltay, A. (2015). The concept of media freedom today: New media, new editors and the traditional approach of the law. *Journal of Media Law., 7*(1), 36–64. https://doi.org/10.1080/17577632.2015.1055143, 2015.
Koltay, A. (2024). *Media Freedom and the Law : The Regulation of a Common European Idea*. Routledge.
Kristensen, L. M., & Hartley, J. M. (2023). The infrastructure of news: Negotiating infrastructural capture and autonomy in data-driven news distribution. *Media and Communication, 11*(2), 307–318. https://doi.org/10.17645/mac.v11i2.6388. Jun. 2023.
Lamot, K., Paulussen, S., & Van Aelst, P. (2021). Do metrics drive news decisions? Political news journalists' exposure and attitudes toward web analytics. *Electronic News, 15*(1–2), 3–20. https://doi.org/10.1177/19312431211018141. Mar. 2021.
Leerssen, P. (2023). *Seeing what Others are Seeing: Studies in the Regulation of Transparency for Social Media Recommender Systems*. University of Amsterdam.
Lichtenberg, J. (1987). Foundations and limits of freedom of the press. *Philosophy & Public Affairs, 16*(4), 329–355, 1987.

Luitse, D. (2024). Platform power in AI: The evolution of cloud infrastructures in the political economy of artificial intelligence. *Internet Policy Review, 13*, 2. Jun. 2024.
Martin, S. (2024). *Control Beyond Code: Ownership and Financial Insights of AI used in Journalism*. Media and Journalism Research Center.
Mazzoli, E. (2021). A comparative lens on prominence regulation and its implications for media pluralism. a working paper. In *The 49th research conference on communication, information and internet policy*, 2021.
Møller, L. A. (2023). Designing algorithmic editors: How newspapers embed and encode journalistic values into news recommender systems. *Digital Journalism*, 1–19. https://doi.org/10.1080/21670811.2023.2215832. May 2023.
Napoli, P. M. (2019). *Social Media and the Public Interest: Media Regulation in the Disinformation Age*. Columbia University Press.
Narayan, D. (2023). Monopolization and competition under platform capitalism: Analyzing transformations in the computing industry. *New Media & Society, 25*(2), 287–306. https://doi.org/10.1177/14614448221149939. Feb. 2023.
Nechushtai, E. (2018). Could digital platforms capture the media through infrastructure? *Journalism, 19*(8), 1043–1058. https://doi.org/10.1177/1464884917725163. Aug. 2018.
Neuberger, C. (2018). Meinungsmacht im Internet aus kommunikationswissenschaftlicher Perspektive. *UFITA, 82*(1), 53–68, 2018.
New funding, trainings and tools to help journalists. https://blog.google/products/news/pinpoint-journalists-ai-features/, (2024)–. (Accessed 22 March 2024). Google.
Newman, N., Fletcher, R., Eddy, K., Robertson, C. T., & Nielsen, R. K. (2023). *Reuters Institute Digital News Report 2023*. Digital News Report, 2023.
OECD. (2024). *Recommendation of the Council on Artificial Intelligence*. Technical Report #C/MIN(2024)16/FINAL.
Oster, J. (2015). *Media Freedom as a Fundamental Right*. Cambridge University Press.
Papa, V., & Kouros, T. (2023). Do Facebook and google care about journalism? Mapping the relationship between affordances of GNI and FJP tools and journalistic norms. *Digital Journalism, 11*(8), 1475–1498. https://doi.org/10.1080/21670811.2023.2211626. Sep. 2023.
Papaevangelou, C. (2023). Funding intermediaries: Google and Facebook's strategy to capture journalism. *Digital Journalism*, 1–22. https://doi.org/10.1080/21670811.2022.2155206, 0, 0 (Jan. 2023).
Pasquale, F. (2015). *The Black box Society the secret algorithms that control money and information*. Harvard University Press.
Piasecki, S., & Helberger, N. (2025). A nightmare to control: Legal and organizational challenges around the procurement of journalistic AI from external technology providers. *The Information Society*. https://doi.org/10.1080/01972243.2025.2473398, 2025.
Pickard, V. (2019). *Democracy without Journalism?: Confronting the Misinformation Society*. Oxford University Press.
Pickard, V. (2020). Restructuring democratic infrastructures: A policy approach to the journalism crisis. *Digital Journalism, 8*(6), 704–719. https://doi.org/10.1080/21670811.2020.1733433. Jul. 2020.
Poell, T., Nieborg, D. B., & Duffy, B. E. (2021). *Platforms and Cultural Production*. John Wiley & Sons.
Porlezza, C. (2023). Promoting responsible AI: A European perspective on the governance of artificial intelligence in media and journalism. *Communications*. https://doi.org/10.1515/commun-2022-0091 (Jun. 2023.
Quintais, J. P., Appelman, N., & Fahy, R. (2023). *Using Terms and Conditions to Apply Fundamental Rights to Content Moderation*. German Law Journal. https://doi.org/10.2139/ssrn.4286147, 2023.
Reporters Without Borders. (2023). *Paris Charter on AI and Journalism*.
Rieder, B., & Hofmann, J. (2020). Towards platform observability. *Internet Policy Review, 9*, 4. Dec. 2020.
Associated, Press. (2024). *Local news AI*. https://www.ap.org/solutions/artificial-intelligence/local-news-ai/.
Rone, J. (2024). The sovereign cloud' in Europe: Diverging nation state preferences and disputed institutional competences in the context of limited technological capabilities. *Journal of European Public Policy, 31*(8), 2343–2369.
Rowbottom, J. (2018). *Media law*. Bloomsbury Publishing.
Sax, M. (2022). Algorithmic news diversity and democratic theory: Adding agonism to the mix. *Digital Journalism, 10*(10), 1650–1670. https://doi.org/10.1080/21670811.2022.2114919. Nov. 2022.
Schiffrin, A. (Ed.). (2021). *Media capture: How money, digital platforms, and governments control the news*. Columbia University Press.
Schneiders, P. (2021). Keine Meinungsmacht den Medienintermediären? – Zum Diskriminierungsverbot für Medienintermediäre im Medienstaatsvertrag. *ZUM., 6*, 480–489, 2021.
Schulz, W. (1998). *Gewährleistung kommunikativer Chancengleichheit als Freiheitsverwirklichung*. Nomos.
Seipp, T., Fathaigh, R.Ó., & van Drunen, M. (2023). Defining the 'media' in Europe: Pitfalls of the proposed European media freedom act. *Journal of Media Law., 15*(1), 39–51. https://doi.org/10.1080/17577632.2023.2240998. Jan. 2023.
Seipp, T. J., Helberger, N., de Vreese, C., & Ausloos, J. (2023). Dealing with opinion power in the platform world: Why we really have to rethink media concentration law. *Digital Journalism*, 1–26. https://doi.org/10.1080/21670811.2022.2161924, 0, 0 (Jan. 2023).
Seipp, T., Helberger, N., de Vreese, C., & Ausloos, J. (2024). Between the cracks: Blind spots in regulating media concentration and platform dependence in the EU. *Internet Policy Review*. https://doi.org/10.14763/2024.4.1813. Nov. 2024.
Sharon, T., & Gellert, R. (2023). Regulating big tech expansionism? Sphere transgressions and the limits of Europe's digital regulatory strategy. *Information, Communication & Society*, 1–18. https://doi.org/10.1080/1369118X.2023.2246526. Aug. 2023.
Simon, F. M. (2022). Uneasy bedfellows: AI in the news, platform companies and the issue of journalistic autonomy. *Digital Journalism*, 1–23. https://doi.org/10.1080/21670811.2022.2063150, 0, 0 (May 2022).
Simon, F. M. (2023). Escape me if you can: How AI reshapes news organisations' dependency on platform companies. *Digital Journalism*, 1–22. https://doi.org/10.1080/21670811.2023.2287464. Nov. 2023.
Simon, F. M. (2024). *Artificial Intelligence in the News: How AI Retools, Rationalizes, and Reshapes Journalism and the Public Arena* [object Object].
Sjøvaag, H., Ferrer-Conill, R. and Olsen, R.K. Capture beyond the platforms: The material and infrastructural conditions for digital journalism. Digital Journalism. 0, 0, 1–20. DOI:https://doi.org/10.1080/21670811.2024.2377078.
Sjøvaag, H. (2020). Journalistic autonomy: Between structure, agency and institution. *Nordicom Review, 34*, 155–166. https://doi.org/10.2478/nor-2013-0111. s1 Mar.
Sjøvaag, H., Olsen, R., & Ferrer-Conill, R. (2024). Delivering content: Modular broadcasting technology and the role of content delivery networks. *Telecommunications Policy, 48*, 4. https://doi.org/10.1016/j.telpol.2024.102738. Mar. 2024.
Smets, A., Hendrickx, J., & Ballon, P. (2022). We're in this together: A multi-stakeholder approach for news recommenders. *Digital Journalism*, 1–19. https://doi.org/10.1080/21670811.2021.2024079, 0, 0 (Feb. 2022).
Srnicek, N. (2022). In M. Graham, & F. Ferrari (Eds.), *Data, compute, labor. Digital work in the planetary market*. MIT Press.
Stray, J. (2019). Making artificial intelligence work for investigative journalism. *Digital Journalism, 7*(8), 1076–1097. https://doi.org/10.1080/21670811.2019.1630289. Sep. 2019.
Tambini, D. (2021a). *Media freedom*. John Wiley & Sons.
Tambini, D. (2021b). *Reconceptualizing Media Freedom. Regulating Big Tech*. Oxford University Press.
Tambini, D. (2021c). What is journalism? The paradox of media privilege. *European Human Rights Law Review, 2021*(5), 523–539. Nov. 2021.
Terzis, P. (2023). Law and the political economy of AI production. *International Journal of Law and Information Technology, 31*(4), 302–330. https://doi.org/10.1093/ijlit/eaae001. Dec. 2023.
van der Noll, R., Helberger, N., & Kleinen-von Königslöw, K. (2015). Regulating the new information intermediaries as gatekeepers of information diversity. *Info, 17*(6), 50–71. https://doi.org/10.1108/info-05-2015-0034. Aug. 2015.
van der Vlist, F., Helmond, A., & Ferrari, F. (2024). Big AI: Cloud infrastructure dependence and the industrialisation of artificial intelligence. *Big Data & Society, 11*, 1. https://doi.org/10.1177/20539517241232630. Mar. 2024.
van Dijck, J., Poell, T., & de Waal, M. (2018). *The Platform Society : Public Values in a Connective World*. Oxford University Press.

van Drunen, M. Z. (2023). *Automated Editorial Control: Responsibility for News Personalisation under European Media Law*. University of Amsterdam.
van Drunen, M. Z., & Fechner, D. (2022). Safeguarding editorial Independence in an automated media system: The relationship between law and journalistic perspectives. *Digital Journalism*, 1–28. https://doi.org/10.1080/21670811.2022.2108868, 0, 0 (Aug. 2022).
Vermeulen, J. (2022). In J. Meese, & S. Bannerman (Eds.), *Access diversity through online news media and public service algorithms: An analysis of news recommendation in light of article 10 ECHR. The algorithmic distribution of news: Policy responses* (pp. 269–287). Springer International Publishing.
Verza, S. (2025). What is journalism in the digital age? Key definitions in the European media freedom act. *Rivista italiana di informatica e diritto., 7*(1). https://doi.org/10.32091/RIID0213 (Mar. 2025), 17–17.
Vipra, J. (2023). *Computational power and AI* (pp. 1–48). AI Now Institute. https://ainowinstitute.org/wp-content/uploads/2023/09/AI-Now_Computational-Power-an-AI.pdf.
Vrijenhoek, S. (2023). In L. Boratto, S. Faralli, M. Marras, & G. Stilo (Eds.), *Advances in Bias and Fairness in Information Retrieval. BIAS 2023. Communications in Computer and Information Science, 1840*. Cham: Springer. https://doi.org/10.1007/978-3-031-37249-0_12.
Vrijenhoek, S., Daniil, S., Sandel, J., & Hollink, L. (2024). *Diversity of what? On the Different Conceptualizations of Diversity in Recommender Systems*.
Whittaker, M. (2021). The steep cost of capture. *Interactions, 28*(6), 50–55. https://doi.org/10.1145/3488666. Nov. 2021.
Wilczek, B., Haim, M., & Thurman, N. (2024). Transforming the value chain of local journalism with artificial intelligence. *AI Magazine, 45*(2), 200–211. https://doi.org/10.1002/aaai.12174, 2024.
Wu, S., Jr, E. C. T., & Salmon, C. T. (2019). When journalism and automation intersect: Assessing the influence of the technological field on contemporary newsrooms. *Journalism Practice, 13*(10), 1238–1254. https://doi.org/10.1080/17512786.2019.1585198. Nov. 2019.
Zambelli, G. (2024). Collaborative innovation grants for journalism innovation: An effective path towards AI implementation? *The Case of the Flemish Relanceplan Programme*.
Zambelli, G., & Morganti, L. (2023). Breaking away from hectic daily media production: Unleashing explorative innovation through inter-firm collaborations. *Media and Communication, 12*, 1–16. https://doi.org/10.17645/mac.7414. Nov. 2023.