

“Our task is to demystify fears”: analysing newsroom management of automation in journalism

Short title: Our task is to demystify fears

Marko Milosavljević, University of Ljubljana, Slovenia

Igor Vobič¹ University of Ljubljana, Slovenia

Accepted Manuscript:

Marko Milosavljević & Igor Vobič, “Our task is to demystify fears”: Analysing newsroom management of automation in journalism, *Journalism* (Online First, July 5, 2019) pp. xx-xx. Copyright © [2019] (SAGE). DOI: [<https://doi.org/10.1177/1464884919861598>].

Suggested citation:

Milosavljević, M., & Vobič, I. (2019). ‘Our task is to demystify fears’: analysing newsroom management of automation in journalism. *Journalism* 39. <https://doi.org/10.1177/1464884919861598>

Abstract

The study explores uses of algorithmic techniques in journalists’ working environments and investigates newsroom managers’ negotiations of automation as innovation process aimed at ensuring partial or full replacement of human labour with technology. Drawing from 15 qualitative interviews with representatives of newsroom management from legacy news institutions in the United Kingdom, Germany and the United States of America, the study analyses their (cl)aims to maintain the newsroom as a stable, but dynamic working environment and reveals three dualist propositions when negotiating automation novelties – human journalistic agency stands in contrast to technology, skills are separated from newswriters, and the creation of news contrasts with its presentation. The results show the interviewees re-articulate the dominance of human agency over technology, re-establish technological innovations as liberating newswriters rather than subordinating them, and standardise news by re-evaluating the concept as both a civic bond and a commodity. Such considerations are detached from recent concerns about automation of human labour and closer to what we call algorithmic sublime, maintaining the newsroom management’s loyalty to both the professional values of journalism and the corporate goals of management.

Keywords

Journalism; technology; automation; newsroom management; qualitative interviews

Introduction

¹ Corresponding author:

Igor Vobič, Faculty of Social Sciences, University of Ljubljana, Kardeljeva ploščad 5, 1000 Ljubljana, Slovenia. E-mail: igor.vobic@fdv.uni-lj.si

The work of those who (are) manage(d) in the newsroom of today appears to be more complex than ever. Automation is becoming present in newsrooms, particularly in more tech-savvy ones, but its development and utilisation remains a matter of continuous experimentation, even controversy. Historically, the technological innovation in the newsroom is not linear, but a diverse and sporadic process – although institutionally managed new technologies have not only shaped how news is produced, but also how journalism is understood (Hardt, 1998; Örnebring, 2010). In recent journalistic pieces fears and hopes about automation are reflected, for instance “The robot journalist: an apocalypse for the news industry?” (Guardian, 2012), “How algorithms and human journalists will need to work together” (The Conversation, 2017), or “When robots write the editorials, all will benefit” (Financial Times, 2018). Rather than the continuity of the utopian rhetoric of the “electrical” (Carey, 1970) and “digital sublime” (Mosco, 2004) these discussions appear as a follow-up to concerns about the automation made in the 1950s, such as by Norbert Wiener (1950/1989) or Friedrich Pollock (1957). The former saw revolutionary implications of automation as a “two-edged sword” that might “if left wholly in the control of short-sighted, profit-maximizing industrialists” result in mass unemployment to an extent that the depression of the 1930s would seem a “pleasant joke” (Wiener, 1950/1989: 162). The latter does not share, as he argued, Wiener’s “gloomy forebodings” (Pollock, 1957: 247) arguing that a long term view and plan for the future is needed to integrate automation (as a “blessing”) in a “free and democratic society” in order to alleviate utilizations of technological innovations (as a “curse”) in the established social relations (ibid.: 253). Contemporary discussions address similar complex social consequences as a larger transformation of work due to automation is expected, including in stagnant sectors (McKinsey Global Institute 2018) as numbers of also ‘white-collar’ workers face displacement by machines (Pew Research Center, 2014; Ford, 2015; Davenport and Kirby, 2016). Within journalism and with the state of technology in global newsrooms being a main concern, a survey by the International Center for Journalists (2017) concluded that “journalists are not keeping pace with the digital revolution”. Whether understood as self-criticism or powerlessness, this calls for attention in the wake of the automation novelties already shaking up the newsroom.

To explore these alterations, we approach automation not just as algorithmic techniques of fully or partially replacing human labour with technology beyond initial engineering, but as institutionally managed innovation process for dealing with issues that journalists face when gathering, assembling, creating and delivering news. We see automation as being part of larger and longer epistemological transformation within journalism, known as the “quantitative turn” (Coddington 2015), re-articulating values and practices of grasping and representing social reality and making journalism’s rationales increasingly reliant on quantification and computation. With the emerging “new knowledge logic” (Gillespie 2014, 192) on the horizon, the question is how procedural choices of an algorithm constructed by a human to proxy or enhance newswork converge with or diverge from subjective character of rationalisation in the newsroom. There is no simple answer as social implications are grave and complex.

The introduction of automation has spurred debates on the affordances and constraints of various human–automation modes, such as ‘data’, ‘computational’ and ‘automated’ journalism (van Dalen, 2012; Anderson, 2013; Karlsen and Stavelin, 2014; Napoli, 2014; Cohen, 2015; Coddington, 2015; Splendore, 2016; Splichal and Dahlgren, 2016; Carlson, 2017). It should not come as a surprise that scholarship provides a variety of assessments of

these complexities – also conflicting. In this light, some assessments state that automation brings the potential to augment journalism by freeing journalists up from routine tasks and saving time for creative work, by aiding newsrooms to find relevant stories in large data that might be overlooked by human agency, and by tailoring news to be of interest and relevance to the public. There are also concerned voices exemplifying the deskilling and increased layoffs, unprecedented legal and ethical problems, further commodification of news through mass personalisation, and greater degradation of professional journalism with respect to non-journalistic digital modes. These problems suggest that further studies should not solely concentrate on the mere implementation of automation, but examine the strategies of technological innovation and the ways it is perceived.

In scholarship on automation in journalism investigations of newswork-management dynamics have been only marginally explored (Cohen, 2015; Bucher, 2017; Slaček Brlek, Smrke and Vobič, 2017). However, scholarship provides insights into practices and perceptions (van Dalen, 2012; Young and Hermida, 2015; Thurman et al., 2017), profoundly discusses epistemological implications (Splendore, 2016; Coddington, 2015; Carlson, 2017) and reconsiders legal and ethical issues of recent human–automation modes of journalism (Dörr and Hollbuchner, 2017; Diakopoulos and Koliska, 2017; Montal and Reich, 2017). To add to these discussions, we explore automation through the negotiations of newsroom management – a ‘breed’ of editors that has affirmed itself in the last three decades, manoeuvring between news and business ideals and interests (Underwood, 1993/1995: x) – and its role in dynamics of the “appropriation of journalists” (Hardt, 1998: 194). This process of incorporating journalists into news production re-articulates technological innovation, newswork and news forms as well as re-establishes the values of journalism and the boundaries of its (cl)aims. The overriding goal is to analyse how automation is being utilised in the newsrooms of legacy news institutions and, primarily, how newsroom management negotiates automation novelties in the larger contexts of journalist–technology interplay, newswork, and forms of news.

The first part reconsiders management of the newsroom by historicising its role and contextualising its dilemmas in the wake of emerging automation. The empirical part draws from a qualitative analysis of semi-structured interviews with a particular breed of editors – here referred to as the newsroom managers – from the United Kingdom, Germany and the United States of America, which include public and commercial news institutions with regional, national and/or international relevance. By mapping the human–automation modes and revealing newsroom management propositions, the study discusses the journalist–technology interplay, newsroom relations, and people’s engagement through news in the context of larger issues of journalism.

Newsroom management in the automation age

Throughout its modern history news institutions perform as hybrid organisations trying to reconcile the corporate motives of media managers and the professional values of journalists. Although the hybridity in question is approached distinctly – for instance, in media management studies as an integral factor of strategic innovation (Altmepfen et al., 2007; Aris and Bughin, 2009) or in critical journalism scholarship as a contained conflict reflecting deeper social struggles in the newsroom and beyond (Underwood, 1993/1995; McManus,

1994; Hardt, 1998) – it is a fact that news institutions have jointly nurtured journalism’s public mandate as well as profit-seeking business expertise – not by blending, but by separating them. Although the news-business dynamics appear as being in opposition, a much more complex contradictory connection is at hand, or as Carl Bücher (1901: 243) would put it, they reflect the “intellectual and economic intercourse”. Through a continuous negotiation of the news–business divide, often referred to as the “Chinese Wall” – “between the business people and the creators” (Aris and Bughin, 2009: 346) – journalism gradually developed standards and reaffirmed itself as publicly valid authority (Coddington, 2015: 67). While journalists have maintained this barrier to safeguard autonomy, publishers have reproduced it as “fiction” (Underwood, 1993/1995: 124), nurturing it as a principle for shaping editorial policies and culture, containing potential newswork-management tensions, and for retaining an influence over innovation strategies.

The newsroom has evolved as “a laboratory for technological innovation” and “a battleground of economic and social interests” (Hardt, 1998: 173), while its social relations and processes have not been static. In the last three decades, creativity and criticality have been subordinated to the reciprocity of coercion and consent, reaffirming newsroom conformism to editorial policies, employment arrangements, and technological innovations. These dynamics have been identified in the seminal newsroom studies which indicate that conflicts between different sets of norms and values have been ‘normalised’, emerging as ordinary, routine and reasonable, reconstituting social relations and concepts of innovation (Bantz, 1985/1997). Recent scholarship also shows strategic aims to re-establish the newsroom as a stable, yet dynamic environment of innovation by incentivising journalists to change their priorities (Bunce, 2017) or by making the production appear as a game (Ferrer-Conill, 2017). To keep the newsroom as an environment for the appropriation of journalists, the lines between ‘workers’ and ‘managers’ is strategically blurred through the professionalisation (c)aims. This convergence is best embodied in “in-between” positions (Örnebring, 2010: 62), most notably the newsroom management.

Since the 1990s, the heyday of “MBA journalism” (Underwood, 1993/1995), “a new breed of editor” has started to dominate the news industry, whose “loyalty to corporate profit and marketing goals” infuses all newsroom decision-making (ibid., x). Recent evidence suggests that strengthened “managerialism” among the newsroom leadership (Andersson and Wiik, 2013) is accompanied by a transcending of the news–business boundary, but has also legitimised intensified workloads, precarity, and layoffs (Paulussen, 2012). In the wake of these developments, research on human–automation modes of journalism shows the emancipatory potential of automation indeed provides opportunities to save labour and to augment journalism’s civic substance (Anderson, 2013; Coddington, 2015; Splendore, 2016), although there are also strong tendencies to erode them by making newswork more productive and efficient (Cohen, 2015; Splichal and Dahlgren, 2016; Carlson, 2017).

As various human-automation modes with different levels of human involvement emerge in the newsroom, the relevant questions are not only *how* automation is being implemented as algorithmic techniques and what the larger implications are, but also *why* automation is introduced and *how* it is perceived as innovation process by strategic decision-makers. These questions concern the work of those who (are) manage(d) in the newsroom from at least three perspectives – (1) the interplay between journalists and technology, (2) newswork and the

dynamics of skill, and (3) the concept of news. The next three sections discuss automation from these perspectives and elaborate on its implications for the newsroom.

Journalist–technology interplay: maintaining distinctiveness

Technologies are not mere tools in human agency, but point to entrenched social relations, processes and imaginaries in the newsroom (Carlson, 2017: 228). The journalist–technology interplay significantly reflects the newsroom as a specific environment of knowledge production, where meaning creation takes place through human–machine communication (Lewis et al., forthcoming). Journalism emerges as technologically-specific, where new technologies are distinctly articulated as “exemplars of continuity”, “threats to be subordinated”, and “possibilities for reinvention” (Powers, 2012: 24).

Studies (van Dalen, 2012; Carlson, 2015; Bucher, 2017; Linden, 2017; Thurman et al., 2017) indicate that automation is becoming a more common feature of journalism, bringing complex implications, but not threatening it. Among journalists, a traditional technological scepticism towards automation is not prevalent, as a “strong capacity for adaptation and mitigation of new technology” can be observed (Linden, 2017: 136). Scholarship also acknowledges discursive strategies of maintaining distinctiveness in the journalist–technology interplay. In some cases, technology is seen as a tool without “instincts” (Bucher, 2017: 1) or a “nose for the news” (Thurman et al., 2017: 1240) that brings opportunities to continue the need for human journalists and possibilities for reinvention. Other studies indicate a “technological drama” (Carlson, 2015: 416) over potentials to advance journalism, professional norms, and the social status of newswork.

Newsroom management’s manoeuvring between corporate interests and journalistic values not only runs into ontological, ethical and social dilemmas of the ‘post-human future’ of journalism (Carlson, 2017), but also show the realities of the “new knowledge logic” (Gillespie, 2014: 192). As subjective and intuitive choices in the newsroom – authorised through professional socialisation and validated by the public – meet algorithmic choices that are programmed to automate proxy human judgement or enhance it, newsroom management has become increasingly complex in its aim to keep the newsroom stable and viable.

Newswork: reskilling, upskilling or deskilling?

Changes in newswork are linked to management’s needs for rationalisation and production stability, where technology is used to make production and distribution more effective and controlled (Örnebring, 2010: 65). The conflict between corporate motives and journalistic values is most radically reflected in sweeping visions of utilising automation for cost-savings and the extensive replacement of the human labour of some media executives (Hollander, 2013). The dynamics of skill change are complex, reflecting different modes of “dependence” on technology and various respective facets of journalism (Lewis and Westlund, 2016: 346–347) – from those that are not dependent on technology, through facets where human-led practices are supported by or reliant on technology, to “technology-oriented journalism” where technology has more power and sophistication.

Recent technological innovations have required a change in the skills (van Dalen, 2012; Karlsen and Stavelin, 2014; Carlson, 2015; Thurman et al., 2017) and the introduction of new workers in the newsroom, often labelled ‘technologists’ (Coddington, 2015; Cohen, 2015; Dörr and Hollnbuchner, 2016; Linden, 2017). These studies discuss journalism-specific skills and their change through technological innovation, signalling degrading as well as upgrading affects. The intertwined processes, such as ‘reskilling’, ‘upskilling’ and ‘deskilling’, that affect various parts of the newsroom differently, are defined by varying degrees of autonomy and security of employment, as well as larger factors like gender, race and age. Automation is introduced through a combination of promises and opportunities to augment the “very human skills that good journalists embody – news judgement, curiosity, and scepticism” (Thurman et al., 2017: 1240), and risks and fears to reduce newswriters “to machine operators that increasingly experience a motion of meaninglessness” (Linden, 2017: 135).

In this changing mix of skills and statuses, newsroom management faces asymmetries and tensions brought by human–automation modes of journalism that interrogate the established strategies to maintain the manifold conflicts within controllable boundaries – not only between ‘humans’ and ‘robots’, but also between and among different groups of newswriters.

News: between public relevance and personalisation

At its heart, news as a concept is paradoxical: the value of ‘doing it for the public’ reflects the “depth appeal” of information as a tool to comprehend social life and engage in it, while its market-drive indicates the “surface appeal” of a commodity (Underwood, 1993: 76). While one can identify the rise of ‘contextual journalism’ (Fink and Schudson, 2014), there is also the negative face of the popularisation process (‘tabloidisation’), modes of highly routinised information packaging (‘churnalism’), and vast non-professional and precarious content creation aimed at click-baiting (‘content farming’).

Arguments that human–automation modes of journalism can strengthen public capacity for news (Coddington, 2015: 332) are countered by strong ‘rationalisation’ imperatives that subordinate news to affordances of ‘automated’ journalism (Cohen, 2015). Through the process of standardisation, forms of news are being emulated through algorithmic processes for data assemblage and text generation with different degrees of human involvement (Carlson, 2015). With automated news creation beyond sports and finance reporting at its outset, initial experiments suggest that readers have trouble discerning algorithm- from human-written texts (Clerwall, 2014; Haim and Graefe, 2017). Further, the combination of audience metrics and automation is changing not only the modus of ‘deciding what’s news’ and the production routines (Anderson, 2011; Cohen, 2015), but also the ways of distributing, presenting and engaging in news. Automated journalism includes not just “the horizontal expansion of the total amount of stories”, but also “the creation of multiple – even personalized – of the story to appeal to different audiences” (Carlson, 2017: 231), reviving the ideas of automatically created personalized “Daily Me” (Negroponte, 1995), and niche stories through “the long tail” (Anderson, 2007). Initial research suggests managers, editors and newsroom developers perceive personalisation as problematic because it challenges the basis of what news is or should be in an informed society (Bucher, 2017: 9).

With the concept of news changing, the newsroom management reconsiders not only the old dynamics between the surface and deeper appeals, but also – empowered by algorithms and audience metrics – new ways of standardising news as a civic bond or commodity by re-evaluating not only *what* news to produce, but also *how* to present and deliver it and *why*.

Methodology

To better understand how news institutions transcend the hybridity of the corporate interests of owners and managers and the public (c)aims of journalists in the process of technological innovation, we focus our empirical study on newsroom management and the rationales behind automation. We aim to explore the **main research question**:

How does newsroom management negotiate automation in the newsroom?

To address it, we use the method of in-depth interviews with newsroom staffers who hold both editorial and managerial duties at legacy news institutions from Germany, the UK and the USA. Three reasons underlay the interviewee selection (Table 1). First, we aimed to gather and analyse perceptions of newsroom staffers from the inner circle of decision- and opinion-making. Because they have mixed roles of editors and managers, as also seen in their formal titles, they have experience in the utilisation and negotiation of automation novelties. Second, we focused on legacy news institutions since they remain crucial sources of news and the main advocates of public value journalism, despite encountering difficult changes perpetuated by issues of political (ir)relevance, business (un)sustainability, and innovations. Third, we limited ourselves to the three selected countries as their news institutions act as important trendsetters, some with global relevance. These three reasons reflect shared characteristics of the interviewed: first, similar managerial positions in the newsroom; second, legacy tradition of professional roles and organisational structures; and third, working for news institutions within mature media environments with long traditions of modern newsroom organization.

Table 1: The interviewees

Editorial position, news institution(interview type)	Date	Reference
Associate editor and management editor, <i>Financial Times</i> (Skype)	20/09/2016	(intFT1)
Head of interactive news, <i>Financial Times</i> (in-person)	18/07/2016	(intFT2)
Technology editor, <i>Guardian News & Media</i> (in-person)	19/07/2016	(intGuardian1)
Executive editor of digital, <i>Guardian News & Media</i> (in-person)	19/07/2016	(intGuardian2)
Editor-in-charge, <i>Reuters.co.uk</i> (in-person)	20/07/2017	(intReuters)
Mobile and new formats editor, <i>BBC News Online</i> (Skype)	13/06/2017	(intBBC1)
Digital development editor and video editorial lead, <i>BBC World Service</i> and <i>BBC News</i> (Skype)	15/12/2017	(intBBC2)
Editor-in-chief of digital media, <i>Frankfurter Allgemeine Zeitung</i> (Skype)	05/05/2017	(intFAZ)
Head of innovation projects and new media, <i>Deutsche Welle</i> (Skype)	30/03/2017	(intDW)
Head of <i>Bayerischer Rundfunk</i> data team, <i>ARD</i> (Skype)	15/05/2017	(intARD)
Head of <i>Taz.de</i> , <i>Tages Zeitung Berlin</i> (Skype)	25/04/2017	(intTAZ)
Head of data journalism, <i>Spiegel Online</i> (Skype)	21/04/2017	(intSpiegel)
Editor-in-chief of <i>SZ.de</i> , <i>Süddeutsche Zeitung</i> (Email)	10/04/2017	(intSZ) ¹
Editorial director for the news desk, <i>New York Times</i> (in-person)	04/10/2017	(intNYT)
Director of news partnerships and newsroom lead on the automation	27/06/2018	(intAP)

The interviewees were senior figures with an average of around 20 years of experience in journalism with a minimum of 10 years. Except for two interviewees who have an educational background (also) in the natural sciences (intSpiegel) and applied sciences (intDW), the others finished university programmes in the social sciences (journalism in particular), arts and humanities, therefore being self-taught in programming, information technologies and artificial intelligence.

The in-depth conversations were conducted as semi-structured interviews in editorial offices in New York and London or via Skype, with the only exception being an ‘e-mail interview’ (intSZ). The first author performed as the interviewer and approached the conversations as “active interviews” (Holbstein and Gubrium, 1995). Although an interview guide structured them according to the central problem matter, the interviews departed from minimally directive standardised types towards more flexible interview activity with a careful consideration of “what is said in relation to how, where, when, and by whom experiential information is conveyed, and to what end” (ibid.: 158). Each conversation provided answers to demographic questions (background information on newsroom managers), experience and knowledge questions (information about the use of automation in the newsroom), and opinion questions (interrogating automation novelties with regard to the newsroom management–newswork dynamics) (Patton, 1980/1990). Conducting the interviews in person allowed us to gain additional valuable insights from automation novelties being introduced in the newsroom (particularly, at *Financial Times* and *Reuters*). These not only gave us first-hand impressions of technological innovations, but made those interviews more thorough and rich in detail.

The initial 12 interviews focused on the interviewees’ understanding of the core ideals of professional journalism and their re-articulation in the automation context, which findings we reported elsewhere (Milosavljević and Vobič, 2019), while they also explored newswork-management dynamics. Additional three semi-structured conversations with interviewees from the UK and the USA specifically dealt with strategies behind the utilisation of automation in the newsroom and how this process is negotiated. Since the interviewees stressed that their answers reflect personal opinions and not official positions of their news institutions, the data are not publicly available as they contain information and interpretation that could compromise participant consent. However, the transcriptions of interviews – they had an average length of about 38 minutes (shortest: 23 minutes; longest: 69 minutes) – are available from the authors upon reasonable request and with subsequent permission of the interviewees. The interviews were analysed using an adaptation of the McCracken’s (1988) multi-step process of qualitative interview analysis. By reading the transcriptions we made preliminary descriptive and interpretative categories. Then, by thoroughly examining these, we identified connections and patterns in the narratives and thereby determined basic themes and propositions. We compared them across the data and identified the dominant ones.

Results: Newsroom management’s dualist propositions on automation

The analysis shows that the use of automation in the respective news institutions is at its outset, some acknowledging their newsroom is in an “early” or “experimental” stage of

development (intDW) or practising “tiny” (intARD) or “rudimentary” automation (intNYT). There seems to be an agreement among the interviewees that automation as algorithmic techniques which generally ensure the partial or full replacement of humans with technology in different phases of production are not, as some put it, a “threat” (intGuardian1; intBBC1; intDW) or a “danger” (intARD). On the contrary, the interviewed share an understanding of journalism as a unique public-spirited activity that may be “augmented” (intGuardian2; intFT2) through automation, but should not be stripped of its human character and respective rationales. The analysis indicates that newsroom management is aware of larger debates on automation as innovation process – some explicitly refuting the “robots are coming for us” visions as being “misplaced” (intFT2) – as well as mindful of its complex implications for the newsroom.

“Our task is to demystify fears”, stresses the head of innovation projects and new media at *Deutsche Welle*, capturing the predominant reconsideration of the newsroom management’s role in maintaining tensions and reaffirming the newsroom as a stable working environment. When the newsroom managers negotiate automation, three dualist propositions can be identified in their discursive maintenance of the newsroom as a space of technological innovation: (1) human journalistic agency stands in contrast to technology; (2) skills are separated from newswriters; and (3) the creation of news contrasts with its presentation.

Proposition #1: Human agency vs. technology

The analysis indicates a dualist proposition whereby human agency is contrasted with technology, reconsidering automation through an ‘us’ and ‘them’ antagonism. Self-reliance of human journalists with particular competencies and capabilities is proclaimed, while the affordances of technology and its role in journalism are reduced.

I've no ideological problems with a machine writing a text where a machine can write a text, where it makes sense. The robots are not very developed so far, they get better and better, but so far, they can't analyse a political result. [...] [A]t the moment, no software could replace a single person in the editorial team here. (intFAZ)

[W]e are all well served by letting computers do the things that computers are good at, and letting people do the things that people are good at. And I think a lot of journalism comes under that label of things that people are good at. [...] It requires a certain ear, and a certain eye, and a certain level of judgment that I think would be hard to replicate. That said, if the computer can, you know, fix our spelling mistakes or flag that we got someone's title wrong, then great. (intNYT)

There is all this reporting about how suddenly journalists are going to go away and it's all going to be replaced by algorithms and this and that's just bullshit. It's just bullshit. It's not going to happen. Period. Because Edward Snowden is never going to trust an algorithm, you know. Edward Snowden is not going to secretly make contact with an algorithm. [...] A computer is never going to be as good as a human being at saying “Oh, that's interesting”, because a human being is writing for human beings. (intGuardian2)

Sharp boundaries are used to self-legitimise conventional journalistic methods and refute visions of a post-human future by representing automation as a tool for continuing ‘business as usual’. The interviewee from the BBC talks about “original journalism” which “can only be done by people going out and actually talking to other human beings” (intBBC2). A similar point is made by the editor-in-charge at *Reuters.co.uk*, arguing “you always need the input of a journalist”, stating “you can’t automate journalism away”. Ways of using automation support this proposition. Automation is considered as assisting newsrooms in becoming more efficient. The implemented technologies namely help journalists clean and transform large datasets (*Guardian*), apply automatic translation to videos also by using synthetic multilingual voices (*BBC*), autonomously crop photographs or adapt produced content for delivery across platforms and editions (*New York Times*, *Guardian*, *Reuters*), and speed-read press releases (*Reuters*).

Two interviewees indicate these novelties imply a continuation of the logic of knowledge production, while seeing automation – at least for now – as a set of techniques that proxy human judgement in tasks that are not vital for retaining what we know as journalism.

If we can write a computer programme to replace the thing that you do every single day, you have to question whether that was journalism in the first place. (intGuardian2)

Anyone who’s doing something that a computer can do just as well or better and faster could probably be doing something else with that brain power and that time. (intNYT)

The interviewees feeding this proposition do not report strategic decision- and opinion-making with respect to automation that would span across editorial, business and development departments. They argue automation does not affect their core journalistic practices and any disruptions are therefore containable, “Unless somebody was able to show a machine way of doing something which was better than the way we can do it with people, it wouldn’t even see discussion” (intGuardian1).

Proposition #2: Skills vs. newsworkers

Using another dualist proposition, the interviewees separate skills as abilities to perform certain tasks from newsworkers – not just journalists, but also other workers in the news production. The newsroom managers negotiate automation as a stimulus for the newsroom to do, as one proclaimed, “more and better” (intFT1). The interviewees assess that the mix of skills is being transformed with automation, going beyond the boundaries between journalists and “technologists” (intAP) and “liberating” (intFT2; intAP) newsworkers from tedious routines. According to the representative from *Spiegel Online*, “algorithms” should be used to perform tasks that “are really the same every time” and “journalists should not be doing” them at all. There is a common argument that the transformation of skills is happening outside the process of appropriation – not by making humans obsolete as newsworkers by introducing new technologies, but by allowing them to reskill or even upskill themselves.

The interviewees reconsider automation as an impetus that would “free up” journalists and other newsworkers (intDW, intFT2) by enabling them to leave time-consuming and highly

routinised tasks to technology and to spend the time saved on strengthening analytical and investigative skills.

Some of those jobs will be gone, but they would've been gone eventually anyway, right? [...] Not because we don't want that person to be employed by the FT but we want that person to be spending more time more constructively. [...] So we've not eliminated jobs, we've liberated people from routine work, essentially, that they're overqualified to do. (intFT2)

You can make a case for that being damaging to someone who loses a job because of it, but most of the people I know, who are sort of highly creative and eager to push forward at what they're doing, would gladly give up tasks that they didn't want to be doing in the first place. (intNYT)

[I] think we could convince those who had fears in that direction to not worry that their work will be in danger anytime soon. And on top of that, we could rather demonstrate that anything that's being automated would maybe free up more of their time for some creative writing or for more investigative task. (intDW)

Besides the automated cropping of photographs that allows the faster re-production of stories across platforms (*New York Times*), the interviewees provided additional examples supporting the reskilling thesis. One is an online verification platform that integrates a variety of tools, such as Google Maps, TinEye, Yandex, Snopes, Pipl and others, to substantiate whether certain digital content is accurate or not (*Deutsche Welle*). Another example is the automation of “hugely time-consuming” and “hugely boring” tasks in chart and graphics creation to save time for “more advance work” (intFT2) (*Financial Times*).

The proposition also encapsulates the upskilling argument, suggesting that automation gives newswriters additional skills or, in words of the interviewee from the *Associated Press*, to “help journalists do their job by being smarter” (intAP).

When people say, 'Oh, isn't automation like, you know, aren't you going to lay off a bunch of journalists?' Well, no. That's not why we're using the technology, we are actually trying to free up our journalists, so they can do better work. (intAP)

At the *Associated Press*, among other tools and platforms they aim to establish algorithm-based “social listening” as part of the skillset and enable journalists to “tap into all of that swirl of public conversation” on social media and “sift that data better to understand what our audiences care about and what they are thinking about” (intAP). The interviewed also provide other examples as evidence of enhancing the skills of newswriters. For instance, *Deutsche Welle* used automated prediction and text-generation tools before the US presidential elections in 2016, but “got it wrong like everybody else” (intDW), *Spiegel Online* adopted automated visualisations on the basis of official data streams of football matches in the German *Bundesliga* to enhance analyses written by journalists, while *ARD*'s data team in Munich uses “automated bots” to send thousands of emails to a certain group of actors and retrieve relevant big data, exploring, for example, discrimination in the apartment rental market.

With respect to the dynamics between automation, skills and newswriters, an automation strategy group was set up (*Associated Press*) or its innovation projects required “a lot of convincing work” (intDW) (*Deutsche Welle*), while others report strategic decision-making

confined to separate teams, such as a data team with “bosses interested in digital innovation” (ARD), or separate projects, such as “obvious” speeding up routine tasks in news production stimulated “bottom up” (intFT2) (*Financial Times*) or upskilling football pieces with sports journalists “on board” (*Spiegel*).

Proposition #3: Creation of news vs. presentation of news

This proposition encompasses articulations of forms of news by contrasting their creation and presentation. According to the newsroom managers, the assumption of automated news creation is unworkable for binding public (cl)aims of journalism and corporate interests, while the potential of algorithm- and metrics-based news presentation are regarded as a source for re-evaluating and standardising journalism’s relationship with people.

Newsroom managers stress that creating news and opinion by utilising automation with little or no human involvement impoverishes journalism, is inadequate in civic terms and financially unviable. Three arguments are given to reaffirm news creation and news engagement as constituting solely human activities. One presents automated creation as “devaluing” journalistic contents by making them “look and feel the same” (intBBC1) and thus losing relevance for audience members, another displays “in-depth reporting” as an activity where algorithms are “submerged” because they cannot assess the relevance of news outputs (intTAZ), and the third deems an algorithm to “fail” in creating an opinion piece because without the human factor they cannot stimulate a meaningful exchange among people (intFT1).

If you go too far down the automation path, where it all becomes so commoditised and everything looks and feels the same that, actually, there is no value in this and, therefore, users abandon you. [...] I'd be very, very concerned about just using a lot of automated content because if, you know, if CNN would do the same, then our content would look exactly the same. . [...] You'd start losing, start devaluing, actually, the content by doing that. (intBBC1)

The human factor is absolutely decisive here. [...] I mean, breaking news, it will be the moment when the algorithm helps me, would help me to be aware that there is breaking news, but that would be exactly the moment where I would switch the machine off and send people to assess the situation. (intTAZ)

It [machine] comes up with an article with a witty tone of voice about pay transparency saying that it's a bad thing, but it seems to me, as an opinion piece, it's still going to fail because the people who are reading it want to know that it's being written by a human with whom they can disagree, and indeed have a further argument in the comments section of the article. [...] [I]f you're arguing with a machine about its opinion, first of all, it doesn't have an opinion as such, it has just been trained to write an opinion. You are having a sterile argument because it's with a machine. (intFT1)

In contrast, according to the interviewees, algorithm- and metrics-based news presentation should be considered a source for re-evaluating which news to create and how to deliver it – at least to a degree.

I'm sure you can come up with a mixed model that works. [...] 'These are the five most important things we think you need to search today and the stuff we know you'll like'. And that's fine.. [...] You can't force people to consume the content no one wants to consume. [...] It's up to us to tell that story in a way that appeals to different audiences. (intBBC1)

[I] think it [automation] is going to change the presentation of journalism. [...] I don't imagine that the impact could be more on the consumer side, how we find information, but how does present it to the outside. I mean, it starts with such basic things that you're A/B testing stuff that goes on the webpage or on Facebook or whatever. Just to see how the story that you want to tell is best sold to the audience. It comes more from the business side where automation will be used. (intTAZ)

Most publications including ours are looking at audience engagement, and that is crudely measured sometimes by the number of clicks. [...] You start to build an algorithm of what constitutes engagement, how long does somebody stay in the story? All these things that we're measuring now. [...] The danger of that seems to be that as you're using more databased decisions is that actually people get too wooed by the data and forget that over the long-term people might not want the same story again and again. (intFT1)

While the standardisation of people's relations with the news at best stimulates clicking (in the short run) and at worst deprives meaningful engagement (in the long run), some interviewees make the case for personalisation on the basis of personal interests identified through harvested audience data (*BBC*, *Financial Times*). Simultaneously, however, they argue for the need for the newsroom – that is, the humans within it – to pursue the public essence of news. For instance, an initial step to personalise the website of the *Financial Times* came with the *myFT* feature which provides every user “a slightly different version” (intFT1).

With respect to the forms of news – as a civic bond and/or commodity – the interviewees generally agree that automatic news creation is not regarded as an option of strategic development due to “the character” (intTAZ) of the institutions considered, while algorithm-based news presentation is considered as a new, “turbo-charged” version of an old dilemma of the newsroom management (intFT1) – how to weigh up business viability against the civic value of news.

Discussion and conclusion

By focusing on the management–newswork relations the study contributes to the scholarship on automation in journalism by providing unique insights into not only how automation is being utilised in newsrooms, but also how newsroom management negotiates these innovations. Although automation as algorithmic techniques is used in all phases of production to partially or fully replace human labour with technology beyond initial engineering, automation as an innovation process is still at the outset in the considered newsrooms from the UK, Germany and the USA. The study indicates that utilising and negotiating automation – with *Associated Press* and *Deutsche Welle* as reported exceptions – remain limited to particular teams in the newsroom, emerge on a project-to-project basis or even *ad hoc*. However, this does not mean that newsroom management takes automation

lightly. Instead, the interviewees generally agree that automation novelties are more opportunities to ‘augment’ rather than ‘dangers’ to deprive journalism. Since the newsroom management’s main role is to preserve the newsroom as a stable but dynamic working environment, it is no surprise that in their reconsiderations the interviewees separate rather than blend human and algorithmic agency, refute the asymmetries and tensions brought by human–automation modes of journalism, and argue for the re-standardisation of news through a re-evaluation of their civic and business potential. The study, however, has limitations, particularly in its reliance on a single research method. Although it provides unique insights into how automation is discussed by decisive actors in the inner circles of certain leading news institutions, the qualitative interviews might have reproduced the differences between how the newsroom managers justify automation and how they actually communicate and make decisions. Not only expanding the scope of interviewing to other newsrooms and other actors is needed in further endeavours, but also on-the-ground observations to provide insights into not only discursive, but also material aspects of automation.

Beyond these limitations and findings, the study’s main contribution lies in identifying the dualist propositions in newsroom management’s negotiations where they rely on sharp divisions between subjects and objects as well as phenomena and processes, simplifying the complexities of technological innovation and neglecting the material aspects of the newsroom. Some considerations, however, appear to rely more on hearsay and hypothetical cases than first-hand experience or profound knowledge about automation as the considered newsrooms are mostly in the ‘early’ or ‘experimental’ innovation stages and the interviewees have their educational background mostly in social sciences, arts and humanities. In this context, the identified dualist propositions echo larger historical tensions of news–business divide as well as the contradictions deriving from its erosion. By re-articulating the dominance of human agency over technology, re-establishing technological innovations as liberating newswriters rather than subordinating them, and re-standardising forms of news by re-evaluating the concept as both a civic bond and a commodity, the propositions discursively maintain the newsroom management’s dual loyalty – to the professional values of journalism and the corporate goals of management. Seeing automation as some form of “technologies of freedom” (de Sola Pool, 1983) is detached from the recent visions of work, in which only a few will escape the technological disruption with many jobs facing obsolescence and human labour even being in danger of becoming useless (Ford, 2015; Davenport and Kirby, 2016; Harari, 2017). Furthermore, interviewees’ considerations of automation through the newswork–management dynamics come close to what could be called, by borrowing from Carey (1970) and/or Mosco (2004), *algorithmic sublime*. Namely, the interviewed downplay automation’s degrading prospects for journalism and elevate the revitalising visions of journalism’s public-spirited future by obscuring both corporate realities of newswork evolving through history and news industry’s manifold crises of the digital today. In this sense, the three propositions discussed below reflect the divergent ‘in-between’ position of newsroom management in the process of appropriation of journalists, being in accordance with the hybrid character of news institutions and perpetuating uneasiness in their (cl)aims to maintain the working environment by ‘demystifying fears’.

The first dualist proposition contrasts human agency and technology by putting them in an antagonism between ‘us’ and ‘them’, bringing in-group–outgroup dynamics into the interplay. It serves to prioritise human journalists with their ‘ears’ and ‘eyes’, and to marginalise technology without, as previous research indicates (Thurman et al., 2017: 1240), a “nose for

the news”. Through what resembles the process of in–out homogenisation, automation seems to be considered as mere tools in human hands appearing more as “exemplars of continuity” rather than “possibilities for reinvention” (Powers, 2012), confirming previous similar findings (Bucher, 2017; Thurman et al., 2017). Uncertainty within this proposition has more to do with future human–automation modes of journalism than present articulations where the journalist–technology interplay is discursively arranged through distinctiveness, while material aspects of the newsroom appear natural.

The second dualist proposition – the most salient of them all – separates skills from newswriters, allowing to neglect the material aspects of technological innovation and discussing automation as an opportunity not only to ‘liberate’ by excluding the most routinised tasks from the skillset, but also to develop new skills for a more creative newsroom. As similarly acknowledged previously (van Dalen, 2012; Karlsen and Stavelin, 2014; Cohen, 2015; Carlson, 2015; Thurman et al., 2017), the proposition indicates that the newsroom skill mix is undergoing a considerable change while the newsroom management aims to retain stability – by trying to ‘free up’ production and, at first glance quite paradoxically, by aiming to qualitatively enhance the product. This is done by arguing for “technology-supported” news production (Lewis and Westlung, 2016: 347) whereby journalists do not depend on technology but use automation to enable or enhance work (reskilling); and also by reasoning “technology-infused” journalism (ibid.) where technology is institutionalised as journalists are becoming dependent on its affordances (upskilling). The newsroom managers refute the prospect of newswriters becoming deskilled through automation, as discussed by critical scholars (Cohen, 2015), by arguing that the tasks or jobs eliminated and now performed by technology cannot be regarded as journalistic. Simultaneously, augmenting potential – making newswork more productive and creative – is stressed by reproducing the public essence of journalism and neglecting relations in the appropriation process.

The third dualist proposition contrasts the creation and presentation of news, re-evaluating both the civic and business potential as grounds for their re-standardisation. The proposition rejects “technology-oriented” journalism based on a sort of symbiotic human–technology relationship (Lewis and Westlung, 2016: 347). Here, the human factor remains – as argued – ‘decisive’ for sustaining the public essence, re-establishing news – as a civic bond and commodity – ‘from people to people’, where technology is regarded only as a tool or a medium. At the same time, the proposition accepts the technology-orientation and re-evaluates affordances to stimulate people’s engagement with algorithm- and metrics-based news presentation. The interviewees re-standardise the concept of news by presupposing that human news creation by definition contributes to the “depth appeal” (Underwood, 1993/1995: 76), while news presentation based on the combination of human and algorithmic logics enables the newsroom to stop relying on intuitively seeking the “surface appeal” (ibid.) and start reconsidering ways of stimulating people’s engagement according to ‘the character’ of particular news institutions, also via thoughtful customisation and personalisation.

Unlike the narrative of ‘technology will change everything’ in the rhetoric of the ‘sublime’, discursive traces of the algorithmic sublime among newsroom management do not portray automation as a sharp break but as an incremental development, evolution of previous technological adaptations particularly through digitization of work in general. Namely, according to the interviewees, automation as algorithmic techniques has not just appeared out

of thin air, but has emerged as a cumulative innovation process institutionally managed in the newsroom – with its continuities and transformations. By investigating and elaborating not only the difficult journalism–automation nexus, but also larger social relations and their contradictions sobriety in research on technological innovations in journalism beyond naïve utopian as well as dystopian visions should become conventional.

NOTES

¹ Since the editor-in-chief of *SZ.de* acknowledged that their newsroom has “no case for automating journalism in any way that would have fitted our editorial standards and readers’ needs” (intSZ), this interview was excluded from the analysis of how newsroom management negotiates automation novelties in the newsroom.

REFERENCES

- Altmepfen K-D, Hollifield A-C and van Loon J (eds) (2017) *Value-Oriented Media Management*. Cham: Springer.
- Anderson C (2007) *The Long Tail*. New York: Random House.
- Anderson CW (2011) Between Creative and Quantified Audiences. *Journalism* 12(5): 550–566.
- Anderson CW (2013) Towards a Sociology of Computational and Algorithmic Journalism. *New Media & Society* 15(7): 1005–1021.
- Andersson U and Wiik J (2013) Journalism Meets Management. *Journalism Practice* 7(6): 705–719.
- Aris A and Bughin J (2009) *Managing Media Companies, Second Edition*. West Sussex: John Wiley & Sons.
- Bantz CR (1985/1997) News Organizations. In: Berkowitz D (ed) *Social Meanings of News*. Thousand Oaks: Sage, pp. 123–137.
- Bücher C (1901) *Industrial Evolution*. New York: H. Holt & Co.
- Bucher T (2017) “Machines don’t have Instincts”. *New Media and Society* 19 (6): 918–933.
- Bunce M (2017) Management and Resistance in the Digital Newsroom. *Journalism*: 1–16. DOI: 10.1177/1464884916688963
- Carey J (1970) The Mythos of the Electronic Revolution. *The American Scholar* 39(3): 395–424.
- Carlson M (2015) The Robotic Reporter. *Digital Journalism* 3(3): 416–431.
- Carlson M (2017) Automated Journalism. In: Franklin B and Eldridge II SA (eds) *The Routledge Companion to Digital Journalism Studies*. London: Routledge, pp. 226–234.
- Clerwall C (2014) Enter the Robot Journalist. *Journalism Practice* 8(5): 519–531.
- Coddington M (2015) Clarifying Journalism’s Quantitative Turn. *Digital Journalism* 3(3): 331–348.
- Cohen NS (2015) From Pink Slips to Pink Slime. *The Communication Review* 18(2): 98–122.
- Davenport T and Kirby J (2016) *Only Humans Need Apply*. London: Harper Business.
- de Sola Pool I (1983) *Technologies of Freedom*. London: Belknap Press.
- Diakopoulos N and Koliska M (2017) Algorithmic Transparency in the News Media. *Digital Journalism* 5(7): 809–828.
- Dörr KN and Hollbuchner K (2017) Ethical Challenges of Algorithmic Journalism. *Digital Journalism* 5(4): 404–419.
- Ferrer-Conill R (2017) Quantifying Journalism? *Television & New Media* 18(8): 706.

- Fink K and Schudson M (2014) The Rise of Contextual Journalism, 1950s–2000s. *Journalism* 15(1): 3–20.
- Ford M (2015) *The Rise of the Robots*. London: Basic Books.
- Gillespie T (2014) The Relevance of Algorithms. In: Gillespie T. et al. (eds) *Media Technologies*. Cambridge: MIT Press, pp. 167–194.
- Haim M and Graefe A (2017) Automated News. *Digital Journalism* 5(8): 1044–1059.
- Hardt H (1998) *Interactions*. Oxford: Rowman & Littlefield.
- Harari YN (2017) *Homo Deus*. London: Vintage.
- Holbstein JA and Gubrium JF (2004) *The Active Interview*. Thousand Oaks: Sage.
- Hollander G (2013) Local World’s David Montgomery: “We will harvest content and publish it without human interface”. *Press Gazette*, 24 May. <http://www.pressgazette.co.uk/david-montgomery-we-will-harvest-content-and-publish-it-without-human-interface>
- International Center for Journalists (2017) *The State of Technology in Global Newsrooms*, 21 December. <https://www.icfj.org/sites/default/files/2018-04/ICFJTechSurveyFINAL.pdf>
- Karlsen J and Stavelin E (2014) Computational Journalism in Norwegian Newsrooms. *Journalism Practice* 8(1): 34–48.
- Lewis SC and Westlund O (2016) Mapping the Human-Machine Divide. In: Witschge T et al. (eds) *The Sage Handbook of Digital Journalism*. London: Sage, pp. 354–369.
- Lewis SC, Guzman AL, and Schmidt TR (2019) Automation, journalism, and Human–Machine Communication. *Digital Journalism*. DOI: 10.1080/21670811.2019.1577147.
- Linden C-G (2017) Decades of Automation in the Newsroom. *Digital Journalism* 5(2): 123–140.
- McCracken G (1988) *The Long Interview*. London: Sage.
- McKinsey Global Institute (2018) *AI, Automation, and the Future of Work*, June. <https://www.mckinsey.com/featured-insights/future-of-organizations-and-work/ai-automation-and-the-future-of-work-ten-things-to-solve-for>
- McManus J (1994) *Market-Driven Journalism*. Thousand Oaks: Sage.
- Milosavljević M and Vobič I (2019) Human Still in the Loop. *Digital Journalism*. DOI: 10.1080/21670811.2019.1601576
- Montal T and Reich Z (2017) I, Robot. You, Journalist. Who is the Author? *Digital Journalism* 5(7): 829–849.
- Mosco V (2004) *The Digital Sublime*. Cambridge: The MIT Press.
- Napoli PM (2014) On Automation in Media Industries. *Media Industries Journal* 1(1): 33–38.
- Negroponte N (1995) *Being Digital*. London: Vintage Books.
- Örnebring H (2010) Technology and Journalism-as-Labour. *Journalism* 11(1): 57–74.
- Patton MQ (1980/1990) *Qualitative Evaluation and Research Methods*. Newbury Park: Sage.
- Paulussen S (2012) Technology and the Transformation of News Work. In: Siapera E and Veglis A (eds): *The Handbook of Global Online Journalism*. Oxford: Wiley-Blackwell, pp. 192–208.
- Pew Research Center (2014) *AI, Robotics, and the Future of Jobs*, August 6. <http://www.pewinternet.org/2014/08/06/future-of-jobs/>
- Pollock F (1957) *Automation*. New York: Praeger.
- Powers M (2012) In Forms that are Familiar and Yet-to-be Invented. *Journal of Communication Inquiry* 36(1): 24–43.
- Slaček Brlek S, Smrke J and Vobič I (2017) Engineering Technologies for Journalism in the Digital Age. *Digital Journalism* 5(8): 1025–1043.
- Splendore S (2016) Quantitatively Oriented Forms of Journalism and Their Epistemology. *Sociology Compass* 10(5): 343–352.

- Splichal S and Dahlgren P (2016) Journalism between De-professionalisation and Democratisation. *European Journal of Communication* 31(1): 5–18.
- Thurman N, Dörr K and Kunert J (2017) When Reporters Get Hands-on with Robo-Writing. *Digital Journalism* 5(10): 1240–1259.
- Underwood D (1993/1995) *When MBAs Rule the Newsroom*. New York: Columbia University Press.
- van Dalen A (2012) The Algorithms behind the Headlines. *Journalism Practice* 6(5–6): 648–658.
- Wiener N (1950/1989) *The Human Use of Human Beings*. London: Free Association Books.
- Young ML and Hermida A (2015) From Mr. and Mrs. Outliner to Central Tendencies. *Digital Journalism* 3(3): 381–397.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This article is partially supported by European Union's Horizon 2020 research and innovation programme under grant agreement No. 825153, project EMBEDDIAMilosavljević and Vobič17(Cross-Lingual Embeddings for Less-Represented Languages in European News Media). This research was partially supported by the Slovenian Research Agency, ARRS; Javna Agencija za Raziskovalno Dejavnost RS.