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Safeguarding Editorial Independence in an Automated Media System: The Relationship Between Law and Journalistic Perspectives

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ABSTRACT

This article explores the relationship between legal and journalistic perspectives on the way editorial independence can be safeguarded in the context of automation. It aims to bridge two discussions. First, the journalism studies literature that has explored how automation challenges the way editors and journalists fulfil their role in newsrooms and society. Second, the legal discussion that is revisiting how the conditions for editorial independence can be created in a media system where automation is increasingly important. To do so, this article contrasts a normative framework that outlines the functions of editorial independence in European media law with interviews with editors and journalists involved in data journalism and news personalisation. It finds excellent potential for a complementary relationship between legal and journalistic perspectives on editorial independence. However, the challenges posed by automation fall outside the mechanisms through which this relationship has traditionally been operationalised.

KEYWORDS

Editorial independence;
media law; journalism;
automation; platforms

Introduction

Polymakers are beginning to reassess how law should support editorial independence in the face of the increasing automation of editorial decision-making. Law has traditionally played an important role in the media's editorial independence (Hamada 2021; Reich and Hanitzsch 2013). Not only does it regulate the relationship between the state and the media, but it also creates the conditions under which the media interacts with private actors and exercises editorial control. Legal measures, such as limits on media concentrations and bans on certain commercial influences, protect the media's independence from private actors, while measures such as subsidies are intended to support independent media organisations (Arena et al. 2016; Bennett and Strange 2015; Oster 2015).

A number of policy initiatives have recently begun to address a (perceived) need to adapt the manner in which law safeguards editorial independence. At the European

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level, which is the focus of this article, the European Union's (EU) democracy and media action plans and Council of Europe's (CoE) declaration on the financial sustainability of quality journalism in the digital age outline a wide range of potentially far-reaching measures intended to sustain a free and independent media. These measures include among others infrastructure which facilitates access to data and computing resources for European media organisations, investments in the technological skills of editors and journalists, and a reassessment of media concentration regulations (CoE 2019; European Commission 2020a, 2020b). By means of these measures, policymakers revisit law's role in securing editorial independence in the context of the automation of editorial decision-making.

There is already a solid body of research in journalism studies which outlines how the media's reliance on automation impacts the way in which editors and journalists fulfil their role (Deuze 2005; Diakopoulos 2019; Thurman, Lewis, and Kunert 2019). The large-scale data processing which makes automation useful to journalism, also changes the way in which media actors can exercise editorial judgement. Increasingly, editors and journalists produce stories on the basis of automated analysis, or provide input on the implementation of algorithms which take editorial decisions without direct human oversight (Beckett 2019; Diakopoulos 2019). The technical expertise and resources needed to automate editorial decision-making can moreover create new dependencies with regard to other parties, such as engineers, product owners, third-party technology companies, and data brokers (Lewis and Westlund 2015). Taken together, these trends change how editors and journalists can continue to exercise editorial judgement independently (Bell 2018; Bodó 2019; Fanta and Dachwitz 2020).

However, the discussions in legal literature and journalism studies on technology's impact on editorial independence have remained disconnected. This is problematic. This disconnect limits any normative discussion on what law's role as a safeguard for editorial independence should look like in the context of automation (Ananny 2018; Pickard 2020; Wiley 2021). Such a discussion first requires a better understanding of the perspective of the media actors whose independence media law is expected to safeguard in the face of automation, and how their perspective aligns with the reasons why, and ways in which law has traditionally ensured editorial independence. Only with such an understanding, it becomes possible to see how the approach to editorial independence in European media law is challenged, and how law can continue to support editorial independence in the context of the automation of editorial decision-making.

This article explores how journalists and editors evaluate editorial independence, and its functions and challenges in European media law, in the context of automated editorial decision-making. These functions and challenges are derived from a normative framework developed in (van Drunen 2021). The framework draws on art. 10 of the European Convention on Human Rights, as further concretised by case law, recommendations of the Council of Europe, and legal literature to outline four functions editorial independence performs in European media law. This study uses interviews with editors and journalists involved in the automation of editorial decision-making to identify their perspective on the concept and value of, and challenges to editorial independence in their work, and explore how they reflect on the conceptualisation and

function of editorial independence in European media law. The purpose for doing so, is to explore how the legal and journalistic approaches to (the challenges to) editorial independence relate to one another on a conceptual and normative level, rather than identify how journalists evaluate specific legal measures.

To concretise the research, the article focuses on the use of automated decision-making in two contexts: data journalism, where journalists algorithmically gather and analyse data to support or automate the production of news stories (Appelgren and Nygren 2014; Gray, Chambers, and Bounegru 2012), and news personalisation, which allows the media to tailor news distribution to the characteristics of individual readers (Thurman and Schifferes 2012). Two reasons underlie this choice. First, it enables us to capture the way in which technology impacts on editorial independence at the beginning of the editorial process, when the information necessary to produce news is gathered, and at the end stages, when news articles are distributed to readers. Second, it makes it possible to explore how editorial judgement is exercised in relation to technologies of differing levels of complexity.

The following sections will first outline how the approaches to editorial independence in law and journalism studies relate to one another and explore why automation, and data journalism and news personalisation in particular, potentially challenge editorial independence. The article will then report the methodology (including the role and operationalisation of the normative framework) and results of interviews that explore the perspectives of editors and journalists in the context of data journalism and news personalisation, and close with a discussion. .

Editorial Independence as a Concept in Media Law and Journalism Studies

Definitions of editorial independence in both legal and journalism studies literature broadly focus on the ability to determine how news is produced, published, and distributed to the public free from outside influences (Hamada et al. 2019; Schulz 2014; Singer 2007). As legal literature generally assumes and journalism studies literature has argued explicitly, complete editorial independence is neither possible nor desirable (Schudson 2005). The media has always had to rely on others to for instance fund journalism, access information, and implement technology (Ananny 2018). The ability of among others the state and the audience to influence the media is also necessary to realise values such as media accountability (Eberwein 2011). In short, the practical meaning of editorial independence depends on the specific influences from which the media should be independent (Karppinen and Moe 2016).

The relationship between journalistic and legal perspectives on editorial independence is pushed to the forefront when the two conflict on the extent to which media should be independent from law. The media's role in democratic society revolves around the collection and distribution of information (Christians et al. 2009; McNair 2009). This activity is regulated extensively, including in data protection law, copyright law, and of course media law itself. A solid body of journalism studies research accordingly analyses how the legal framework limits editorial independence by restricting the way in which journalists distribute information to the public (Hallin and Mancini

2004; Reich and Hanitzsch 2013). For example, Wiley has explored how US data journalists work to maintain their autonomy in the face of anti-hacking legislation potentially prohibiting web scraping which would violate a website's terms of service (Wiley 2021). In this context, the law is simply another outside force that restricts editorial independence.

However, media law supports editorial independence as well. Article 10 of the European Convention of Human Rights (ECHR) not only prohibits states from interfering with the freedom of the press themselves, but also imposes a positive obligation on states to protect editorial independence from private parties (Klimkiewicz 2021; Oster 2015). States must for example prevent groups from obtaining a dominant position which would allow them to restrict the media's editorial freedom. This obligation is operationalised in secondary law which limits media concentrations and bans specific parties, such as owners and advertisers, from influencing the media's editorial choices (Arena et al. 2016). Media law can also require member States to proactively create the conditions for a healthy media system (Schulz 2014). As the ultimate guarantors of pluralism, states have for example used not only media ownership regulations, but also press subsidies to ensure the existence of multiple independent perspectives which would otherwise be missing from the public debate (Smith and Tambini 2012). More recently, regulatory attention has moved to the economic models, digital skills, and technological infrastructure which can support independent journalism online (CoE 2019; European Parliament 2018).

Nevertheless, the role which media law can play in supporting editorial independence is inherently limited. Tension is present between the state's obligation to ensure editorial independence, and the danger that laws determining who are able to influence editorial decision-making, are misused. Media ownership regulation, for example, can be used to limit the ability of media owners who are critical of the state to contribute to the public debate (Vendil Pallin 2017). Media regulation is partially able to resolve this issue internally, with rules regarding the independence of media authorities limiting the threat of media law being applied to interfere with editorial decision-making for political purposes (Bennett and Strange 2015). Additionally, media regulation avoids the danger of state interference altogether by relying on the media to further safeguard its own independence.

This approach is mirrored in journalism studies, which emphasise that relying on law to support or impose norms on journalism can threaten editorial independence (Borges-Rey 2016; Diakopoulos 2019; Ward 2005). From the perspective of journalism studies, the law is accordingly only one possible way to safeguard editorial independence, complemented by mechanisms like formal ethical guidelines, press councils, and a professional culture (Eberwein 2011). Journalism studies literature is thereby able to explore the manner in which the media should maintain its independence from some sources, such as internal business departments, in further detail. They are also able to capture some influences over editorial independence which traditionally fall outside the scope of the law, such as journalists' own stances and opinions (Reich and Hanitzsch 2013). These efforts not only satisfy journalism's own commitment to independence, they also provide journalism with a legitimacy which prevents more stringent regulation. From a legal perspective, conversely, policymakers are able to use

journalists' own efforts to maintain their editorial independence in order to support aspects of editorial independence which are contentious to regulate (CoE 2011; Tong 2018).

Editorial Independence in Data Journalism and News Personalisation

The editorial decision-making, which both the media and media law aim to keep independent, is increasingly automated (Beckett 2019; Coddington 2015a). The automation of editorial decision-making typically involves translating inputs (e.g., structured source data; reader's characteristics; audience consumption patterns) into outputs (e.g., news articles; content recommendations; metrics) through a series of computational actions (Dierickx 2021; Kitchin 2017; Klinger and Svensson 2018). This process changes the way in which journalists and editors exercise control over editorial decisions. At the far end of the spectrum, algorithms are used to replace human editorial decision-making. This especially occurs in news personalisation and some forms of automated journalism. The Washington Post for example inserted automatically produced and voiced results of local elections into its political podcasts during the elections (Carlson 2015; Washington Post 2020). However, automated decision-making can also simply inform or support human editorial decisions by providing journalists with insights about the manner in which their audience consumes their articles, or by creating partial drafts of articles which can be expanded on by journalists (Beckett 2019; Coddington 2015a). In both cases, influence over the editorial values which a media organisation promotes transfers to the actors who are able to influence the algorithm which now informs, supports, or replaces the journalist or editor who exercises editorial control. By changing the way in which, and procedures by which editorial control is exercised, automation opens up new opportunities to influence editorial decision-making and ultimately challenge editorial independence. The following section will explore the implications for editorial independence in the specific context of data journalism and news personalisation.

Data journalism takes place early in the editorial process. It is a set of journalistic processes involving the production of news from large datasets with computational methods, and the communication of news through interactive visualisations (Ausserhofer et al. 2020; Splendore 2016). Due to the 'quantitative turn' (Coddington 2015b), quantitative data and computational methods have become more prevalent in journalism. This has also led to a change in journalistic routines, processes, and knowledge-generation (Parasie 2015; Splendore 2016), demanding that journalists employ new skill sets in order to deal with big data, statistics and computational methods, and interactive design (Parasie and Dagiral 2013). Although data journalism requires the interpretation of large data sets and complex analytical and computational methods because '[d]ata do not speak for themselves' (Dourish and Gómez Cruz 2018), it also allows journalists and editors to algorithmically gather and analyse data to support or automate the production of news stories (Appelgren and Nygren 2014; Gray, Chambers, and Bounegru 2012). Finally, these results can be presented with the help of pre-designed interactive visualisations at the end of the news production process. The extent to which each of these forms of automation plays a role in data journalism

varies from one data journalism project to another. While award-winning data journalism is especially known for complex data analysis, everyday data journalistic projects can simply use pre-designed interactive visualisations to provide an overview of automatically collected data (Borges-Rey 2016; Stalph 2018). The daily updated covid dashboards are a common example of the later type of data journalism.

The second technology which this article focuses on, news personalisation, comes into play at the end of the editorial process. News personalisation is generally used to automatically show a different set of news articles to each individual reader based on their characteristics (Kunert and Thurman 2019). For example, a media organisation may include a 'for you' section on the frontpage including perspectives which are new to a specific reader (Hildén 2021; Vrijenhoek et al. 2021). Using news personalisation in this way involves the automation of editorial decisions about how visible a piece of news should be. The amount of recommendations made by personalisation algorithms preclude editorial oversight over each individual decision. Instead, editors influence personalisation algorithms by collaborating with technical departments to determine how the personalisation algorithm should be designed (Bodó 2019).

Journalism studies literature has identified a number of new pressures on journalists' editorial independence in the context of data journalism as well as news personalisation. Concerns are generally driven by two assumptions which reflect broader challenges posed by automation. First, algorithms which automate editorial decision-making are not neutral. They involve decisions which determine how the algorithms will influence editorial values, for example regarding the type of input data which is included or excluded, or the success metrics which the algorithm is designed to promote (Gillespie 2014). And second, journalists and editors are not necessarily in full control of the decisions which determine how an algorithm will impact editorial values (Klinger and Svensson 2018; Zamith 2019). Exclusive editorial control over news personalisation algorithms is rare. Implementing these systems requires collaboration with engineers, but often also involves product owners, business departments, or third party technology companies which supply or fund the development of the algorithm (Bodó 2019; Fanta and Dachwitz 2020; Malcorps 2019). Similarly, in the context of data journalism, traditional journalists rely on actors with technical expertise in the newsroom, outside data analysts, or data brokers to provide access and analysis of the data on which data journalism reporting is based (Baack 2018; Wu, Tandoc, and Salmon 2019).

The concerns which underlie automation's potential challenges to editorial independence are in many cases not new. Sources, governments, and business departments have always tried to influence reporting, and automation is not the first development which has required the media to collaborate with others (Bennett and Strange 2015; Deuze 2005; Schudson 2005). Automation's challenge to editorial independence lies in the fact that it changes the way in which editorial control is exercised. By moving control out of the hands of editors and journalists, who often cannot build the algorithms or the datasets which fuel them alone, automation opens up new ways to influence editorial processes for actors on whom the media relies to automate editorial decision-making.

One way in which automation potentially challenges editorial independence is by changing the way in which editorial control is exercised, enabling non-media actors to directly influence the way in which a specific media organisation automates its editorial decision-making. This can take place at the earliest phases of the editorial process. For example, literature on data journalism and editorial independence emphasises the importance of input data, and its ability to influence journalistic judgement. Companies and other third parties gather data for their own use, and in a manner which serves their needs, including their own definition of variables in the dataset. Decisions on what data to make available to journalists involve their own (editorial) analysis and choices concerning, e.g., what data to exclude or what information to provide about the way in which data was collected. Lack of awareness of such choices can lead journalists to copy the editorial decisions embedded in the data which they use, in their final reporting (Stalph 2018; Tabary, Provost, and Trottier 2016). Similar concerns are sometimes voiced in the context of news personalisation. Wijermars for example notes that the Russian law on news aggregators does not focus on the way in which personalisation algorithms are designed to recommend content to users. Instead, the law simply controls the personalised selection of articles shown to users by restricting the types of sources which these systems can recommend (Wijermars 2021). More commonly, however, concerns over news personalisation in European media organisations revolve around non-state actors who influence the algorithmic design of the system. In particular, the use of news personalisation potentially moves editorial control away from editors who decide what is on the frontpage, towards the designer of the algorithm which is used to determine what news will be shown to which individual. This opens up the possibility that non-journalistic actors affect editorial decision-making by influencing the design of the algorithm used to distribute the news. Malcorps indicates the influence that commercial and business departments exercise over the success metrics which the algorithm is expected to promote, and – as such – the news recommended (Malcorps 2019; Turow 2012).

On a more structural level, the media's use of automation for editorial decision-making also potentially creates new dependencies and power concentrations. A case in point, media organisations need access to large datasets to produce data journalism reporting. Since such datasets are often inaccessible or expensive to gather, data journalists rely on other actors which have already collected such data. Control over access to data used for data journalism can thereby become centralised in the hands of a few data brokers (Baack 2018; Borges-Rey 2016). This issue is exacerbated by the fact that much of the data used for data journalism reporting comes from government sources, whose influence is especially suspect in the context of editorial independence (Cushion, Lewis, and Callaghan 2017; Stalph 2018; Tabary, Provost, and Trottier 2016). Concentrated control over the data and technology needed to automate editorial decision-making would not only allow outside actors to influence a single news article, but also how editorial decision-making is automated in general. In the context of data journalism, for example, concentrated control over the data necessary for data journalism reporting potentially allows actors to shape the kinds of stories which data journalists are able to tell. Moreover, the power to determine how editorial decision-making is automated is not necessarily equally distributed. For example, smaller media

organisations may have particularly little room to negotiate the editorial values embedded in third party personalisation tools, or influence how collaboration in data journalism takes place (Bodó 2019; Borges-Rey 2016). This can leave them less able to use automated decision-making to promote their own editorial values. As a result, automation potentially shifts the distribution of power in the media system. More concretely, it potentially allows a limited set of actors to determine how editorial values are operationalised in a media system which relies on automation, and leaves smaller media organisations less able to use automated tools in line with their own editorial values (Bodó 2019; Borges-Rey 2016; Cheruiyot, Baack, and Ferrer-Conill 2019; Fanta and Dachwitz 2020).

Methodology

We have explored how journalists and editors involved in the automation of editorial decision-making evaluate editorial independence, and its functions and challenges in European media law, through 13 in-depth interviews. Interviewees were identified through existing contacts, identifying the relevant stakeholders in media organisations, and referential sampling. We aimed to cover a broad spectrum of stakeholders who would be able to point out the challenges for executing editorial independence which result from the integration of automated tools in media organisations. To that end, we interviewed data journalists (6), and managers and team members in news personalisation units (7). The latter's companies had differing organisational structures. The persons responsible for news personalisation were either part of a team on their own or part of a broader unit on digitalisation; in both cases, they represented management units. As is discussed in the results section, for some, this meant that they worked as journalists before they were promoted to management positions in these units.

Participants worked for media companies in European democratic countries with comparable media systems, namely the Netherlands (5), the UK (6) and Germany (2). The selection was informed by the objective to balance smaller and larger media companies across the countries. As the aim of this study was to explore how journalists and editors evaluate editorial independence's functions and challenges in the context of automation, we focussed on media companies which had implemented automation in their routine to some degree. As a result, we can only evaluate the procedures and concepts of editorial independence of media companies which have already integrated automated decision-making, and cannot make claims about media companies which refuse or are only planning to use automated decision-making. The latter two could not have answered questions about changes to the procedures due to automation and the accompanying challenges.

The interviews were conducted via video conference (using the software *Zoom*) in 2021, with an average timeframe of an hour. Working in global collaborations, data journalists are used to communicating with colleagues or collaborators via video conference tools, so this interview form matched their work environment and did not compromise the naturality of the conversations. Although the interviewees from the personalisation units usually work in an office together, their day-to-day work includes

communication with external consultants or agencies (i.e., on their news personalisation algorithm) and demands the regular use of video conference tools as well.

The field manual included questions about work procedures, concepts of editorial independence and the normative values attached to it, as well as changes in procedures due to automation and challenges which arose from it. Participants were asked to describe a recent project involving data journalism or news personalisation which they had worked on, and explain the way in which they had made editorial decisions and collaborated with other actors in- and outside the newsroom. Participants were then asked to describe their view on independence and its importance to their work in the context of data journalism and news personalisation. Depending on the stakeholder, an explanation of editorial independence was necessary, describing it as professional autonomy in the journalistic context. Doing so built a bridge between the language of law and journalism studies on the one hand, and the word choice of journalists who connected editorial independence solely with the role of 'editor' or 'editor in chief' in the newsroom, on the other hand. Subsequently, participants were asked to reflect on the concept and functions of editorial independence in European media regulation, and whether these were crucial to their work in the context of data journalism or news personalisation. The functions referred to the need to prevent third parties (e.g., advertisers or politicians) from manipulating the audience by influencing editorial decisions (manipulation); guarantee that media actors can freely decide how to inform the public and fulfil their role in society (agency); prevent power concentrations by ensuring that multiple independent actors decide how content is produced, published, and distributed (power dispersal); support the existence of different independent voices in the public debate (pluralism). Participants were then asked whether a number of potential challenges to editorial independence were significant in their work. These included among others hidden influences over algorithms or their input data due to a lack of algorithmic transparency; a changing distribution of influence between departments (e.g., editorial; technical; business); concentration of power over tools used by legacy media to make editorial decisions (van Drunen 2021). Finally, questions about safeguards covering existing safeguards and the need for new safeguards were asked.

We coded statements using a qualitative methodology, executing a qualitative content analysis (Mayring 2010) by close reading and coding passages based on a deductive coding scheme which emerged from the normative framework. Starting from coding meaningful passages of the interviews, we coded those for the following broader categories: *concept of editorial independence*, including subcategories on definitions giving by the participants; normative reasons for the importance of editorial independence; *procedures* including subcategories on procedural aspects, specific procedural aspects of data journalism and news personalisation, and changes in these procedures; *challenges*, including subcategories on procedural challenges in data journalism and in news personalisation, which were connected to the normative functions of the theoretical framework which could be linked to them in a following coding step; *safeguards*, which included subcategories on existing safeguards and the need for (new) safeguards. The interviews were coded with the qualitative data analysis software MAXQDA.

Results

The Concept of Editorial Independence: Defining the Journalistic Role in Automated Decision-Making

Despite representing a wide range of automation in journalism, stakeholders conceptualised editorial independence in similar ways, focussing on the ability of individual journalists or editors to decide what topics to work on and how to publish and distribute them free from internal and external influences. For example, when asked to define editorial independence a data journalist working in a newsroom at a public service media organisation referred to the following decisions at the start of a project:

Within the company I have a lot of autonomy so I can decide for myself what topics I find interesting, what datasets I want to analyse, requests I want to do. Of course, I always talk about that with my colleagues, but the initial decision is mine. (lines 775–777)

The participants placed a relatively heavy focus on the importance of establishing independence on an individual level inside the newsroom. This reflects the broader approach to editorial independence in journalism studies in general. Although definitions of editorial independence in media law and journalism studies can often remain rather vague on the influences which the media should be independent from, in practice media law is focussed on external influences on the media. Conversely, journalism studies literature also thoroughly explores the independence of individuals within the newsroom. It is important to note, however, that this is a matter of degrees. There are areas in which law aims to safeguard editorial independence within media organisations, for example to secure the right to free expression of individual journalists, to limit the influence of state actors over public service media, or to balance the relationship between editorial departments and publishers (CoE 2012; Commissariaat voor de Media 2021; *Fuentes Bobo v. Spain* 2000).

The participants instinctively connected their definitions of editorial independence to its normative functions. Editorial independence was seen as both a duty of journalism and a basic condition enabling journalism. This basic need for editorial independence applies regardless of whether automated tools are used or not, as reflected upon by a data journalist:

I believe it's important to my role as a journalist, not specifically as a data journalist but as a journalist in general, including as a data journalist. [...] I think journalism creates the maps people use to navigate society with. Which means our maps should be accessible to all, ideally read by many, and should give people the information they need to make up their minds. (lines 339–344)

When asked to reflect on four concrete normative functions of editorial independence in European media law, the participants specifically focussed on the way in which editorial independence enabled them to fulfil their role in society, and prevented external actors from influencing the audience through the media (although participants generally noted that all four functions were important). Similar to their conceptualisation of editorial independence, participants paid less attention to structural functions of editorial independence, such as the need to ensure the media system contains a diverse set of voices and that power is not concentrated in a few media organisations. In our interviews, the achievement of editorial independence is

judged by whether journalists as individuals, or media companies as institutions, are able to execute editorial decisions based on journalistic norms and fulfil their democratic role. A fundamental part of that role is being neutral and not being influenced by the commercial or political interests of third parties.

Being part of the journalist's function and professional identity, editorial independence cannot be safeguarded by media law exclusively. Media law can serve an instrumental function by creating the conditions under which the media can be independent, for example by protecting journalists from interference by the state itself or powerful private actors. But from the perspective of journalists who view independence as core to their identity, these general rules must also be complemented by mechanisms media actors use to safeguard their own independence. This is necessary for individual journalists or media organisations to ensure they are able to take editorial decisions in line with their own editorial values (Eberwein 2011). The in-depth interviews demonstrate the complementary way in which the existing self-conception of journalists, the structure of the media organisation, and the media system enable independence in this respect. This data journalist who works for at a national daily newspaper explains how their editor protects editorial independence by insulating journalists within the media organisation from external influences, while pointing out the importance of working in a media system in which journalists are protected:

How do you prevent that? Well that's the editor in chief, [...] to say we decide what our own pieces will be. [...] You could say, they could push it in a direction. But that doesn't happen. In that respect, we live in a country where that's fairly to extremely well taken care of. My international projects, I work with journalists from over the entire world, you don't want to know. (lines 1956–1960)

Editorial independence was not seen as incompatible with relationships with parties in- and outside the newsroom who enable journalism in the context of automation. On the contrary, collaboration was perceived as necessary to ensure that the editorial values of the organisation are enacted as the media transitions to automated decision-making. Both data journalism and news personalisation stakeholders see themselves as having the ability and duty to adjust to these changed procedures. However, in order to maintain editorial independence within media organisations in the context of different modes of automation, the individual needs to be enabled to decide without the threat of consequences. In this case, influences are seen as suggestions arising in an increasingly collaborative work environment, as described by a data journalist in our sample working for a public service media organisation (lines 485–487). External influences can also be useful data sources, as long as the editorial decision-making is kept inside the newsroom:

We have some good connections with some sources and they sometimes send us things, like this could be interesting for you. But I do feel total autonomy [...] in deciding 'no'. we're not going to do this, maybe go to a different source. (lines 786–789)

The "good connections" mentioned in the statement above are necessary from the journalist's perspective but they also show the reliance on third parties for input data in the context of data journalism. This dependence extends beyond the third parties' values and decisions embedded in the data (Stalph 2018; Tabary, Provost, and Trottier 2016) to third parties suggesting data and topics for journalistic investigation, and

thereby directing the journalist's attention towards it. Editorial independence is thus not an all-or-nothing concept which is safeguarded as long as media actors have the ability to stop or not proceed with a particular journalistic project. As a result, in spite of journalists ultimately 'feeling the autonomy' to decline as stated above, third parties can nevertheless intervene in the decision-making process by suggesting data for potential projects, and providing their own data for analysis, impacting the journalistic process at the point of initial decision-making. While the journalists seem to be aware of the influence from third parties, they seem to feel independent from it which can lead to downplaying or overlooking the extent of external influences. The importance of ensuring editorial oversight at various stages of the automation process is supported by stakeholders such as managers working in the field of news personalisation:

[...] we put together a prototype that will enable us to actually try this. So, it works well enough that we can put it in front of audiences or journalists, or both. And we can then do [a] proper assessment of cost benefit, audience reactions, editorial policy. All the things a big organisation needs to think about before it goes down the road of saying yes, I am building this new artificial intelligence system. (lines 2848–2854)

Procedural Changes and Challenges in the Way Editorial Independence is Exercised

Stakeholders emphasised the challenges which automation poses to the role of journalistic staff, and the need to safeguard against the influence of third parties over editorial processes. Stakeholders viewed structural challenges through the lens of these more individual challenges, and perceived them to be important, but occurring less often.

Independence Through Collaboration

The interviews show editors' and journalists' ability to influence news production and distribution changes when those processes are automated. The need for increased collaboration challenges the existing formal guidelines and the breakdown of the journalistic role among the different stakeholders and departments. Although all stakeholders face this challenge, it plays out differently depending on the specific technological context. In data journalism, the automated collection of data can occur before the journalistic process of investigation and interpretation. This changes the processes inside the newsroom. To ensure specialised editorial knowledge is applied in data journalism projects, journalists with editorial expertise on a particular topic collaborate with journalists adept in data. It should be noted this collaboration is not necessary to produce articles relying on data journalism. One data journalist who works at a smaller media organisation notes "sometimes we do projects with other media [...] but usually we do things kind of alone or me with a colleague" (lines 668–676). However, the data journalists in our sample generally emphasised the benefits of relying on colleagues with specialised expertise. A data journalist working at a public service media organisation specifies it as follows:

So, I'm in constant collaboration basically. (line 33) [...] And you need to have real world context that goes with the data, but I specialise in doing data analysis which is in and of

itself a respectable specialisation, but it also means that I'm not specialised in all these contexts that come with every data set, so I need my colleagues to provide context for me and they need me for the data analysis specialisation. We couldn't make the story, I could not have done it without [my colleague]. (lines 102–106)

This creates new dependencies inside media organisations, between individual journalists as well as between different departments (e.g., editorial, technical, and data visualisation teams). The individual journalist or data journalist is no longer solely responsible for their project, but rather increasingly relies on others for expertise. Not only the data, but the data journalist himself becomes another source, in addition to other journalistic sources (e.g., experts, institutions, etc.), to depend on for the topic journalist – and vice versa. Especially further along the process of moving towards publication, this also involves editors influencing the story which is based on an analysis outside of their expertise. However, in the context of data journalism the different actors involved (such as the data journalists themselves, the beat reporter, the visualisation department, and the editor) generally shared a journalistic background. Though one data journalist working for a daily national newspaper noted they sometimes relied on employees from a commercial sister company in order to scrape or aggregate data (lines 1870–1875), the involvement of such outside technical experts in the journalistic process was the exception. In general, the role of non-journalistic actors in our sample is limited to providing the data necessary for data journalism projects (as the section “Limiting Dependencies on External actors” will explore in further depth). Collaboration within the media organisation focuses on combining various kinds of journalistic expertise (e.g., on the topic of the story, the analysis of the data, and the presentation of the story) to develop a story based on data provided by an external source or aggregated by the media organisation themselves, as this data journalist points out:

[...] it would be very difficult if not impossible if we didn't collaborate. Because a lot of our best ideas come from non-data journalists [...] who have spotted [...] something that really needs investigating, which we can then [see] if that is born out in the data. (lines 3228–3231).

In the case of news personalisation, cooperation is similarly essential. In this context, participants emphasised the importance of drawing on editorial judgement to identify how the media organisation's editorial values are affected and can be incorporated into the design of the personalisation algorithm. An editor who works on news personalisation projects for a national daily newspaper explains the role of editors as follows:

[...] you need an editor to classify what is what. (line 1626) [...] The technique and editing have to work together here because otherwise it's quite difficult to have this nuance and these little steps just by an algorithm, I think. (lines 1652–1654)

However, the cooperation between journalists, editors, and other actors plays out differently in the context of news personalisation and data journalism. As a result of the cost and complexity of developing news personalisation algorithms, journalists and editors have to rely on other experts, or more typically departments, for the technical realisation of embedding editorial values into a news personalisation algorithm. These actors (such as engineers, business departments, and product owners) perform

the specialised roles necessary to deploy personalisation algorithms. However, in light of their specialisation they often lack the shared journalistic background which characterises the relationship between data journalists and beat reporters. As different departments with different goals and backgrounds are involved in the development of news personalisation as a new feature, they can aim not to involve journalists in this process as a) personalisation is perceived as a technical process and/or b) other goals matter more in this context from the point of view of other departments. A manager directing journalistic projects like these explains their perspective and the reasoning behind their decision-making:

And then how do you make sure that people get the best out of their experience, out of that 15 minutes that they will spend with your brand [...] So, that's the reason why we do it and of course that's expressed in KPI's [...] like making engagement better. [...] That's all very directly linked to keeping their subscription or entering into a subscription, so the whole monetizing part of our business. (lines 1173–1180)

By involving other departments in the design of algorithms which are used to determine the visibility of news articles, news personalisation can create a new arena in which tensions between editorial, established (e.g., business departments) and newer (e.g., engineering departments) actors in the media organisation play out. The personalisation algorithm reflects the interplay between these different actors, and alterations in the tensions between them impact the values embedded in the algorithm. Especially the influence of the audience, potentially pushing the prominence of marketing goals as mentioned in the quote above, was a recurring theme. This is related to the increasing financial influence of the audience. This means that the media's income moves from advertisers to subscribers, making the latter "more influential" and affords the audience's needs a central place in features like news personalisation (lines 1252–1257). Stakeholders emphasise however that they are able to resolve potential conflicts between editorial and marketing objectives. In this context, stakeholders, like a manager at a large media organisation who oversees different journalistic projects, points to journalists' obligation to the audience as well as their continued editorial control over the production of content:

But in the [personalized] section, [...] the selection of what people see won't be in the hands of the editorial floor anymore. [...] And of course, this interferes [...] not with editorial autonomy because they still decide what they do [...]. But the selection of what people see first is more democratized and more put in the hands of the user. I don't think this is problematic. (lines 1266–1271)

News personalisation is thereby framed as serving editorial values when it provides audiences with the editorial output which they want to read. This highlights a conflict between journalists seeing the distribution of news as an editorial responsibility while other departments do not primarily categorise it as an act of editorial decision-making. That is not to say other departments automatically aim to exclude editors and journalists. However, the basis on which editors and journalists are involved is different when news personalisation is not viewed as an editorial process. Rather than viewing editorial oversight over news personalisation as a necessary precondition for editorial independence, other stakeholders instead perceive editors' and journalists' influence in this context as a factor that may be valuable when it supports marketing and business

goals. Driven by this different motivation, news personalisation stakeholders can remain in favour of integrating editors and journalists in the decision-making process concerning news personalisation, for example because they perceive the input of their editorial staff as “a unique selling point of [the media company’s] product” (line 1354). However, they also highlight the difficulty of automating human editorial judgement as compared to other values that support business goals. In their view, editorial judgement concerning for example serendipity or pluralism is difficult to automate, while audience engagement-oriented goals are more easily woven into the algorithm. In part, this tension is argued to be solved by ensuring news personalisation algorithms are solely used as an addition to fully human editorial judgement, as one participant working as a manager for a large media company that publishes multiple newspapers notes:

Your eye settles on something that you didn’t know you were interested in and maybe you haven’t read anything before about this and still it interests you. This is all gut feeling of the editorial staff, the editors. And we’ve done it for 100 years with gut feeling. And it’s a rather efficient and successful approach, so I wouldn’t change that [...] of course, the editorial floor has to work with instinct and gut feeling and serendipity for the reader. (lines 1182–1187)

The focus on ensuring editorial control over the traditional, non-personalised version of the newspaper matches the view that editors’ influence is valuable but not necessary in the specific context of news personalisation. Intervening at a point in the process where decision-making used to be carried out by editors as a default, automation takes editorial control away from the newsroom in favour of other departments, which are responsible for marketing and business (Malcorps 2019; Turow 2012). While the latter are aware of the responsibilities of the editors in this context before automation, they do not see taking this responsibility away from journalists and into their own hands as a limitation of the editorial control of the former. Media organisations’ existing structure has a strong impact on the way new projects, such as news personalisation, are managed, and how different departments collaborate:

With something like the [organisation’s] data science team that is very firmly sitting in engineering so the senior engineering people don’t see it as important. They want editorial input. They don’t see it is important that that’s a senior person because ‘it’s a data science problem’. I think a lot of it actually comes down to the accident of internal organisation and where a team sits. And where a team sits on boundaries you are much more likely to get what I would regard as a healthy balance. (lines 3045–3050)

While the technical unit is usually the team that is responsible for the automation, they are not always the decision maker. In some cases, former journalists take up management positions and become responsible for the development of products such as news personalisation. This was especially common in interviews with participants who work at public service media organisations. According to them, they are for example supposed “to make sure they [the technical department] understand what good recommendations, personalisation, and services look like and I’m the translator “(lines 4161–4162). They bring in their journalistic expertise in order to safeguard journalistic quality and editorial independence by instructing the technical department if and how to implement news personalisation or other new products. One of the participants

working a public service media organisation included in our sample aims to safeguard editorial independence and their responsibility as a PSM by ensuring the “responsible development of technologies” (line 2391) and therefore, non-technical staff members, who have editorial or policy backgrounds for example, oversee those projects:

[...] so I focused on AI and machine learning technologies and developing tools and frameworks to implement our public service and responsible commitment in practice. (lines 2391–2393)

Ad hoc integration of automation into the existing organisational structures can also lead to the involvement of the journalists as decision-makers at the end of the process, as a manager for a commercial media organisation explains:

But there is a safeguard for these kinds of questions when the editorial staff feels that the soul of the newspaper is being damaged by this, interfered with, then they can call a conflict and ask the foundation who also plays a role in the conflict solution mechanism. And of course a good publisher never lets things go so far. (lines 1331–1335)

However, as this stakeholder has demonstrated, involvement of the editorial department early in the process can prevent conflicts between departments by ensuring that design choices in the development of the algorithm align with editorial values. Stakeholders have emphasised the need to identify where automated tools impact editorial values, and to involve journalists and editors in the process of their design at an early stage. By integrating journalists in the creation of automated tools as described by this interviewee, the journalists can advocate for editorial values, provide insights into the way in which they should be realised in the context of automation, and keep editorial control over the automation process. In larger organisations which aim to ensure a consistent implementation of editorial values and keep a record of design choices, this process can be formalised. This formalisation can involve the creation of new professional roles, such as intermediaries with technical and editorial expertise who facilitate the collaboration between editorial and technical departments, as well as new procedures outlining the role of editors and journalists in algorithmic design. The following quote by a manager, who works at a public service media organisation, shows what these new procedures can look like and how they are intended to connect technical development and editorial expertise:

[...] if we are creating any technology that impacts editorial output, then those are the people making it more central to the editorial people. And then once that conversation is initiated, we have our kick-off meeting. We make sure that people understand how we are going to be working together and then we tend to have essentially a series of meetings which are review points of the recommender or personalization service where those editorial people can give feedback. (lines 4282–4287)

Limiting Dependencies on External Actors

Stakeholders also noted that automation changed the way in which third parties, such as companies or governmental institutions, could influence the news-making process. This challenge was mostly raised by data journalists. The media organisations in our sample had developed their own news personalisation algorithms in part to ensure that they would retain control over the manner in which news is recommended, as one of the managers working at a public service media organisation explains:

We have in the past been using third parties for algorithmic recommendations [...] We are in the process of bringing that inhouse. And I know a number of other media organisations are also using third parties in this space. And it's collaborative how we [worked] with them in the past, and editorial decision-making and the business rules I talked about always come from the [media organization] and you got written into the contract that how these tools work needs to reflect the [...] editorial values and guidelines. [...] this is why it's so helpful to have guidelines explicitly written out [...]. (lines 2712–2728)

In order to safeguard editorial independence and limit external influences, media companies either avoid external organisations for the implementation of automation in their newsrooms altogether, or they bring their existing editorial guidelines into the contractual relationship with these external organisations. While the first approach removes the risk of external software companies influencing the way a media company automates its editorial decision-making, it is only available to media organisations with the resources to develop technology in house. Conversely, the second approach tries to limit the third parties' impact and is also applicable should a media organisation not be able to automate the news-making process without external help. Incorporating editorial guidelines in the contractual relationship with external software providers could therefore be an alternative approach for smaller media companies which do not have the resources to develop a personalisation algorithm tailor-made to enact their editorial values, and offer them the ability to make use of automated tools offered by third parties without ceding full control over the editorial values embedded in these tools.

While news personalisation stakeholders within media companies can choose to change to an inhouse solution or influence the values embedded in algorithms provided by third parties, data journalists often have to rely on third parties to make datasets available or usable. Such external control over datasets creates new opportunities to influence what kind of stories are told through data journalism. To start with, this includes control over the content of the dataset (Stalph 2018; Tabary, Provost, and Trottier 2016), as this data journalist from a public service media organisation notes:

[...] there's always this influence organizations have and sometimes they are aware of it and they actually actively make different choices to try to influence a story [...] more often, organizations are unaware of it, or the data was collected for a totally different use. (lines 277–285)

Manipulation of the data was however not a pressing concern for this or other data journalists in our sample. In line with the broader notion that the basic need for editorial independence applies regardless of whether automated tools are used or not, they moreover identified it as part of their own responsibility as journalists to verify the information their sources provide, as this data journalist working for a public service media organisation puts it:

[...] to me it's an old challenge in a new form, basically a lying source. A politician or company can have an agenda themselves, and simply lie about it. [...] Same goes for data. If it's a lie, if it's not true, it's my job to check it and not publish. (lines 426–433)

In that sense, data journalism as a form of automation of input or journalistic research only extended the range of sources to be checked. Participants noted that,

while a lack of transparency of the way in which the dataset was produced, could mean that values and interest from third parties would unknowingly impact on the journalistic analysis, the same held true for traditional journalism. In addition, where the data was reliable or alternative data sources were available, data journalism could also strengthen editorial independence, as this data journalist working for a small commercial media organisation emphasises:

At the same time a lot of journalists have to actually go by the word of the people that they speak with within companies. And data journalists can actually check the data if what they're saying is correct. [...] I think that helps data journalism be a bit more independent. (lines 829–837)

More commonly, data journalists emphasised the need for collaboration with the source. They focussed on collaboration as a way of expanding their opportunities to work with data, rather than the potential external influence of the third parties with which they are collaborating. Underlining the benefits of this collaborative situation, data journalists might overlook or downplay potential risks to their editorial independence. A way of ensuring editorial independence when engaging in this kind of collaboration is to gather as much information about the third parties' data set as possible. In order to work with data, it has to be clear what the data set is about, how it was collected, and what conclusions can be drawn from it. This information about the data is crucial for a data journalism project; a lack of that information can hinder a project. Collaborating with technical departments of external organisations which are usually less engaged in strategically shaping the journalist's reporting than, e.g., PR departments, data journalists can decrease external influences in this context. However, the increased need for technical collaboration can also add new challenges to the journalistic process. Engaging in this exchange as an act of collaboration instead of perceiving it as strategically influencing the reporting, leads to "a more personal relationship with [the] sources." as a data journalist describes it in the interviews (lines 811–822). Stressing the collaborative aspect of that exchange and its importance for data journalism, the journalists still indicate to experience the autonomy which they need to fulfil their journalistic role instead of giving in to external influences if external sources provide access to their data, whether the journalists follow their suggestions or not (lines 811–822).

If there is no collaborative relationship between a data journalist and a potential source for a data set, journalists might sometimes not even get access to the data in the first place. In order to influence the journalistic message, access to data is sometimes impeded. This limits editorial independence especially where data journalists have no alternative source. This data journalist summed up the situation like this:

So, I think that also plays a role with the organizations that are more aware of what kind of data they have. [...] they feel like they're not in control of the message if they send you a big dataset and you can get out of it whatever you want. [...] that's what I believe [...] are two main reasons for organizations not being willing [...] either that they don't really know what you could do with the data or they're scared of sharing data. And also, they want to have more control over the message you send out in the end. (lines 942–947)

Data journalists employ different tools in order to maintain their editorial independence in this context. Where data is held by government institutions, freedom of

information requests help to not only get access to data, but also to structure the relationship with the source and limit the latter's ability to interfere with the usability of the data:

But doing freedom of information requests instead of informal requests kind of helps me to stay independent because they have to follow a set of rules and they have to follow my request, they're not really able to tweak it which is something they would do if I would send an informal request. (lines 904–907)

While freedom of information requests formally structure the relationship between data journalists and their sources, practical obstacles continue to limit the extent to which these procedures actually provide data journalists with useful data, as this data journalist working for a PSM explains: "It will be mostly just people kick things back really late and not being that helpful, rather than being actively constructive." (lines 3968–3969). This proves to be particularly problematic where data journalists use freedom of information requests to create a dataset by requesting information from many different parties, rather than directly requesting access to large amounts of data from a single party. Especially when gathering data from many different sources (and the story would focus on general trends rather than any individual data source), the data journalists in our sample again generally ascribe mistakes or unhelpful attitudes to a lack of time or expertise rather than an intent to limit journalistic access to data. One data journalist working for a public service media organisation explains as follows:

Sometimes people will just not respond with the CSV format and just respond to the question directly[...] I want to give them the benefit of the doubt, a lack of technical understanding. (lines 3975–3980)

Collecting their own dataset – either by scraping data or by directly receiving the data from other sources – helps data journalists become less dependent on a single source as well, enabling them to contrast the information from different datasets. Moreover, it expands the portfolio of journalistic resources, and makes it possible to tell new stories:

And then we prefer to get our own database with which we can constantly do something. My colleague and I, [...] we can't keep up with everything daily [...]. But I do that with a few topics [...]. I built that over many years and I think it's one of the best in [the country] regarding [this specific] data. I can use that for any article and then we have our own unique data we can generate. That's very nice [...]. (lines 1889–1894)

Finally, data journalists also emphasise their reliance on colleagues in- and outside the newsroom to check for mistakes or misinterpretations in their analysis of the data. Having a strong community of data journalists beyond the newsroom enables a data journalist to access the skills and judgement of others. Especially for media organisations that do not have a big data journalism team (lines 964–967), these external data journalists can play an important role in ensuring editorial independence. Having reliable professional relationships outside the newsroom helps data journalists deal with external influences on their projects by for example receiving assistance in checking data and analysis, in understanding a dataset provided by a third party, in discovering mistakes, in 'detecting the lies' in the data, and in providing access to data sets. While this mutual support mostly serves quality management purposes, it also provides data

journalists with a network of experts who are not driven by commercial interests or the interests of the organisation they work for but rather by the same journalistic function. This functions as a safeguard that encourages data journalists to ensure their analysis is accurate and editorially justifiable – as a data journalist working for a large commercial media organisation notes, “You know that there will be people who are looking at what you’ve done with scrutinising eyes. People tend to find mistakes if you make them.” (lines 3410–3416).

Which Organisations and Values Benefit from Automation?

The ability to influence reporting by determining what data is easily available, is part of a larger challenge which automation poses to editorial independence in the interviews. Creating new datasets or building a personalisation algorithm which enacts the organisation’s editorial values takes valuable resources. Talking about the ability of organisations to integrate automation, this stakeholder from a legacy media organisation explains:

you need the capacity to, for example, communicate and plan and structure these automated editorial decision-making projects. [...] an editorial [...] team like we have it now, hasn’t been working [here] for so many years. [...]. And so many other newsrooms also don’t have a team like that. And this means that it’s harder for them to bring in the editorial perspective and in the early stages of projects. [...] And it was just a huge process, and it did cost, and it will be costing so much money. But, I think, it’s worth it to stay in control of your own dashboards, because they are really the basis that our news desk uses to make decisions. So, this maybe worked the other way around, but we had the state of being dependent for many, many years. And now we see that it really takes time and many resources to really develop your own solution at this point. (lines 4774–4810)

Highlighting the importance of keeping control over the process of implementing automation (in this case news personalisation) inhouse, media organisations with more resources and financial stability seem to have an important advantage when it comes to maintaining their editorial independence. Simply put, the mechanisms with which media organisations in our sample ensure editorial control over personalisation (such as building prototypes editorial staff can review, creating interdisciplinary teams that determine how news personalisation should be used, or hiring employees that manage the collaboration between technical and editorial departments) cost money, time, and manpower. This cost is easier to bear for media organisations that do not require personalisation to have an immediate return on investment, and have a larger staff that can be rearranged into new organisational structures. Conversely, others might have to cede some of their editorial control in exchange for the implementation of automation by an external organisation in order to keep up with the competing media companies. In the previous section, we have discussed the possibility of ensuring editorial independence and control over the implantation process of automated tools like news personalisation algorithms by embedding editorial values into contracts with external organisations. This alternative approach ensures less editorial control than handling automation within the media company, and especially limits the editorial control at the early stages of development as stressed in the statement above. Therefore, smaller media organisations struggle more than larger, more

established media companies in implementing automation in such a way as to ensure that their editorial values are embedded properly as they have to rely on external companies. While participants pointed out that smaller media organisations due to financial and staff resources may encounter difficulties in implementing automated tools in a way which prevents manipulation and ensures that they fulfil their journalistic role, they also noted that Dutch companies are all small compared to US platforms as well as US media organisations, limiting their independence as media companies on a structural level:

I think every media organization in the Netherlands is a small organization compared to all the big tech and US media organizations [...]. The whole media ecosystem in the Netherlands will be dependent on third-party software. (lines 1694–1697)

At the same time, especially in the context of data journalism, interviewees indicated the potential advantages for smaller organisations created by their flexibility and innovative culture. The latter might be especially found in smaller organisations which have the potential to excel in this field, and outsmart larger media companies:

[I] don't see that challenge, though, because a smaller media organization that is smart in using and trying and experimenting with new technology is much quicker to adopt a new way of working so I think it's an advantage if they do it right, [...]. (lines 563–566)

Playing to the strengths of being a smaller, more agile media company and being strategic about automation from the beginning, is described as a chance to implement automated tools quickly and independently from external organisations. This could offer a wider range of media organisations the ability to reap the benefits of automated tools, and use them to provide different perspectives – or in terms of the functions of editorial independence in European media law, support pluralism and power dispersal. Consequently, where automated tools which require significant resources or financial stability to develop can provide an advantage for a small set of media organisations, automated tools which can be developed by smaller teams and a quicker return on investment potentially benefit smaller independent media organisations.

Discussion

Media actors working with automated tools have conceptualised editorial independence in a similar manner to the approach in European media law. Both take an instrumental approach to the need for editorial independence in the context of automation, defining its value in terms of its ability to enable the media to serve the audience and democracy (Gibbons 1998; Karppinen and Moe 2016; Schulz 2014). When asked to reflect on concrete functions of editorial independence in European media law, the participants noted that, while all aspects are important to their work, the need to insulate the audience from external influences and enable media actors to fulfil their democratic role is particularly pressing. They framed structural challenges, such as the danger that a decrease in editorial independence would limit pluralism and concentrate power in the media system, in terms of their implications for individual media actors to fulfil their role (Hamada et al. 2019; Schulz 2014). This normative overlap is

key, as it indicates that legal and journalistic efforts to safeguard editorial independence in the context of automated decision-making can do so with a shared purpose.

The interviews revealed a number of challenges to editorial independence. Below, we highlight three of these challenges, and explore their implications for the way in which law can be used to support editorial independence.

As other researchers have emphasised and this study confirms, automation requires a collaborative process to implement (Ananny 2018; Bodó 2019). This collaboration is not inherently incompatible with editorial independence. Indeed, interviewees underlined that collaboration is an important way to retain editorial independence in the context of automated decision-making. In particular, collaboration between actors with editorial and technical expertise enables media actors to ensure that their editorial values are enacted in the context of news personalisation, and to better scrutinise data provided by external parties forming the basis for data journalism reporting. However, for collaboration to support editorial independence, editors and journalists must be able to effectively assume their role in the process needed to automate editorial decision-making. The study indicated a number of factors which can limit their ability to do so. These include the existing organisational structure determining which department leads automation projects, the stage at which editors and journalists are involved in such projects, and the existence of prototypes or metrics which allow them to provide feedback on the way in which automated tools are used or developed.

These internal organisational matters have increasing relevance in ensuring editorial independence in the context of automation. They also fall outside the traditional focus of regulation which safeguards editorial independence in the sphere of private actors, specifically aimed at limiting external (commercial) influences or media concentrations (Arena et al. 2016; Baker 2006; Gibbons and Katsirea 2012). Further research is needed to explore the extent to which editors' and journalists' ability to fulfil their role is challenged in different media systems and in relation to different technologies, and what role (if any) media law can play to address this challenge. The results point to two types of legal measures which are particularly worth exploring in further detail. The first concerns policy measures which endeavour to increase media actors' ability to fulfil their role in the digital media system. These measures often focus on providing skills training or financial support to sustain independent media organisations. However, in order to support media actors' independence in the context of automation, it is increasingly important that they have access to the tools which they need to assume their role in the process needed to automate editorial decision-making. This can involve among other measures investment in the development of metrics which allow editors to identify how a personalisation algorithm affects different aspects of a value such as diversity (CoE 2019; Vrijenhoek et al. 2021). The second type of legal measures are those which strengthen the position of the newsroom vis-à-vis other departments. The Dutch Media Act, for example, requires media organisations to contractually outline the rights of the editorial department in relation to the publisher (Commissariaat voor de Media 2021; Mediawet 2008, art. 2.88, 3.5). The interviews brought up a number of mechanisms which could concretise such agreements, including intermediaries who ensure a smooth collaboration between editorial and technical

departments, and formal agreements that editorial departments should be consulted early and without distinctions between the stages of the editorial process at which automation is implemented. Drawing on these mechanisms could allow legal frameworks to be used to strengthen media actors' ability to exercise editorial control over automated decision-making within their organisation.

A second but related challenge to editorial independence concerns the media's collaboration with external actors involved in the automation of editorial decision-making. In our study, this challenge particularly regarded outsiders who provide the data needed for data journalism reporting. Interviewees working with news personalisation indicated that they had developed the technology in house in part to retain editorial control. This strategy was less feasible for data journalists, who more often had to collaborate with outside actors to make datasets accessible and carry out their analyses. Where collaboration occurs with outside actors, ensuring the availability of alternative data sources or technologies can strengthen media actors' position. Interviewees especially indicated the need to be able to gather their own datasets, which allowed them to better scrutinise, or avoid having to rely on datasets provided by third parties. Although regulation can and has been shown to limit journalists' ability to make use of this tool to safeguard their independence, for example by limiting their ability to collect data through web-scraping, this was not a prominent concern raised in the interviews (Wiley 2021). Issues mentioned instead revolved around cases in which the government itself acts as a data source. Even if freedom of information regulation formally structures the relationship between journalists and government actors, interviewees signalled the presence of a number of obstacles in the context of data journalism. These related especially to the inconsistency of the format in which information was supplied and the time-consuming nature of forcing multiple smaller government departments to provide what would only be a small part of the final dataset (Silver 2016).

The final challenge is associated with new structural dependencies. The resources needed for automation create a new challenge to editorial independence by reallocating the power to determine if and how editorial decision-making is automated. For example, the cost of gathering the datasets needed to tell new stories or developing personalisation algorithms which are tailored to the editorial approach of a specific media organisation was a recurring theme in the interviews. This expense potentially puts organisations with large technical or financial resources at an advantage over smaller media organisations. The latter are potentially less able to reap the commercial benefits of automated tools or to use them to promote their editorial values. The unequal accessibility of automated editorial decision-making moreover leaves the media system as a whole open to new concentrations of power from parties which invest in making specific forms of data or technology more easily available (Cushion, Lewis, and Callaghan 2017; Fanta and Dachwitz 2020; Parcu and Brogi 2021). The interviews revealed a number of ways in which media organisations manage to retain their independence in the face of these dependencies. Such methods include focussing on cheaper forms of automation, where their small size and flexibility can prove to be an advantage, as well as working with third parties to tailor the tools provided to better reflect the organisation's editorial values. Nevertheless, media law has traditionally also

played an important role in this context by creating the conditions under which media organisations can retain their independence, for example through media concentration and ownership limits (Arena et al. 2016; CoE 2011). In order to address this concern of unequal accessibility for automation for different organisations promoting diverging editorial values, media law needs to refocus its attention to the data and technology which media organisations can use to enact their own editorial values. It could for example aim to prevent new concentrations of power by ensuring that the data and technology needed to automate editorial decision-making are accessible to a wide variety of media organisations, and by stimulating competition between the organisations which provide these technical resources. Additionally, regulatory initiatives have to consider which media organisations will benefit from the technological resources which are (made) available to support the independence of an array of media organisations (Brogi et al. 2020). This aspect remains undervalued in policy initiatives which tend to frame technology and data as a homogenous resource equally useful to all editorial perspectives and media organisations (European Commission 2020b, 2020a).

There are several limitations to this study. Its focus on a relatively small number of western-European media organisations means that the generalisability of its conclusions, especially to other media systems, is limited. Moreover, the study did not include the perspective of media organisations which do not use data journalism or news personalisation (e.g., because they cannot afford to or because their editors are able to reject their use), as well as media organisations whose editors and journalists are not involved in the use of automation (e.g., because the technologies are not perceived as editorial processes, or are supplied as off-the-shelf solutions by a third party). Particularly the latter causes potential challenges to editorial independence which are relevant to include in future research on the way in which automation prevents editors and journalists from fulfilling their societal role.

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