

Responsible innovation in mobile journalism

Exploring professional journalists' learning and innovation processes

Anja Salzmänn

Thesis for the degree of Philosophiae Doctor (PhD)
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Scientific environment

This thesis is an outcome from the transdisciplinary research project ViSmedia, which was conducted between 2016 and 2021 in the Department of Information Science and Media Studies at the University of Bergen (UiB). The project was developed by Professor Astrid Gynnild, together with Professors Frode Guribye and Lars Nyre, and funded (including my PhD) by the Research Council of Norway under the SAMANSVAR program (grant No. 247721/O80). In the ViSmedia project, a team of international researchers from Norway, Finland, and the US investigated how news media can adopt and adapt visual surveillance technologies in responsible ways. The ViSmedia project's main objective was to anticipate and assess the multifaceted implications of visual surveillance technologies – such as drones, mobile phones, virtual reality, and satellites – on the journalism field and, subsequently, society at large. In accordance with the Responsible Research and Innovation approach, the project aimed to promote responsible uses of new technologies with surveillance potential in news media via public engagement, societal inclusion, ethics, transdisciplinary collaboration, and innovative teaching and learning.

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Bergen, February 2022

Abstract

This thesis examines innovation in the field of mobile journalism by examining how professional broadcast and print journalists learn about and adopt mobile technology for their journalistic practice and by investigating critically the side effects from journalists' adoption of mobile computing platforms, encompassing highly convergent and different risk technologies. The overarching research question that guided this work asked: *What is responsible innovation in mobile journalism?* To find answers to this overarching research endeavor, I applied an approach that combines empirical and analytical-conceptual perspectives. Innovation is conceptualized in this work as a complex sociocultural process of learning, and responsible innovation is viewed as a meta-category of innovation.

The empirical part sets out to understand actual learning practices and innovation processes by examining how professional print and broadcast journalists learn to adopt mobile technology and innovate through mobile journalism in different social settings. Based on a qualitative approach that applies methods such as long-term observations, participant observation, in-depth interviews, and informal conversations, the empirical part of the thesis provides insight into professional journalists' individual motivations and experiences, organizational and new collective approaches to innovation, and learning processes. The conceptual part of the thesis examines the meta-concept of "responsible innovation" more closely by applying a critical perspective of political economy on learning and knowledge processes. Viewed through the lens of Zuboff's (2019) surveillance capitalism theory, this part of the thesis draws attention to broader societal consequences attached to the adoption of mobile technology in journalism. By uncovering emerging risks and challenges from unregulated dataveillance and privatization of knowledge, this part demonstrates what is at stake if mobile technology is irresponsibly adopted by a risk group – in this case, journalists – and how, from this perspective, mobile journalism fails to emerge as a democratic force, thereby undermining the fundamentals of democracy.

To counteract the identified and complex risks from comprehensive data extraction and dataveillance that accompany journalists and media organizations' adoption of and innovation in mobile journalism, ideas and methods from the European Union's Responsible Research and Innovation framework are suggested as a possible approach. This is specified by outlining different implications from the identified risks on individual, organizational,

and societal levels, and by making suggestions as to what “responsible innovation” in mobile journalism would encompass in the context of this thesis.

This thesis aims to build on existing academic discussions through enriching debates in the mobile journalism field by providing insights into professional journalists’ concrete learning and innovation processes, as well as directing attention toward individual, organizational, and societal risks attached to uncritical adoption of a complex and pervasive computing platform in journalism practice and innovation in the field.

Sammendrag

Denne avhandlingen handler om innovasjon i mobiljournalistikk, og utforsker hvordan profesjonelle TV- og avisjournalister bruker smarttelefoner som journalistisk produksjonsverktøy. I tillegg reflekteres kritisk over utfordringer som kan knyttes til at journalister satser i sitt arbeid på datateknologi som ikke bare integrerer flere risikoteknologier men bygger på infrastrukturer som er optimalisert for omfattende dataekstraksjon og kommersielle overvåkingspraksiser.

Det overordnede spørsmålet som søkes besvart i avhandlingen er: *Hva er ansvarlig innovasjon i mobiljournalistikk?* For å finne svar på forskningsspørsmålet kombineres empiriske tilnærminger og analytisk-teoretiske perspektiver. Innovasjon forstås her som en kompleks sosiokulturell læringsprosess der 'ansvarlig innovasjon' pekes ut som en normativ meta-kategori.

I den empiriske delen i avhandlingen undersøkes profesjonelle journalisters konkrete lærings- og innovasjonsprosesser. Basert på etnografi-inspirerte metoder som deltakende observasjon, dybdeintervjuer og uformelle samtaler belyser den empiriske delen av avhandlingen innovasjon i mobiljournalistikk gjennom to ulike casestudier. I den første casen utforskes et globalt pioner-nettverk som fremstår som en viktig kollektiv aktør i innovativ mobiljournalistikk. I den andre casen undersøkes et konkret trainingsarrangement for profesjonelle avisjournalister som ledd i en omfattende innovasjonsprosess i en tradisjonell medieorganisasjon.

Den analytisk-teoretiske delen av avhandlingen tar for seg meta-konseptet 'ansvarlig innovasjon' og belyser kritisk den politiske økonomien knyttet til lærings- og kunnskapsutvikling. Ved hjelp av Zuboffs (2019) teori om overvåkingskapitalisme fokuserer denne delen av avhandlingen på større og mer langsiktige samfunnskonsekvenser knyttet til bruk av mobilteknologi i journalistikk.

Ved å peke på ulike risikoer ved uregulerte former for datainnsamling og utfordringer knyttet til privatisering av kunnskap og kunnskapsproduksjon omhandler den teoretisk-analytiske delen hva som står på spill for journalister, medieorganisasjoner og samfunnet i sin helhet når mobilteknologi blir tatt ukritisk i bruk. Det konkluderes med at en uansvarlig og risikofylt bruk av mobilteknologi og relaterte infrastrukturer ikke tegner et bilde av mobiljournalistikk som en demokratiserende kraft (og tidsriktig produksjonsmåte) men

heller en praksis som kan bidra til å undergrave demokratiets fundament gjennom omfattende dataekstraksjon og kommersielt motiverte overvåkningspraksiser.

For å møte komplekse risikoer ved bruk av teknologisk innovasjon i mobiljournalistikk og å kunne finne konstruktive løsninger diskuteres det nye europeiske forsknings- og innovasjonsrammeverket Responsible Research and Innovation (RRI) som sikter mot grunnleggende endringer i nåværende innovasjons- og forskningspraksis. Med utgangspunkt i idéer og metoder fra RRI foreslås ulike handlingsopsjoner på individ-, organisasjons- og samfunnsnivå samt anbefalinger hva `ansvarlig innovasjon i mobiljournalistikk` innebærer.

Et overordnet mål med avhandlingen er å bidra i, og berike, den akademiske og offentlige debatten ved å gi konkrete innblikk i profesjonelle journalisters læringssituasjoner og innovasjonsprosesser og gjennom den rette oppmerksomheten mot fundamentale utfordringer ved bruk av kompleks datateknologi og infrastrukturer i samfunnet.

Preface

The following thesis is article-based and divided into two main parts. The first presents the final contribution, or *kappe* in Norwegian, which aims to provide a more integrated overview of the overall research work and more insights into my thinking. The second part comprises the three articles that form the foundation of this doctoral thesis and the following final contribution. All three articles have been published in international academic journals and are written in co-authorship together with my supervisors, Professors Frode Guribye and Astrid Gynnild.

List of publications

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Part I: Final Contribution

1 Introduction

This thesis aims to answer the overarching research question: *What is responsible innovation in mobile journalism?* The mobile journalism field centers around applying smartphones as a holistic multimedia production unit for journalists and is viewed as one of the fastest-growing areas of journalism (Hill & Bradshaw, 2018). It provides a playground through which to develop new journalistic practices and creative new storytelling forms. Mobile technology has been described in academic literature as being “at the heart of unfolding dynamics [in] digital journalism and news” (Goggin, 2020, p. 171) and is an essential part of many activities related to media innovation. When combined with associated platforms and applications, particularly smartphones, such technology also has been described as “the tools of the trade for the 21st century journalist” (Bui & Moran, 2020, p. 146). However, mobile journalism also can be viewed as a double-edged sword, on one hand offering new opportunities for journalists and media organizations, while on the other entailing adoption of a highly convergent technology that poses serious risks for journalists. Mobile technology integrates several risk technologies and is embedded in complex, highly pervasive infrastructures and a newly emerging economic logic (Zuboff, 2019) that carries the potential to compromise journalists’ security, privacy, and safety. Schneier (2020) describes the smartphone as “the most invasive surveillance device our species has ever invented,” and several other scholars have highlighted mobile technology’s potential for comprehensive surveillance (Christl & Spiekermann, 2016; Zuboff, 2019) that can “make their human owners readable to anyone” (Jasanoff, 2016, p. 151).

This backdrop provides a glimpse of the controversy and the greater challenges attached to adoption of mobile technology for journalistic practices, sparking the overall research question posed above on responsible innovations. In this dissertation, I apply an approach that combines empirical and analytical-conceptual perspectives, allowing for understanding the concept of innovation and learning processes related to adopting mobile technology for journalistic practices from the perspective of actors in the field. It also considers broader societal implications.

In the context of this thesis, innovation is conceptualized as a complex sociocultural process of learning and responsible innovation as a meta-category of innovation, presenting a new normative approach to innovation activities. To understand innovation processes related to journalistic practice and mobile journalism, an important initial step was to obtain insights on concrete practices. This was attempted by examining professional journalists’ learning situations and how mobile journalism innovation is anchored in individual actors’ social

reality and concrete knowledge-sharing practices. Thus, I examined empirically *how* professional journalists learn about adopting mobile technology in different settings, as well as *where* they develop their professional practices. Based on a qualitative approach that applies methods such as long-term observations, participant observations, in-depth interviews, and informal conversations, the empirical part, comprising two studies, examined two contrasting cases and offers insights into journalists' individual experiences, motivations, and reasons to engage in mobile journalism practices.

The first explorative study's guiding research question is: *How and where do professional journalists develop new professional practices and adapt to mobile technology?* The study sheds light on the global community's role, with broadcast journalists mainly emerging as forerunners and early adopters in mobile journalism who are engaged actively in developing their mobile journalism competencies through peer group learning practices. The second study examined innovation in mobile journalism in the context of organizational settings, focusing on a training arrangement conducted at a German regional publisher in which a group of print journalists was trained in mobile video reporting as part of a larger organizational restructuring process. This study's research question asked: *How and what do professional journalists learn about mobile technology in organizational settings, and how do editors and reporters perceive such a phenomenon?* Both empirical cases provide insights on how professional journalists are learning and trained in using mobile technology for their journalistic practices by zooming in on two different social realities.

The analytical-conceptual part of the thesis more closely examines the broader consequences and risks attached to adopting technology that has the potential to compromise journalists' security, privacy, and safety. These emerge as complex risks and are related to broader systemic challenges that are difficult to observe by focusing exclusively on an actor-perspective. Thus, the third paper examines, from a critical and analytical-conceptual perspective, applied technologies, infrastructures, and an emerging economic logic tied to "the tools of the trade" and mobile journalists' practice. The guiding research question here is: *How does the adoption of mobile technology, comprising several risk technologies and embedded in commercially driven and exploited infrastructures, impact mobile journalism and innovation in the field?* To answer this question, the practice of mobile journalism was analyzed through the lens of Zuboff's theory of surveillance capitalism by examining learning and knowledge processes from the critical perspective of political economy. Findings from this analytical-conceptual work identify several complex and systemic challenges and risks attached to adopting mobile technology and innovation in mobile

journalism. This part of the thesis demonstrates what is at stake if a risk group – in this case, journalists – adopts mobile technology irresponsibly and how, from this perspective, mobile journalism fails to emerge as a democratic force, thereby undermining the tenets of democracy.

To counteract the identified and complex risks from comprehensive data extraction and dataveillance that accompany journalists and media organizations' adoption of and innovation in mobile journalism, ideas and methods from the European Union's Responsible Research and Innovation (RRI) framework are suggested as a possible approach. This is specified by outlining different implications from identified risks on individual, organizational, and societal levels, and by making suggestions as to what "responsible innovation" in mobile journalism would encompass based on the findings and suggested perspectives in this thesis.

The thesis aims to build on existing academic discourse through enriching debates on journalism research that provide insights into professional journalists' concrete learning and innovation processes, as well as directing attention toward individual, organizational, and societal risks attached to uncritical adoption of complex and pervasive computing platforms and infrastructures in journalism practice.

1.1 Final contribution's structure

The final contribution comprises six chapters, in which I contextualize, discuss, and reflect on my research and how the three articles help answer the overarching research question. This chapter starts with a short introduction to the thesis, including a description of the three articles on which this thesis is based and a brief outline of the research questions that guided this work. In Chapter 2, I outline the background for the work through an overview of applied concepts, terms, and research related to my perspectives and research interests. I also position my research objectives at the nexus of journalism practice, mobile technology and innovation, and related academic debates. After that, the new collective "responsible innovation" approach as a meta-category of innovation is outlined, as is the RRI framework, which is applied in this thesis as an example and guiding principle of collective and political action. In Chapter 3, I introduce the theoretical perspectives and analytical lenses that have informed my research. First, I outline sociocultural learning theory perspectives that are applied in the two empirical articles of the thesis. Second, I explain key arguments and terms from Zuboff's (2019) surveillance capitalism theory, applied as an analytical lens in the third

article, which is conceptual. This chapter also includes criticism of Zuboff's theory and some reflection on her work in light of Beck's (2016) sociological theory of metamorphosis. This helps sharpen the discourse on the phenomena that Zuboff describes, which are related closely to the neo-journalistic practice of mobile journalism. In Chapter 4, I discuss insights into the methodical approach, reflecting on different applied qualitative methods, as well as experiences and obstacles that I encountered while conducting the fieldwork. In Chapter 5, I present the main findings from my empirical research and conceptual work. I condense these insights and provide answers to the overarching research question that has guided my work: *What is responsible innovation in mobile journalism?* While answering this, I also investigate *how mobile technology can be adopted in journalism in a responsible way*. In Chapter 6, I draw conclusions from my work by contrasting my findings with other perspectives on mobile journalism.

1.2 Introduction to the articles

In the following three subsections, I briefly introduce the three articles on which this thesis is based. *Articles I* and *II* comprise the empirical part, while *Article III* covers the conceptual-analytical aspects of this thesis.

1.2.1 Article I: Exploring a Global Network of Mojo Pioneers

The first article, "*We in the Mojo Community*" – *Exploring a Global Network of Mobile Journalists* (Salzmann, Guribye, & Gynnild, 2020), examines the role of a global community of professional journalists comprising forerunners and early adopters (Rogers, 2003; Rogers & Shoemaker, 1971), or what Hepp (2016) and Hepp and Loosen (2021) refer to as "journalistic pioneers" in the mobile journalism field. The community is highlighted as an important collective actor in the mobile journalism field, as well as an overlooked agent in journalism innovation. Members of the community's core group examine mobile technology's disruptive potential and capabilities in journalism by engaging in and learning through a network of peers (Salzmann et al., 2020). Drawing on Wenger's (1998), and Wenger, McDermott, & Snyder's (2002) concept of "communities of practice" (CoP), as well as empirical data from 17 in-depth interviews and observation of community actions over a two-year period, the study provides insights on this intermediary structure's origin, practice, and domain, offering a rich description of the fostered community culture and shedding light on individual core group members' motives to engage in this particular

community. The study's findings suggest that this international community of tech-savvy mobile journalists and media practitioners emerges as an important orientation, experimentation, and innovation hub in the mobile journalism field. The practice of this communal formation is grounded on the shared belief that smartphones have emerged as the most disruptive tool for journalism (Salzmann et al., 2020). Many of the interviewed informants expressed pleasure in exploring this new technology and actively were engaged at the time as so-called "mojo trainers" who were involved directly with training activities to disseminate skills and knowledge collaboratively developed and administered through this global network. An overarching motive of these informants to engage in this particular community was to develop "a mojo mindset" rooted in the shared belief in mobile technology's power to transform news media, revolving around four thematic issues: (1) a need for belonging and unity with likeminded colleagues; (2) perceived resistance against mobile journalism in traditional TV newsrooms; (3) a need for orientation, knowledge extension, and support; and (4) sustainable protection of jobs (Salzmann et al., 2020).

1.2.2 Article II: Training Newspaper Reporters in Mobile Journalism

The second article, "*Adopting a Mojo Mindset: Training Newspaper Reporters in Mobile Journalism*" (Salzmann, Guribye, & Gynnild, 2021a), takes a contrasting approach to the first empirical study by examining the adoption of mobile technology and innovation in journalism practice by studying professional journalists' training and learning situations in formalized, organizational settings. This case study examines a specific in-house learning situation at a German regional publishing house in which 40 print editors were introduced and trained in audiovisual storytelling and smartphone reporting during a two-week training course. The investigated training course in smartphone video reporting was part of a larger strategic reorientation of the news organization (Salzmann et al., 2021a). Anchored in a sociocultural perspective on learning and knowledge practices (Säljö, 1999; Weilenmann, Säljö, & Engström, 2014), the study offers a rich description of how print journalists in an organizational setting need to adapt their skills and knowledge to a changing media landscape. It also sheds light on the challenge of turning journalists with a particular writing talent into audiovisual storytellers. The research was conducted in an ethnographic manner, combining qualitative methods and collecting data based on participant observations, informal conversations, and 14 in-depth interviews. The study contributes a proposition with the following three dimensions to develop what is referred to in the article as a "mojo mindset" that the journalist needs to produce video content as a solo reporter, applying a

smartphone as the main tool: 1) mastering mojo skills; 2) adopting visual thinking; and 3) integrating ethical and legal awareness (Salzmann et al., 2021a). The study's findings also suggest that transforming print journalists into multi-skilled, fast-thinking, and fast-acting smartphone video reporters is a highly challenging and ambitious goal that can conflict with their professional identities, including their notion of where they think their talents lie.

1.2.3 Article III: Mobile Journalists as Traceable Data Objects

The third article, "*Mobile Journalists as Traceable Data Objects: Surveillance Capitalism and Responsible Innovation in Mobile Journalism*" (Salzmann, Guribye, & Gynnild, 2021b), takes a broader theoretical perspective on the mobile journalism field by examining critically the technologies, infrastructures, and a newly emerging economic logic tied to the practice of mobile journalism and innovations in the field. Smartphones have become a key tool in consuming, as well as producing, news, but they also are equipped with several outlined risk technologies. Furthermore, smartphones represent the centerpiece of an infrastructure that has enabled the emergence of a new economic logic based on the commodification of personal and behavioral data. Through the lens of Zuboff's (2019) critical surveillance capitalism theory, this article discusses how the technological capacities for data exploitation and commodification of human behavior by focusing on the practice of mobile journalism. The article identifies implications for journalism and provides examples of cases in which journalists and their actions have been translated into analyzable data sets and sold on data brokerage markets. It is argued that particularly mobile journalists feed into surveillance capitalism supply chains by relying heavily on infrastructures and technologies (Salzmann et al., 2021b). Furthermore, mobile journalists – through this new economic logic and applied risk technologies – are exposed heavily to several forms of dataveillance. In other words, the practice of mobile journalism is identified as a risk for journalists and media organizations. Ideas and methods from the EU's Responsible Research and Innovation (RRI) framework are suggested as a possible political and collective approach to address how mobile journalism practice and innovation in the field could be envisioned in a responsible manner (Salzmann et al., 2021b). The article outlines implications for mobile journalism in two structural dimensions (individual and organizational levels) and suggests several actions to mitigate the potential harm from applying smartphones and related technologies in journalistic practice.

1.3 Research questions and objectives

The primary objective and starting point for this thesis was to answer the following overarching question: *What is responsible innovation in mobile journalism?*

To answer this question, I applied a *multi-perspective view* that combines *empirical* and *analytical-conceptual approaches* to gain a better understanding of mobile journalism as a field for media innovation. This choice of approach allows for understanding the concept of innovation and learning processes related to adoption of mobile technology for journalistic practices from the perspective of actors in the field, while considering broader societal implications. *Mobile journalism*, in the context of this thesis, is understood as a holistic form of multimedia solo reporting in which a professional journalist writes, shoots, edits, and publishes news stories entirely on a smartphone device. The smartphone, as a highly convergent technology, in this context serves as a complete production unit for collecting, editing, and disseminating news (Salzmann et al. 2020, p. 1). The thesis centers around professional journalists, i.e., those who have received a professional education or training in journalism and/or have practical experience in working as a journalist, and who apply or learn to apply a smartphone as a holistic production and dissemination tool for multimedia storytelling.

1.3.1 Empirical part

To study professional journalists' learning processes as they relate to the practice of mobile journalism, I set out on the empirical part of the thesis to understand *how* professional journalists learn about adoption of mobile technology and *where* they develop their professional practices. To get a more nuanced picture and insights about different learning situations, I focused on two contrasting settings. In the first article, "We Are the Mojo Community – Exploring a Global Network of Mobile Journalists" (Salzmann et al., 2020), the central research question (RQ) is: *How and where do professional journalists develop new professional practices and adapt to mobile technology, and what are their reasons for doing so?* The focus here is on journalists who voluntarily engage in processes of mutual learning about mobile technology. These journalists are engaged actively in developing and improving their mojo skills.

In the second article, "Adopting a Mojo Mindset: Training Newspaper Reporters in Mobile Journalism" (Salzmann et al., 2021a), I ask: *How and what do professional journalists learn about mobile technology in organizational settings, and how do editors and*

reporters perceive such a phenomenon? The study directs attention more explicitly on training situations and social learning practices in formal organizational settings, centering around a group of journalists who are “mojo novices,” i.e., they have neither experience in smartphone reporting, nor are they actively engaged in adopting the technology for their professional practice.

Gaining insights about these different social realities in which professional journalists learn about adopting mobile technology for their journalistic practice is viewed as important to understanding professional journalists’ learning situations and, thus, to obtain more knowledge about mobile journalism innovation that are anchored in individual actors’ social reality.

1.3.2 Analytical-conceptual part

In the analytical-conceptual part of the thesis, I apply a broader perspective on mobile journalism by examining more closely applied technologies, infrastructures, and an emerging economic logic tied to “the tools of the trade” and mobile journalists’ practice. This perspective allows for examining what can be understood and has been outlined earlier as a meta-category of innovation, i.e., “responsible innovation” (see 2.3.1). The term *responsible* addresses several challenges and potential risks attached to the practice of mobile journalism that are discussed under the following guiding RQs: *How does the adoption of mobile technology, comprising several risk technologies and embedded in commercially driven and exploited infrastructures, impact on mobile journalism and innovation in the field?*

These two RQs start from the premise that mobile technologies, particularly smartphones, are highly convergent technologies that integrate several risk technologies, outlined by EU authorities and RRI scholars (Stahl, Timmermans, & Flick, 2016; Jirotko et al., 2017). In addition to this, smartphones in particular can be recognized as a central part of a larger digital infrastructure that, according to Zuboff (2015, 2019), has metamorphosed into a comprehensive surveillance architecture that not only has fueled an emerging economic logic, but also is based on the commodification of personal data. Thus, the main question is: What are the risks for journalists as a risk group – and more broadly for democratic society – when adopting this neo-journalistic practice?

2 Background

In this chapter, I outline the background for my research, as well as important terms, concepts, and perspectives. I also place the work in the context of other relevant and related academic discussions and research. Furthermore, I describe the focus and approach of the work and end the chapter with a brief introduction of the concept of responsible innovation and the EU's Responsible Research and Innovation framework.

2.1 Mobile Journalism

Mobile journalism is acknowledged widely as a field of media innovation and one of the fastest-growing areas of journalism (Hill & Bradshaw, 2018; Kumar & Haneef, 2017; Perreault & Stanfield, 2019). Westlund and Quinn (2018) have argued that “the nexus of mobile media and reporting has become one of the most important developments for journalism” (p. 1). Described as a market-driven and neo-journalistic approach (Borum, 2016), mobile journalism is viewed as a breeding ground for innovative journalistic practices, new journalistic formats, and an opportunity to rethink newsroom structures radically (Ericsson, 2018; Omar, 2017). Mobile journalism centers around technologies that have altered the whole news industry, influencing how news is consumed (Molyneux, 2018; Westlund, 2015), how journalists work (Blankenship, 2016; Duffy, 2021; Kumar & Haneef, 2018), and what is deemed a necessary skill set for a 21st century journalist (Perreault & Stanfield, 2019; Wenger, Owens, & Thompson, 2014). Mobile technology and social networking platforms have changed and rearranged the ecology of the news industry (Duffy, 2021) and mobile mediated communication (Dunston, 2016; Struckmann & Karnowski, 2016).

2.1.1 Conceptualizing mobile journalism

The term *mobile journalism* (i.e., *mojo*) originally was rooted in the emergence of the first solo audiovisual newsgathering possibilities in the 1990s and has evolved simultaneously as new technological advancements have surfaced. Thus, early mobile journalists often were synonymous with the first solo video journalists who applied video camera technology with wireless Internet connections (Bock, 2012). The emphasis on the word *mobile* was in the context of the reporter “being mobile,” allowing the journalist to be more active and independent in the field. By the beginning of the 2000s, the first academic studies emerged

that examined the newsgathering potential of so-called “pocket-size digital field reporting kits” (Cameron, 2011, p. 1). These kits were based on multimedia and network-enabled mobile phones and emerged around the time when news wire service Reuters started to experiment with its first “mojo toolkit,” which it developed in-house in 2007 (Cameron, 2011).¹ According to Westlund (2013), this experiment was the initial spark that applied mobile devices to news reporting and led to a broader international diffusion of mobile journalism.

Several perspectives have clashed over what falls under the term *mobile journalism*, as well as different forms or levels of mobile technology integrated into a journalist’s daily work routines and production practices. Westlund (2019) defined mobile journalism more broadly as “all of the interrelated dynamics at play in which news is being produced and distributed with or for mobile devices” (2019, p. 1). However, Bui and Moran (2020), in their understanding of mobile journalism, emphasized the flexible ability to access content “on the go,” thereby pointing out that “*mobile journalism refers to digital content that can be accessed via “mobile” technologies, predominantly smartphones, but increasingly also tablet computers and other “smart” technologies, such as Apple Watches and wearable tech*” (p. 148).

Terms such as *mobile device*, *smart device*, and *mobile technology* are applied here as generic terms that do not refer exclusively to a smartphone, but to various forms of portable networked computers with multimedia technology that can be operated easily in the field and carried around, such as tablets, laptops, digital SLR cameras, or other wearables. Other scholars (Borum, 2016; Cameron, 2011; Kumar & Haneef, 2017; Quinn, 2009) have described and referred to mobile journalism more specifically as a new journalistic practice or technique that centers around the application of smartphones. From this perspective, a more explicit focus on journalistic practice and production can be found. Borum (2016) views mobile journalism as neo-journalistic practice and a form of digital storytelling. He argues: “*It [mobile journalism] is a more holistic, thought-out, mobile digital storytelling form that combines journalism, videography, photography, writing, editing, and publishing, all done on a handheld smart device*” (p. 153).

¹ The kit comprised a Nokia N95 smartphone, a small tripod, a small wireless keyboard, a solar battery charger, and an external microphone. Some selected Reuters’ journalists used the kit at the time to report from the Beijing Olympics in 2008 and published the coverage on an established webpage for that purpose (<http://reutersmojo.com>) (Cameron, 2011).

In this thesis, I apply a perspective on mobile journalism that focuses explicitly on journalistic practices and using smartphones as a key technology for journalistic production. The term *smartphone* is interchangeable, as applied here, with the terms *mobile technology* and *mobile device* and understood as a highly convergent technology that serves as a complete production unit for collecting, editing, and disseminating news (Salzmann et al., 2020, p.1). Thus, I understand mobile journalism in the context of this work as a holistic form of multimedia solo reporting, in which a professional journalist writes, shoots, edits, and publishes news stories on a smartphone device.

2.1.2 The role of mobile technology and social media

Mobile technology originally was an umbrella term used to describe cellular communication technology. However, since 2000, the field has undergone rapid developments, converging with the field of mobile computing that emerged in the 1990s, and now refers to human-computer interactions centering around the idea of “mobility” and “universal connectivity,” allowing people to access information and remote computational services anywhere, anytime. The emergence of the first smartphones can be viewed as an outcome of the convergence of different technological disciplines, providing a game-changer for journalism (Borum & Quinn, 2015; Quinn, 2009; Westlund, 2013). Enabling ubiquitous access to the Internet and integrating instant, synchronous and asynchronous, private, public conversations and information in one single device unleashed myriad possibilities to mix and match different content presentations (audio, video, graphics, or text). In other words, smartphones invited experimentation with new formats, cross-media content production (Westlund, 2008), and new forms of digital expression (Maniou & Veglis, 2016). According to Duffy (2021), the smartphone has become “a dominant technology in the news” (p. 1) that has transformed journalistic mobility and the speed of reporting (Quinn, 2012), as well as journalists’ relationship with their audiences (Bui & Moran, 2020; Perreault & Stanfield, 2019; Quinn, 2009), while enabling access to more information and relevant sources (Borum & Quinn, 2015; Perreault & Stanfield, 2019) and placing greater emphasis on visuality in journalism (Gynnild, 2019; Karlsson & Clerwall, 2012; Richardson, 2017). However, it is not just the smartphone itself, but rather the almost-symbiotic interconnection between smartphones and social media (Benton, 2014; Duffy, 2021; Nielsen, Cornia, & Kalogeropoulos, 2016) that has changed journalism’s sphere. *Social media* can be understood as an umbrella term for “*mobile and web-based technologies to create highly interactive platforms via which individuals and communities share, co-create, discuss, and*

modify user-generated content” (Kietzmann, Hermkens, McCarthy, & Silvestre, 2011, p. 241). Social media platforms emphasize user-generated content and interoperability with other systems and devices, and help foster a participatory culture (Blank & Reisdorf, 2012; Howard & Parks, 2012). Some of the most prominent and popular social media platforms that originated in the Western world include YouTube, Facebook, Instagram, Pinterest, LinkedIn, Snapchat, Twitter, WhatsApp, TikTok, Reddit, Tumblr, and Nextdoor.

2.1.3 Smartphones as a confluence of several risk technologies

The IT industry views smartphones as one of the most important computing platforms that bridges the digital and physical worlds, i.e., mobile devices and personal smartphones are a central element in developing the Internet-of-Things² (IoT) architecture (Aloi et al., 2017; Islam & Want, 2014; Lieser, Alvarez, Gardner-Stephen, Hollick, & Boehnstedt, 2017). They are applied as a gateway for machine-to-machine (M2M), person-to-machine (P2M), and person-to-person (P2P) communication and routinely are equipped or updated with new services. Through high global penetration, smartphones have emerged as a very important gateway and interface for sensing and extracting data, as well as a test arena for other technologies and new digital services.

The almost-boundless applicability of smartphones is impressive, but also is linked to a range of challenges and problematic issues. Smartphones offer various wireless connections for data transfer (Rothmann & Čas, 2013) and are equipped with different sensors for position measurement or to gather environmental and motion data (Christl & Spiekermann, 2016). Most importantly, smartphones host and can generate heterogeneous data, such as multimedia, sensor data, communication logs, or machine data created by smartphone applications (Theoharidou, Mylonas, & Gritzalis, 2012) or built-in technology. When it comes to personal data, capabilities include physical data (e.g., fingerprint, iris, or face recognition), behavioral data (e.g., typing rhythm, gait analysis, voice recognition), and psychological data (Stachl et al., 2020) that can be applied for a broad range of purposes and to develop highly controversial applications. In other words, smartphones have emerged as a multi-functional measurement and data-gathering device (Hantono, Nugroho, Santosa, & Musaddiq, 2020) that currently represents one of the most pervasive computing platforms

² The term Internet-of-Things (IoT) derives from technology literature and describes a system of interrelated and connected computing devices, physical objects or object groups that are equipped with sensors, software or other technologies allowing to exchange data with other systems or devices over information and communication networks. It is defined according to the Internet-of-Things Global Standards Initiative as "a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies." (International Telecommunication Union, 2012).

(Christl & Spiekermann, 2016; Gui & Gerosa, 2021; Islam & Want, 2014; Marques, 2016; Schneier, 2020 July 2). In 2014, Google researchers described smartphones as the central control and sensing hub for IoT environments and the most important medium for storing personal data (Islam & Want, 2014).

Advancements in visual- and audio-based (not only natural language) machine-to-machine and person-to-machine communication are an area of interest when it comes to developments in the field of machine learning, more commonly known as artificial intelligence (AI). Smartphone technology is, in this respect, an important gateway for capturing data that can be used not only in general for machine learning purposes, but also to develop high-risk technologies, such as facial-recognition applications. Facial-recognition technology has been described as the “plutonium of AI” (Stark, 2019) and currently is banned in the EU, as well as several US jurisdictions (Conger, Fausset, & Kovalski, 2019) (but not in smartphones), because of its implications for fundamental human rights (EDPB, 2021).

In the context of communication studies, smartphones often are referred to as a “meta-medium” (Humphreys, Karnowski, & von Pape, 2018; Jensen, 2016) or “polymedia” (Madianou, 2014). I argue that the constantly expanding and highly customizable specter of functionalities and the application of these devices characterize smartphones foremost as a polymorphic technology and intermediary computing platform that integrates, enmeshes, and paves the way for development of several risk technologies. Several of these risk technologies are singled out in academic discussions about responsible innovation and technological development (Stahl, Eden, & Jirotko, 2013; Stahl, Timmermans, & Flick, 2016), or spotlighted by European authorities, which I outline in more detail under subsection 2.3.

2.1.4 Research on mobile journalism practices

In the existing body of literature, Westlund and Quinn (2018) identified two key areas of research. One focuses on how news organizations approach mobile reporting, i.e., how this new journalistic practice is incorporated into organizational cross-media-strategies and applied to foster innovation or collaboration processes. The other examines how individual professional journalists or citizen journalists actually work as mobile reporters (Westlund & Quinn, 2018).

Examining more closely the academic debates and discussions at the nexus of journalism practice and mobile technology reveals that mobile journalism is a field that

creates tensions. It could be said that academic reflections on the role of mobile journalism are *between euphoria and skepticism toward mobile journalism practices*.

Some scholars argue that mobile journalism has the potential to revolutionize journalism (Borum, 2016; Burum & Quinn, 2015) or want more attention paid to “the mobile media (r)evolution” (Westlund (2011), while others view mojo practices as a way to cultivate new forms of mobile activism (Casale & Mentor, 2018; Duarte, 2020) or are less euphoric about mobile journalism’s role. Extant research indicates that mojo practices have elicited skepticism, particularly among Western broadcast organizations (Hadland, Borges-Rey, & Cameron, 2019; Karhunen, 2017; Perreault & Stanfield, 2019), for several reasons. First, mojo practices challenge long-established institutional working routines, defined professional roles, and existing quality principles (Guribye & Nyre, 2017; Wallace, 2009, 2013). Second, journalist unions have tried to slow down adoption of mobile journalism (Perez & Cremedas, 2014) because mojo reporting practices require that the individual journalist assume more job duties, increasing the potential for work-related health risks, such as burnout (Blankenship, 2016; Wenger & Potter, 2014). While print journalism publishers have viewed smartphone reporting in terms of “new territories” and “habitats” (Westlund, 2011, p. 347), the audiovisual journalism industry has viewed smartphone reporting not just as a new aspect of the field, but have identified their mojo colleagues “as the new harbingers of change to come” (Perreault & Stanfield, 2019, p. 8).

However, it is undeniable that smartphone reporting is attractive to news organizations for several reasons: Mobile production practices render the journalist fully operational for a 24/7 news production cycle (Bruck & Rao, 2013; Carolus et al., 2019; Guribye & Nyre, 2017; Lund, 2012; Westlund & Quinn, 2018), and mojo practices are associated closely with social media platforms and are open to new storytelling formats and methods (Montgomery, 2018) that hold promise for reaching younger audiences (Gentilviso & Aikat, 2019; Molyneux, 2018) by engaging with social media practices and newly emergent visualities (Schleser, 2014).

Despite skepticism toward mobile journalism among Western mainstream broadcasters, mojo practices are commonplace in other news organizations and media start-ups. Goggin (2020) noted that “mobile technologies are at the heart of the unfolding dynamics [in] digital journalism and news” (p. 171). Furthermore, pushed by an acceleration in mobile technology innovations, mobile journalism has become a global phenomenon, from Asia (Khan, 2016; Kumar & Haneef, 2017; Quinn, 2009) and Australia (Borum, 2016; Burum & Quinn, 2015), to Africa (Mabweazara, 2011; Mhiripiri & Ureke, 2019; Nassanga

& Semujju, 2015; Tettey, 2017), North America (Peter H Martyn, 2009; Perez & Cremedas, 2014; Perreault & Stanfield, 2019; Richardson, 2017), the Middle East (Deen & Pan, 2020; Jamil & Appiah-Adjei, 2019), and Europe (Karhunen, 2017; Lechtenberg, 2018; Lund, 2012; Staschen, 2017; Westlund, 2011, 2013; Wolf, 2018; Wolf & Hohlfeld, 2012).

2.2 Mobile journalism and innovation

Mobile journalism is viewed as a field of media innovation and a breeding ground for innovative journalistic practices. To understand innovation and innovative practices in the context of mobile journalism, I first provide a brief overview of the academic work on this topic, the varying definitions of the term *innovation*, and relevant discussions in the field of innovation studies (IS). After that, I focus on the concept of innovation in journalism research and how innovation is conceptualized in this study's context. I then take a closer look at the literature at the nexus of innovation, learning processes, and mobile journalism.

2.2.1 Conceptualizing innovation

Innovation is a multidimensional concept that not only is influenced by varied meanings and perspectives from different disciplines (Edwards-Schachter, 2018), but also differs in historical and sociocultural terms (Fagerberg & Verspagen, 2009). Edwards-Schachter (2018) provides a broad overview of the various interpretations of the term *innovation* and its measurement indicators over time. The author highlights that the nature of innovation is related closely to terms like *invention* and *change*, as well as *novelty*, and argues:

“Together, they [these terms] comprise a set of characteristics according to the process and elements involved, such as purposes, actors, drivers and resources, inputs, activities and outcomes, value generation, structural and institutional context, and other contextual factors” (Edwards-Schachter, 2018, p. 66).

Put more simply, innovation entails introducing something new that leads to change.

Most prominent and more traditional definitions of *innovation* derive from managerial perspectives in which innovation is identified as playing a key role in creating value and sustaining competitive advantages. This perspective goes back to the work of Schumpeter (1934; 2010) as one of the most cited innovation theorists. Fagerberg (2009), who has analyzed Schumpeter's work, argues that from a Schumpeterian perspective, innovation is understood “as a specific social activity (function) carried out within the

economic sphere and with a commercial purpose” (p. 21) based on a new combination of new or existing knowledge, resources, equipment, etc. Better known and more popular is Schumpeter’s (2010) notion of innovation as a dynamic process of “creative destruction,” which entails the idea that old structures or ideas are replaced by new ones. Innovation’s crucial role in the context of economic growth and socioeconomic development also is reflected in the extensive literature related to this issue (Greenhalgh & Rogers, 2010; Lundvall, 2016; Segerstrom, 1991; Verspagen, 2006).

According to Edwards-Schachter (2018), and as a nod to Schumpeter’s (1934; 2010) influential thinking, the classic concept of innovation is not just deeply rooted in a managerial perspective, but also retains an explicit focus on technology. In this respect, innovation is understood “*as both the process and outcome of creating or inventing something new and valuable that produces broader effects in the economy and technological advances*” (Edwards-Schachter, 2018, p. 66). This perspective on the term increasingly has been challenged in current debates within the field of innovation studies by emphasizing social dimensions’ role in innovation processes, as well as the close interrelationship between technological and non-technological factors (Edwards-Schachter, 2018). In more popular terms, innovation often is described as “a new way of doing things,” which also indicates that technology-focused innovation concepts often fail to consider the importance of activities, actors, elements, and structures involved in often-complex innovation processes (Martin, 2016). For example, to describe invisible and often immeasurable innovation factors and activities, the terms *hidden innovation* (Cunningham, 2013; Miles & Green, 2008) and *dark innovation* (Martin, 2016) are applied in innovation studies (IS).

The reasons for increasing efforts to rethink the “nature of innovation” and place greater emphasis on innovation’s social dimensions gradually have evolved over time and are related closely to more public awareness about rapid technological advances’ ambiguity and their (un)known long-term risks. The looming side effects from the industrial era during the second half of the 20th century have stimulated critical thinking about technological advances, as well as science and innovation’s role in society. Examples of such thinking entering the public sphere include a speech by former U.S. President Eisenhower (1961); research by Carson (1962), Jonas (1974), and Beck (1986); a Club of Rome report in 1972 on “the limits to growth” (Meadows, Randers, & Meadows, 2013); nuclear power disasters (e.g., the bombings of Japan in 1945, the Three Mile Island plant leak in the U.S. in 1979, and the Chernobyl plant meltdown in Ukraine in 1986); and early warnings about climate change (Manabe & Wetherald, 1967). In a European context, this applied in particular to

experiences with unexpected public rejection of newly emerging risk technologies, e.g., the introduction of genetically manipulated soy in the mid-1990s (Von Schomberg, 2013). These historical milestones sparked critical reflections about innovation and technological development's role in public, academic, and political spheres, thereby placing greater emphasis on "mission-oriented innovation policies" (Fagerberg, 2017, p. 3) (see also 2.3). Such milestones often were accompanied by greater public attention and efforts to change innovation practices, e.g., redirecting the focus on different innovation systems³ (Bergek, Jacobsson, Carlsson, Lindmark, & Rickne, 2008; Hekkert, Suurs, Negro, Kuhlmann, & Smits, 2007) and increasing emphasis on innovation's sociocultural and sociotechnological dimensions, rather than understanding it in a narrow sense as merely technological advances for economic growth and social benefit.

The role of innovation processes' social dimensions also is highlighted by Rogers (1962, 2003), well-known for his diffusion of innovations theory, in which he seeks to explain how new ideas and technologies spread through communication in a social system (Rogers & Shoemaker, 1971). The concept of diffusion is, according to Rogers (2004), applicable to all types of innovations and understood as "a kind of universal micro-process of social change" (p. 16).

Innovation as interactive learning process

Rethinking the concept and understanding of innovation in the context of innovation theory, Lundvall (2013, p. 33) suggested conceptualizing innovation as an interactive learning process:

"I would suggest that the closest we get to such a core in innovation studies is the conceptualization of innovation as an interactive process involving many actors and extending over time. The focus of the analysis is upon individuals with heterogeneous skills or upon organizations with heterogeneous capabilities that interact with one another. They typically engage in information exchange, problem solving, and mutual learning as part of the process of innovation. In the course of this, they establish 'relationships' that may be interpreted as forming organizations, networks, clusters, or even 'innovation systems.'"

³ Innovation systems can be understood in varied ways, depending on how the term *innovation* is used. Systems comprise actors, elements, structures, and relationships between them. While several varieties of innovation systems (national, regional, sectoral, or technological) differ in many ways, they all "involve the creation, diffusion, and use of knowledge" (Carlsson et al., 2002, p. 233).

Lundvall (2013) frames innovation in this understanding as a “new combination” of existing and disparate elements of knowledge re-combined into new knowledge. To study innovation and understand the character of interaction and knowledge sharing, he suggests focusing on interactive learning processes and the social dynamics between different involved actors. Other scholars, such as Edwards-Schachter & Wallace (2017) and Garud, Tuertscher & Van de Ven (2013) have conceptualized innovation as a complex-sociocultural learning process involving diverse groups of multiple actors and knowledge sources. Edwards-Schachter and Wallace (2017) highlighted three aspects that characterize innovation as a learning-based process (p. 65): a) an emphasis on social interactions as forms of relationality between a variety of actors and *social practices* (italics in the original) involving perceptions, meanings, experiences, bodily competencies, purposes, and values; b) the innovation process involves potential institutionalization of practices; and c) social practices span different stages of any innovation process. Edwards-Schachter (2018) and Edwards-Schachter and Wallace (2017) argued that existing and evolving social practices through social and technological change are intrinsic to interactive learning processes. Thus, learning and innovation processes are inseparably bound to each other and provide a more holistic and timely perspective for understanding and studying innovation as a phenomenon.

2.2.2 The concept of innovation in journalism research

At the nexus of innovation and journalism lies an impressive and steadily increasing body of literature (Belair-Gagnon & Steinke, 2020; García-Avilés, 2021; Gynnild, 2014; Luengo & Herrera-Damas, 2021; Pavlik, 2013a). According to García-Avilés (2021), some of the most researched areas and topics in media innovation include “diffusion theory, management, organizational culture, professional profiles, business models, genres and content, tools and technology, media labs, and start-ups” (p. 1). However, García-Avilés (2021) noted that one of the main challenges is that the concept of journalism innovation “is vaguely defined in the academic literature” (p. 3) and not very well understood because “parts of the creative activity that take place in the media and content sector remain ‘under the radar’ since they are not defined as being innovation” (Bleyen, Lindmark, Ranaivoson, & Ballon, 2014, p. 29) and mostly are not documented through quantitative statistical methods (Bleyen et al., 2014). Handke (2010) argued that technological definitions of innovation, which remain the most prominent forms, are not appropriate to describe cultural industries. Understanding innovation more basically as simply change is also problematic, as García-Avilés (2021) noted: “*It [innovation] should not be equated to change itself because it is based on complex*

dynamic social processes that go beyond control of single actors in diverse media contexts” (p. 3). Other scholars – such as Barnhurst (2013); Bruns (2014); Gynnild (2014); Raetzsch (2015), and Spyridou, Matsiola, Veglis, Kalliris, and Dimoulas (2013) – emphasized the complex dynamics and importance of considering social dimensions when studying and understanding innovation in journalism. Nonetheless, according to Prenger and Deuze (2017) study on the history of journalism, innovation tends to focus mainly on legacy news organizations, the content they produce, and technology’s disruptive role. Summarizing the understanding of innovation in journalism research, the situation replicates several of the aforementioned challenges to the concept of innovation as discussed in innovation theory. However, conceptualizing innovation as an interactive learning process points to what Porcu (2017) identified as “the biggest gap in the media innovation literature” (p. 12). Porcu (2017) studied innovative learning cultures within legacy media newsrooms and argued that very little attention is paid to professional journalists’ learning and innovation processes. Many studies are limited to experiences from journalism education or focus on how journalism education addresses innovation in the context of a changing media industry (Broersma & Singer, 2020; Pavlik, 2013b). Several studies have focused on newsroom culture (Ryfe, 2009; Steensen, 2018; Willig, 2013), but knowledge remains lacking on how and where professional journalists develop new professional practices, adapt to new technologies, and innovate quasi- “on the go,” i.e., during their professional careers.

The empirical part of this thesis conceptualizes innovation as an interactive learning process, as suggested by Lundvall (2013), thereby focusing on how professional journalists learn and gain knowledge about adopting and using mobile technologies for journalistic practices. Innovation from this perspective is understood and studied as a process of knowledge sharing and development that not only examines adoption of new tools and technological artifacts, but also focuses on social dimensions, different arrangements, and actors who have motives and engage actively in information exchange, problem solving, and mutual learning processes. The conceptual-theoretical part of the thesis contrasts with the empirical part, focusing on what is outlined as a meta-category of innovation (see 2.3) and emphasizing a political economy perspective on learning and knowledge practices.

2.2.3 Innovation and learning processes in mobile journalism

Mapping this academic work at the nexus of mobile journalism, innovation, and learning processes, many studies that have examined mobile technology’s potential as a new reporting tool are being conducted in academic educational contexts (Bui & Moran, 2020;

Jokela, Vääätäjä, & Koponen, 2009; Jones, 2016; Vääätäjä & Egglestone, 2012; Walck, Cruikshank, & Kalyango Jr, 2015). Other studies that have examined professional journalists' working practices and realities have examined how traditional legacy media have envisioned and tried to facilitate mobile media business practices (Sundet, 2012), or how diverse actors at large publishing houses make sense of mobile media (Westlund, 2011). Burum (2016) investigated mobile journalism training's impact on traditional legacy news organizations, while Kumar and Haneef (2018) found that journalistic practitioners working at one of the largest Indian newspapers view *mojo* as "an innovation" and as both an en-skilling and de-skilling practice (Kumar & Haneef, 2018). Academic work with an explicit focus on mobile journalism innovation mainly has centered around the exploration of innovative journalistic products (news apps), formats (Palacios, Barbosa, da Silva, & da Cunha, 2016), or new tools applied to mobile journalism training among journalism educators (Cervi, Pérez Tornero, & Tejedor, 2020; Kraft & Seely, 2015).

2.3 Responsible innovation

This section briefly outlines a concept that has emerged over the past decade, representing a new approach for innovation and research activities. I start by introducing two often-interchangeable, applied terms and parallel discourses – *Responsible Innovation* (RI) and *Responsible Research and Innovation* (RRI) – which emerged, according to Edwards-Schachter (2018), almost concurrently in the US and Europe, respectively. I then focus on the European Union's Responsible Research and Innovation framework, an example of what Fagerberg (2017) outlines as "mission-oriented innovation policy," which is applied in this thesis. This includes briefly mentioning some features and roots of the European policy approach and why RRI visions and methods are deemed a suitable approach to deal with challenges that arise from adopting journalistic practices based on applying risk technologies. This then is followed by an overview of key challenges and problems that often emerge when embedding the RRI concept into Information and communication technology innovation activities. In this context, I also point to some of the main ethical and social issues closely linked to ICT development and innovation. The last part touches on critiques and limitations that address the RRI approach.

2.3.1 A meta-category of innovation

Over the past decade, two interrelated and often interchangeably applied terms and discourses emerged in science and public policy: Responsible Innovation (RI) and Responsible Research and Innovation (RRI). Both agendas “advocate the notion of shared responsibility for ‘the development and consequences of techno-visionary science and innovation’” (Owen & Pansera, 2019, p. 42; Ribeiro, Smith, & Millar, 2017). RI and RRI represent a meta-category of innovation (Edwards-Schachter, 2018), or what Rip and Voß (2019) refer to as “umbrella terms” that aim to challenge existing narratives and norms of responsibility, inviting debate and critical reflection on innovation’s role and notions in the 21st century (Owen & Pansera, 2019). This also encompasses a more thorough understanding of interrelations between technological and non-technological innovation (Edwards-Schachter, 2018), including the insight that innovations are rooted in a historical context, but have the power to create and transform the future (Jonas, 1984), which again refers to the importance of highlighting a deeper and future-oriented notion of responsibility. Both RI and RRI aim to foster openness, inclusivity, and support in terms of research and innovation oriented toward societal needs. According to Owen and Pansera (2019), RI discourse has strong academic roots, with a foundation in technology assessment, anticipatory governance, science and technology studies (STS), and increasing debate over social responsibility in science (Benessia et al., 2016). RI has strong links to social innovation (Lubberink, Blok, van Ophem, & Omta, 2017) and aims to broaden the lens for understanding the phenomenon of innovation, as well as challenge the predominant Schumpeterian and technology-oriented framing of innovation. RRI, unlike the academic RI debates, is a policy-driven discourse that the European Commission (EC) introduced as a cross-cutting issue in the Horizon 2020 framework program, with the ambition to “mainstream RRI” in the European Research Area (Owen & Pansera, 2019). While RI mainly has emerged as an ideal or guiding principle to strive for, RRI, as a policy framework, is a concrete tool for politically implemented collective action, offering not only impulses, but also concrete incentives (in the form of financial research support) to stimulate alignment of research and innovation that emphasizes societal needs and democratic values (“science with and for society”).

2.3.2 Responsible Research and Innovation Framework

The RRI policy framework, like RI, is an outcome of debates and discussions about the social desirability of technological advances and a greater public interest in the role of science, technological development, and innovation. In these debates, science and research are accused of being out of touch with challenges (Benessia et al., 2016) that individuals, society at large, and the environment face in the 21st century (Owen, Bessant, & Heintz, 2013; Saltelli, Ravetz, & Funtowicz, 2016; Zwart, Landeweerd, & Van Rooij, 2014). In this context, the European Commission has supported RRI's visionary strategy since 2010 as part of a cross-cutting issue under the Horizon 2020 framework and is now a key component of European research and innovation policy (Anichini & de Cheveigné, 2012; Cagnin, Amanatidou, & Keenan, 2012; Mejlgaard & Bloch, 2012; Owen, Macnaghten, & Stilgoe, 2012; Zwart et al., 2014) that should become a core objective across all relevant policies, as well as in activities addressing research and development funding in business and civil society.

According to Owen et al. (2012), adoption of RRI as a policy discourse also goes back first to RRI contributions by Von Schomberg (2013), whose initial vision and framing of RRI remain the most-cited definition:

“Responsible Research and Innovation is a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability, and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society)” (Von Schomberg, 2013, p. 19).

RRI aims to realign science and technological development with society by achieving “ethically, acceptable, societally desirable, and sustainable outcomes of research and innovation activities” (Salzmann et al., 2021b, p. 134; Von Schomberg, 2013) by emphasizing the importance of public engagement and inclusion of all relevant stakeholders throughout all stages of the innovation and research process (Von Schomberg, 2013). In other words, RRI aims for nothing less than cultural change by transforming existing innovation systems and generating a new way of thinking in European science and industry. In that sense, RRI acknowledges the uncertainty linked to scientific progress and sociotechnological innovations, i.e., research and innovation in emerging technologies can elicit great benefits for society, but also has the potential to raise complex ethical issues, social concerns, or serious environmental implications. This is also reflected in the strong emphasis not only on innovation, but also so-called “grand societal challenges,” e.g., refugee

flows, climate threats, economic crises, pandemics, lack of access to education, and health issues (see Svedin, 2009, July). To deal with these challenges, RRI envisions innovation systems, i.e., instead of “the triple helix” (Leydesdorff & Etzkowitz, 1998) of government, universities, and industry, as “a quadruple helix” that includes civil society (multiple stakeholders) at all stages of innovation processes (Owen & Pansera, 2019).

Several guidelines and frameworks have been suggested on how to implement the RRI concept into research and innovation practice. The Directorate-General for Research and Innovation has defined six “RRI key action points” to implement the RRI approach into research and innovation practice: engagement; gender equality; science education; open access; ethics; and governance (Geoghegan-Quinn, 2012, pp. 22-25). However, Stilgoe, Owen, and Macnaghten (2013) and Owen et al. (2012, 2013) emphasize only four important dimensions for implementation of RRI in innovation practices: reflexivity; anticipation; deliberation; and responsiveness. According to Owen, Bessant, et al. (2013), these four dimensions comprise the foundation of what they call the RRI approach’s “reflexive capital.” The framework that Stilgoe et al. (2013) and Owen, Stilgoe, et al. (2013) suggested has been taken up by European policy and research institutions, and is reflected in the acronym “AREA,” which comprises four important key components for RRI implementation:

“Anticipate possible outcomes of research and innovation, Reflect on motivations, processes and products, Engage with relevant stakeholders, and Act accordingly to address issues revealed” (Jirotko, Grimpe, Stahl, Eden, & Hartswood, 2017, p. 3).

In recent years, the RRI concept has been expanded to include the conceptual dimensions of sustainability and care (Burget, Bardone, & Pedaste, 2017). Furthermore, discussions have been held on incorporating the dimension of “openness” or “transparency” (Gianni, Pearson, & Reber, 2018) to ensure free and open access to relevant information, and to facilitate an inclusive deliberation process during all research and innovation stages.

Furthermore, implementation of RRI in practice is measured using procedural and substantial dimensions. The procedural dimension refers to applied tools and methods to achieve RRI goals. Typically, questions addressed in this dimension include: How can we ensure that all potential stakeholders are included? How can we ensure that they are responsive to each other and able to collaborate? Who should be addressed as potential stakeholders, and which knowledge base should be taken into account (Lindner, Daimer, et al., 2016)? The substantial dimension of RRI addresses the values and norms that should be

considered in the innovation-related decision-making process, with an emphasis on questions such as: What are desirable and non-desirable outcomes and effects from innovation? How can these outcomes be determined, and what are the goals to be achieved (Lindner, Daimer, et al., 2016)?

The intention to shape innovation processes and science in a responsible way is by no means something new and has been an integral part of societal and political agendas in a European context for decades. Particular disciplines with great transformational potential for society – such as biotechnology, nanotechnology, geo-engineering, or synthetic biology — have spurred public debates about controversial risk technologies and a greater interest in responsible technological development. In recent years, the ICT field has been included as an area for developing and producing several risk technologies and outlined as having great transformational potential for society (Jirotko et al., 2017; Stahl, 2012; Von Schomberg, 2011). This also makes the RRI framework interesting as a collective approach for dealing with and reflecting on the challenges that emerge when seeking answers to the overarching question of this thesis.

2.3.3 Challenges from governing developments in ICT

Governing ICT innovation and research is a very challenging endeavor, which becomes obvious when trying to apply the RRI approach to ICT development (Eden, Jirotko, & Stahl, 2013; Jirotko et al., 2017; Stahl, Borsella, Porcari, & Mantovani, 2019; Stahl et al., 2013; Stahl, Timmermans, & Flick, 2016). A key problem that both RRI theory and developed practical RRI tools face is the fact that ICT development often is linked to fundamental uncertainty. Basically, ICT innovations' trajectories are very difficult to predict (Reeves, 2012) because technology is always subject to and part of social processes of interpretation, developing over time and through use, as reflected by the so-called Collingridge dilemma (1980), which concerns technological innovations' unpredictability and uncontrollability, and the “increasing social agency over technology” (Genus & Stirling, 2018, p. 61). According to Collingridge (1980), attempts to influence or control technological development face two problems: First, technology's impact is difficult to predict before it is developed and adopted more widely. Second, when technology proliferates, it is difficult to control or change the technology and its application.

More precisely, Stahl et al. (2017) identified three key issues that are particularly problematic from an RRI perspective. First, ICTs are characterized by what Moor (1985) referred to as *logical malleability*, i.e., data technologies creatively can be “shaped and

molded to do any activity that can be characterized in terms of inputs, outputs, and connecting logical operations” (Moor, 1985, p. 269). Thus, this characteristic also is the basis for the principle of convergence and the possibility of integrating, converging, or connecting different technologies. Second, ICTs are *ubiquitous* (Quilici-Gonzalez, Broens, Quilici-Gonzalez, & Kobayashi, 2014), i.e., they are increasingly pervasive and embedded in other systems and technologies, making it difficult to demarcate boundaries. This gets even more complicated by the fast pace of ICT diffusion and development in many cases. Third, the so-called *problem of many hands* (Johnson & Powers, 2008; Johnson, 2004; Van de Poel, Fahlquist, Doorn, Zwart, & Royakkers, 2012) entails the difficulties in attributing technologies’ individual features or functionalities to developers, tinkerers, or researchers’ individual actions and their eventual consequences.

2.3.4 Ethical and social issues in ICT development

To get a roadmap of relevant ethical and social themes linked to ICT development, Stahl et al. (2017) conducted a structured literature analysis of a large number of emerging ICT technologies, artifacts, and applications. With the help of their analysis, the authors of the so-called ETICA study identified 11 technologies that were viewed as making a significant impact on society at the time of their investigation (see also Stahl et al., 2017, p. 371): affective computing; ambient intelligence; AI; bioelectronics; cloud computing; future Internet; human-machine symbiosis; neuro-electronics; quantum computing; robotics; and virtual augmented reality. Based on this map of technologies, the scholars outlined several core ethical themes that have emerged as relevant across most emerging ICTs identified as socially and economically relevant in the near future. To structure these themes, which often are interlinked, Stahl et al. (2017) differentiated between issues with predictable impact on the rights and well-being of individuals and potential consequences that apply to society as a whole.

On an individual level, Stahl et al. (2017) identified five ethical issues that surface frequently with emerging ICTs: privacy; individual autonomy; treatment of humans; the changing concept of identity; and questions that deal with individual security. While privacy is one of the most prominently discussed ethical issues and also is marked as a key concern for RRI (Stahl et al. 2017 after Peissl, 2011), ICT innovation and research are confronted with a range of other serious questions around the ongoing “shift of control from individuals toward technology” (Stahl et al., 2017, p. 373), including problems such as user addiction or manipulation of humans, particularly when it comes to treatment of potentially vulnerable

people. The application of new ICT opens up a range of new security issues and vulnerabilities that may endanger people's mental or/and physical health.

Unlike ethical issues related to individuals, emerging technology's impact on a societal level often is more difficult to grasp. As Stahl et al. (2017) argued, "Most of the emerging ICTs studied entailed consequences for groups or society as a whole" (p. 374). In other words, many emerging ICT technologies and infrastructures either are designed for or have the power to unfold large-scale effects, thereby impacting many people. The authors identified six different ethical themes that are relevant for reflection on a societal perspective: 1. the problem of an emerging digital divide between those with access and those without access to new technologies; 2. ICT's effects on human culture and understanding what it means to be human, and the understanding of "what leading a good life should entail" (p. 374); 3. questions arising around intellectual property, data control, and ownership; 4. who is responsible in case of serious consequences and in light of a fragmentation of responsibilities; 5. facilitation of ICT to comprehensive surveillance and non-stop monitoring of human activities; and 6. the challenge of cultural differences and the values embedded in ICT that cross cultural and national borders (Stahl et al., 2017, pp. 374-375).

Summarizing the RRI-ICT debate

Debates over the aforementioned ethical issues raise several fundamental philosophical questions that carry implications related to understanding what it means to be human in the 21st century (Beck, 2016; Jasanoff, 2016; Spiekermann, 2019; Stahl et al., 2017) and the safeguarding of human dignity and autonomy (Gabriel, 2020a, 2020b; Nida-Rümelin, 2021; Zuboff, 2019), as well as human freedom (Beck, 2016). Precisely for this reason – and the fact that digital technologies exists in all aspects of science, innovation, and technology – it is important to address these issues and pave the way for technological development in a responsible, deliberative, and inclusive manner that holds science and industry accountable to public values and human rights.

2.3.5 Limitations and critique of the RRI approach

While RRI presents a collective European regulatory approach to prevent and counteract irresponsible innovation and technological development, it is important to bear in mind that according to an Organization for Economic Cooperation and Development (OECD) study from 2017, research and development in the ICT sector is a highly concentrated activity, and

Europe plays only a marginal role in this field compared with other international players, such as China, the US, Korea, Japan, and Canada. Furthermore, more than 60 percent of the research conducted (in the OECD area) is financed privately (OECD, 2017, p. 27) or is conducted outside of public academic institutions. Spiekermann (2019) speaks in this context of an ongoing “privatization of knowledge production” (p. 203).

In examining the RRI approach more closely, Lindner, Goos, Güth, Som, and Schröder (2016) argue that one of the fundamental questions regarding responsible innovation and research is: “Who is responsible for what and for whom” (p. 143)? They continue: *“The call for normativity related to the RRI approach in representative democracies seems to be problematic both in democratic, as well as practical terms, when it comes to formalizing values and senses of values in an authoritative way without considering and (consulting) existing representative institutions”* (Lindner, Goos, et al., 2016, p. 143). In other words, the implications that come with the normativity of the approach and which are expressed in popular RRI definitions (see Von Schomberg, 2013) automatically will lead to tensions in pluralistic societies – a fact that Lindner, Daimer, et al. (2016) said is hardly acknowledged in current RRI debates. Van Oudheusden (2014) points out that some RRI debates sound almost naive when conflicting values and competing political and economic interests about the right outcome of innovations are not addressed properly. Through high levels of abstraction expressed in RRI formulations, such as “grand challenges” or European values, the approach seems to be able to produce some consensus, but when it comes to more concrete practices, conflicts are, according to Van Oudheusden (2014), preprogrammed. This is also reflected in a critique by Schuijff and Dijkstra (2020), who viewed the RRI approach as overly anchored in academic debates and pointed to the fact that RRI ideas and normative RRI principles often are difficult to translate into practices and implement into social realities.

Owen and Pansera (2019) asserted that RRI elements and tools often add complexity to already-existing institutional practices, and that little awareness exists in the industry about the concept. However, big question marks remain when it comes to integrating RRI principles into organizational and management processes, as well as into academic work routines and established hierarchies. According to Lindner, Daimer, et al. (2016), RRI aims for nothing less than a fundamental cultural change, which is feasible only through strategic planning, support from management, and a corporate vision reflected throughout all activities and parts of the organization and into political macro-frames in which organizations are embedded (Owen & Pansera, 2019). This is challenging on all levels, as

both RI and RRI are characterized by interpretive flexibility and often are mixed with ideas based on intuition or personal experience, as Owen and Pansera (2019) put forth. The approach's normativity, the creative flexibility of RRI understandings, and the ambition to aim for a thoroughly cultural change in how to approach and think about research, innovation, and technological development create, in practice, many tensions and raise questions that still need to be addressed more explicitly, e.g., how to include and increase deliberative-participative processes in current research and innovation activities within different innovation arenas, such as industry, public and private universities, and in newly emerging social communities and structures that focus on innovation. Furthermore, Lindner, Daimer, et al. (2016) ask: "*In which relation are new participative processes in context to already existing formal processes, which are anchored in the constitution?*" (p. 144).

From a critical sociological perspective, RRI principles and the emphasis on RRI concerning more stakeholder inclusion, as well as deliberative processes, may lead to another more fundamental dilemma, described by Beck (1986) as referring to the "self-reflexivity of science" (p. 254). According to Beck, when applying reflexivity processes to science, e.g., through civic participation and broader stakeholder engagement, science will be "demystified" and reveal its real produced amount of "manufactured uncertainties" (Beck, 2009, p. 291). Subsequently, the apparently increasing societal awareness concerning the addressed deficiencies in science effectively may elicit the opposite of RRI's intended political objectives (e.g., more public trust in science and social acceptability of technological advancement). This could cause an even more extended need to justify scientific action, leading to rejection of technologies and production of more uncertainty and complexity. Thus, no certainty exists either when it comes to the implications from broader civic participation in innovation and research activities.

Nevertheless, in examining the RRI vision and its normative principles in the context of this work, the approach points toward more humanistic digitalization based on fairness, inclusivity, sustainability, and democratic values. It offers what Zuboff (2019) and other scholars – such as Gabriel (2020b), Spiekermann (2019), and Jasanoff (2016) – point to as the need for *a new moral compass* to tackle and redirect social, cultural, and political side effects from new information and communication technologies. The RRI approach is by no means a silver bullet for the complex challenges that are emerging, particularly when it comes to situations in which journalists and media organizations are struggling with tight money and time budgets, are entangled deeply with existing surveillance structures, and are

involved in their own audience surveillance practices (Adams, 2020; Soe, Nordberg, Guribye, & Slavkovik, 2020). However, the RRI approach's strengths are posing new questions and generating long-term thinking when it comes to adopting and developing new technology. RRI aims to shift the focus from "What can be done?" to "What do we really want?" or simply "What is good for society and our environment?"

3 Theoretical perspectives

In this chapter, the overarching theoretical perspectives and analytical lenses that have informed the work on this thesis are discussed. This work's analytical ambition is to understand innovation processes in journalism and the consequences of adopting mobile technology in journalism. For that purpose, innovation is conceptualized (see Chapter 2) as a complex sociocultural process of learning involving diverse actors and knowledge sources, perceptions, experiences and bodily competencies, purposes, and values, as suggested by Edwards-Schachter and Wallace (2017) and also outlined as the innovation type "responsible innovation," an innovation meta-category. In the empirical part of my thesis, I draw on sociocultural perspectives on learning. In the conceptual part, I apply what I outline as a political economy perspective on learning and knowledge practices by reflecting on mobile journalism through the analytical lens of Zuboff's (2019) surveillance capitalism theory. This chapter is structured as follows: I start by introducing a sociocultural perspective on learning and outline thereafter some key points of the concept of communities of practice (Wenger, 1998; Wenger, McDermott, & Snyder, 2002), which was applied as a theoretical lens in the study about the mojo community and mojo pioneers (*Article I*). This is followed by perspectives from Säljö (1999, 2010); Weilenmann et al. (2014) on learning, which are applied in the second article, focusing on how print journalists are trained to become mobile audiovisual storytellers (*Article II*). After that, I examine more closely Zuboff's theory of surveillance journalism, which has been applied in the third conceptual article. Zuboff offers a political economy perspective on learning and knowledge practices in the background of technologies and infrastructures with which mobile journalism is deeply involved. I do so by laying out some key points from Zuboff's theory that are relevant for my work. I also mention some main points of criticism regarding her work. In addition to that, I approach Zuboff's work from a meta-perspective by reflecting on her theory in light of Beck's (2016) sociological theory of metamorphosis. I finish this chapter by outlining the broader impact of Zuboff's work and how it goes far beyond the academic community.

3.1 A sociocultural perspective on learning

Learning is a complex and multidimensional phenomenon reflected in different theories that aim to conceptualize learning and emphasize different aspects of the phenomenon. The empirical work of my thesis approaches learning from a sociocultural perspective, i.e., I

focus on social and cultural dimensions of professional journalists' learning practices. Sociocultural perspectives on learning emphasize that learning is bound inseparably to people's everyday practices and that the nature of knowledge is situated socially. Sociocultural learning theories' roots can be traced back to the work of Vygotsky (1978), who identified connections between individuals' cognitive processes and society's sociocultural processes. According to Vygotsky (1978), knowledge and understanding are constructed through language, collaborative interaction, and engagement in meaningful activities. Thus, learning in a sociocultural perspective is viewed not only as a social practice among individuals, but also expressed through their relationships and activities within social communities. The approach has gained increasing attention over time in other disciplines, e.g., management theory and innovation theory (see 2.2.1).

3.1.1 The concept of communities of practice

The concept of communities of practice (CoP) is a sociocultural perspective that I applied in the first article of the thesis, "We Are the Mojo Community' – Exploring a Global Network of Mobile Journalists." The term *communities of practice* originated from the work of Lave and Wenger (1991), who set out to understand how learning occurs outside of formal learning situations (e.g., in the classroom) and investigated how apprenticeships help newcomers or novices learn and how they become established members of a formal group. The findings from their research demonstrated that when novices joined an established group, they observed other community members and practices within the community, sometimes also conducting some simple tasks and developing an identity as part of ongoing socialization processes in this group. The concept was developed further by Wenger (1998) and defined by Wenger, McDermott & Snyder (2002, p. 4) as "*groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis.*"

CoPs can be found in all areas of life and are, according to Wenger (1998), "an integral part of our daily lives" (p. 7), in which people, either in professional or private settings, come together or "find themselves" and form a CoP around many diverse fields, topics, or interests. In other words, a CoP presents a form and process of social learning that occurs when people with a common interest or subject come together and collaborate over a certain period of time to share their ideas and knowledge, find solutions, and develop innovations. To identify a CoP, Wenger (1998, pp. 72-85) described three fundamental and interrelated characteristics: First, *mutual engagement* refers to the fact that members of a

CoP engage actively around a theme or topic of interest, and forge relationships with other community members with a unique identity within the community. Second, people who engage in a CoP develop, through interactions and ongoing negotiation processes, a shared understanding of what binds them and creates coherence in the community, which he terms a *joint enterprise*. These dynamic (and never finished) negotiation processes create relationships of mutual accountability between community members and what Wenger (1998) terms “an indigenous enterprise.” Third, as part of its practice, a community develops, produces, and administers a set of communal elements and resources that Wenger (1998) terms a CoP *shared repertoire*, reflected and represented as shared routines, tools, words, ways of doing things, concepts, symbols, stories, gestures, or metaphors (Wenger, 1998, pp. 82-84). According to Wenger (1998), a shared repertoire has two main characteristics for becoming a resource for the negotiation of meaning: first, by reflecting histories of interpretation within a CoP, and second, by remaining “inherently ambiguous” (p. 83). In other words, a shared repertoire generates discourse between participants, eliciting production of new interpretations or meanings.

Over time, the CoP concept has been elaborated and revised. The three aforementioned structural dimensions were renamed in a later work by Wenger et al. (2002) as *domain*, *community*, and *practice*. A community's *domain* refers to a certain knowledge area or field of interest that creates common ground within the group and inspires members to participate, learn, and create meaning in their actions. The *community* itself is the social fabric for learning and develops around the domain of interest by fostering interactions between its members. The *practice* of a community reflects the concrete focus or topic of interest and entails myriad interactions between community members. Thus, the practice of CoP demonstrates how community members develop, share, and maintain their knowledge and generate innovations.

Learning, through the lens of the CoP concept, is understood as an open process of exchange, not as a one-sided knowledge transfer confined to formal learning environments. It is a socially constructed experience of meaning making and is situated in a cultural and historical context (Farnsworth, Kleanthous, & Wenger-Trayner, 2016).

In business and management literature, the concept of CoP has attracted much attention. In business settings, CoPs are viewed as a growth potential and entry point for organizational knowledge management that could help increase productivity, improve organizational performance, and foster innovation. Thus, some scholars also refer to CoPs as “knowledge networks” (Hildreth & Kimble, 2004) that are worth nurturing and supporting because of

their benefits for organizations. Lundkvist (2004, p. 103) argues that “CoPs are a powerful tool for creating an understanding of how innovation, work, and learning are interrelated.” Furthermore, a CoP is viewed as a way to access and tap into tacit knowledge, which generally is difficult to verbalize or transfer to other people (Hildreth & Kimble, 2004). Against the backdrop of increasing networked social life and emerging studies on digital culture, the concept has gained renewed attention. Stalder (2018) highlights the CoP concept as a productive means of examining and understanding “new ways of social acting, learning, practicing, and knowing” (pp. 84–85) because a CoP perspective focuses on social practices and how people construct identities in relation to these emerging communities. According to Stalder (2018), this perspective’s strength is that it is “firmly grounded in the empirical observations of concrete social relationships” (p. 83).

3.1.2 Learning through the use of tools

The importance of highlighting a sociocultural learning perspective marks the work of Säljö (1999, 2010); Weilenmann et al. (2014), which was applied as a theoretical lens in the second article of the thesis, “Adopting a Mojo Mindset: Training Newspaper Reporters in Mobile Journalism.” Säljö (1999) emphasized the fact that learning not only is connected very closely to a social dimension of how we interact with other people, but also is influenced by cultural and material dimensions. He refers to concrete tools applied in learning situations, which can be intellectual or physical. They influence how we communicate with each other and use our intellectual resources (Säljö, 1999, p. 146). Säljö (1999) argues that technological development in particular plays a significant role in human activity and impacts how we learn and gather knowledge. According to Säljö (2010, p. 53), “Technologies do not merely support learning; they transform how we learn and how we come to interpret learning.”

However, Säljö (1999) contends that extant research on learning so far has shown little interest or ability to acknowledge that humans constantly develop technologies and artifacts that also influence learning processes. He argues that *the history of research into learning has been dominated by two different scientific traditions that at first sight appear contradictory; however, both share a disregard of this ability of human beings to create artifacts and technologies*” (Säljö, 1999, p. 147). He continues: “...*The problem of the traditional approaches to understanding learning is that they imply a disregard of the cultural side of knowledge. They treat knowledge and skill as if people were not operating with tools when solving problems and when managing social activities* (p. 149).

According to Säljö (1999), people learn and develop skills and knowledge by using different tools and artifacts that differ over time and also vary depending on the historical and cultural context that is in focus. Therefore, he sees a need to understand the interdependencies and interrelations between human agency, bodies, and technologies when trying to understand or improve learning processes (Kress, Selander, Säljö, & Wulf, 2021; Säljö, 2010). However, over a long period, research on learning processes systematically has overlooked the important role of intellectual and physical (technical) tools (Vygotsky, 1986 after Säljö 1999) that come into play and that humans use to organize social activities or learning processes. Following Vygotsky (1986), it also should be noted that Säljö (1999) not only refers to physical tools or artifacts, but also includes in his concept intellectual or psychological tools that are important in understanding learning processes and are reflected by language, ideas, and concepts. For example, he highlights human communication's exceptional role in knowledge development by arguing:

“The creation of knowledge is essentially a matter of learning to argue, and no technology will ever replace the need for learners to participate in ongoing conversations with partners, sharing interests and commitments” (p. 159).

To sum up, it can be said that sociocultural perspectives on learning refuse to view knowledge as a purely mental phenomenon, but also refuse to understand knowledge as something purely physical and not related to human and social activity. They focus on “how people appropriate and master *tools for thinking and acting* that exist in a given culture or society” (after Wertsch, 1991 in Säljö, 1999, p. 149).

3.2 A political economy perspective on learning and knowledge practices

How new tools and artifacts contribute to and transform learning, as well as generate new knowledge, is also evident in the work of Zuboff, who investigated as early as the 1980s work implications associated with the extensive adoption of information technology in the workplace in organizational contexts. Zuboff (1988) observes here what she calls “a fundamental duality of information technologies” (p. 390), i.e., information technology has the capacity not only to automate, but also “to informate” by “producing and generating new information by giving insights about processes and activities that were previously invisible or unavailable before” (Salzmann et al., 2021b, p. 131). Zuboff (1988) points out that “the

intrinsic power of its [computer-mediated technologies] informing capacity can change the basis upon which knowledge is developed and applied” (p. 23).

She particularly views the “division of learning” as an important consequence of applying information technology. Thus, in her later work, she sets out on the following premise and related fundamental question: “New ICT generates new knowledge and therewith new power, but for whom” (Zuboff, 2015, 2019)?

Compared with Wenger (1998) and Säljö (1999), Zuboff does not deliver a theory of learning, but contributes a political-economic perspective on learning by focusing on the consequences and implications of applying new tools and artifacts (information technology) for labor, learning, and knowledge gathering, as well as shifting power relations. Zuboff (1988, 2015, 2019) analyzes *how* new information technology changes knowledge distribution and learning opportunities. She emphasizes the economic and political dimensions related to adoption of new computer-mediated technologies. Thus, she centers her thinking around questions concerning how new information technologies and emerging IT architectures help generate new knowledge, eventually asking: Who is actually learning? Who profits from the new knowledge that is generated based on applying these new technologies? Zuboff (2015) points out:

“As a result of the informing process, computer-mediated work extends organizational codification, resulting in a comprehensive ‘textualization’ of the work environment [...]. That text created new opportunities for learning and, therefore, new contests over who learns, how, and what” (p. 76).

In essence, Zuboff says that the application of new ICT in the context of work practices transforms learning processes by opening up new opportunities to learn and gather knowledge, while simultaneously raising questions concerning who is included or excluded in these new opportunities. In her recent work, Zuboff (2014, 2015, 2019) argues for a growing division of learning in the 21st century (Zuboff, 2019, pp. 174-194) (which I outline in more detail in 4.2.1.) Säljö (2010) also highlights the fact that technologies not only support learning, but also influence and transform how humans learn and interpret knowledge and learning processes. However, unlike Zuboff (2014, 2015, 2019), Säljö (2010) does not emphasize the political and economic dimensions.

The field and practice of mobile journalism centers around applying technologies and using IT infrastructures that Zuboff has followed and investigated critically in her academic work. While Zuboff (1988) started by exploring working practices with ICT in organizational settings, her later work deals with the societal consequences of “computer-mediated work” from a macro-perspective, reflected in her surveillance capitalism theory, which I applied in the third analytical-conceptual paper, “Mobile Journalists as Traceable Data Objects: Surveillance Capitalism and Responsible Innovation in Mobile Journalism” (Salzmann et al., 2021b).

In the following sections, I briefly outline Zuboff’s surveillance capitalism theory, followed by major criticism of her theory among other scholars. I also discuss the broader impact of Zuboff’s work and try to place her theory in the context of sociologist Beck’s (2016) latest work and his theory of metamorphosis. Beck’s (2016) thinking allows for a meta-perspective on Zuboff’s theoretical-analytical work to better grasp the transformational processes in journalism of which the adoption and use of mobile technology are an important part.

3.2.1 Surveillance capitalism theory

Zuboff (2019) latest work in many ways can be viewed as the culmination of her long academic career and how she aims to provide answers to the fundamental questions that have driven her research interest for many years, including: Who benefits the most from new opportunities for learning through new information technologies? Also, in what way and what kind of knowledge is produced, and for what purpose? In her surveillance capitalism theory, Zuboff (2014, 2015, 2019) mainly traces the development, research ambitions, and strategies of three of the top five US IT companies (Google/Alphabet, Facebook, and Microsoft). In her view, these companies serve as “petri dishes” for observing the DNA of what she identifies as a new and more radical economic logic that she terms “surveillance capitalism.” From her perspective, this form of capitalism, like any other form, focuses on accumulating capital, but in a new parasitic way that builds on the commodification of knowledge about human behavior and the possibility of securing future revenue from this commodification. Private human experiences and behavior – including personal characteristics such as a person’s face, movements, habits, or interests – become, from her perspective, a raw and unlimited source of economic exploitation. Zuboff states in an interview with the *Harvard Gazette*:

“I define surveillance capitalism as the unilateral claiming of private human experience as free raw material for translation into behavioral data. These data are then computed and packaged as prediction products and sold into behavioral futures markets — business customers with a commercial interest in knowing what we will do now, soon, and later” (Zuboff 2019 cited in Laidler, 2019).

According to Zuboff, AI technologies and digital infrastructures from the observed US IT companies and platforms – which are optimized for collecting, analyzing, and manipulating behavioral mass data – play a key role in this new economic logic.

Zuboff bases her theory on a broad collection of empirical data combining different social science methods, and she applies a mix of historical and philosophical approaches.

Furthermore, Zuboff introduces a range of new terms to grasp the phenomenon and its societal consequences. Zuboff (2014, 2015, 2019) views US company Google as a pioneer in surveillance capitalism, arguing that Google discovered through an algorithmic analysis that so-called “data byproducts” can be generated as side products from human or non-human interaction and are digitally mediated. This “data exhaust,” or what Zuboff terms as a “behavioral surplus” (2019, pp. 63-97), is linked to a massive knowledge extension with profound economic value. According to Zuboff (2015; 2019), these extra data are not only used secretly to improve the company’s services and products, but also have been turned into *surveillance assets* (2019, p. 94) and *behavioral products* (2019, p. 96) “based on the idea of human experience as free raw material that could be translated into behavioral data” (Salzmann et al., 2021b, p. 131) and (mis)used for prediction, modification, and control of human behavior (Zuboff, 2019, p. 75). At first, according to Zuboff (2019), the commodification of personal and private data was used for targeted advertising, but this quickly became a new “extraction imperative” (p. 87), which she refers to as “*economies of action*” (Zuboff (2019, pp. 293-299 italics in original) using real-time data for behavioral modification and control. To support her hypothesis, she used concrete examples, such as the popular gaming app Pokemon Go (2019, p. 308). She argues that most people are unaware that their behavior and interactions with this technology are commodified. Processes are invisible, difficult to trace, willingly obscured by surveillance capitalists, and thrive on people’s ignorance.

In her theory, Zuboff (2019) cited the political-historic circumstances in the US after the 9/11 attacks, combined with the ruling neo-liberal regime, as being responsible for the rise of Google and the institutionalization of this new economic logic. She also pointed out that this new business model became a default business model over the past two decades in

all kinds of sectors and is not confined anymore to big IT companies such as Microsoft, Facebook, or Google (Zuboff, 2014, 2015, 2019). In her view, this has led to a more radical form of capitalism that stands for “a fundamental change from basic assumptions from the 20th century industrial society” (Salzmann et al., 2021b, p. 132), i.e., from a society “organized around the division of labor and work as a central force of production, to a division of learning in (the) society (of) the 21st century” (Salzmann et al., 2021b, p. 132; Zuboff, 2019, pp. 175-194). In her view, this threatens fundamental human rights, such as human autonomy, dignity, and self-determination – fundamental aspects of a liberal democratic order (Zuboff, 2019).

According to Zuboff (2019), this division of learning emerges as a new principle of social order reflecting the primacy of learning, information, and knowledge in an information society, indicating unprecedented asymmetries of knowledge and power enabled by surveillance capitalism’s economic logics. She uses the metaphor of “the two texts” to explain these asymmetries and this division of learning. Zuboff argues that surveillance capitalism compels the production of “two electronic texts” (Zuboff (2019, pp. 182-186): a public-face text and a shadow text. The first, a public-face text, includes all the content and information we produce or consume as authors or readers, such as posts, blogs, tweets, videos, music, “likes,” etc. The second text, or what she terms “shadow text,” is hidden from the user’s view and is “read only” for surveillance capitalists. Zuboff argues that everything that represents the first text becomes a target for what she terms “surplus extraction,” i.e., the first text functions as a supply operation for the shadow text, and again provides more information about people (users) than what they know about themselves. Zuboff continues: “Only surveillance capital commands the material infrastructure and the expert brainpower to rule the division of learning in society” (2019, p. 186).

For Zuboff, the existence and exploitation of these two texts marks the division of learning and an enormous ongoing power shift accompanying the current societal adoption of information technology. This division of learning, according to Zuboff, must resolve several fundamental dilemmas that she expresses with the following three fundamental questions (2019, pp. 179-182): “*Who knows?*” (italics in original), i.e., who is included or excluded from the opportunity to learn?; “*Who decides?*,” i.e., which people, institutions, or processes determine who is included in learning, what are they able to learn, and can they act on their knowledge?; and “*Who decides who decides?*,” i.e., What is the source of power when it comes to the authority sharing or withholding knowledge?

The currently existing knowledge divide paves the way for what Zuboff refers to as “a new unprecedented instrumentarian power” (Zuboff, 2013, 2015, 2019) and “a privatization of the division of learning” (2019, p. 189). These thoughts and arguments resonate with other scholars, such as German sociologist Beck (2016), who mentions “a new digital intelligentsia” and the arising “global risk of freedom” (p. 143). Also, Beck (2016) is alerted to an “unseen hegemonic control on a global scale” (p. 142) that bears the threat of developing into an unseen “digital totalitarianism” (Diamond, 2019; Helbing, 2019; Hendricks & Vestergaard, 2019; Schirmacher, 2015).

In addition to the “instrumentarian power” that accompanies the possibilities of what Zuboff (2021) terms “engineering communication and human behavior” (Zuboff, 2021), she is concerned about “the radical indifference of surveillance capitalism” (Zuboff, 2019, p. 376), which refers to what can be described as data-based algorithmic systems’ inner logics. Radical indifference is understood as an embedded structural disregard of meaning embedded in systems of applied AI and the ruling imperative of mass data extraction. Thus, these technical systems are indifferent about what content is shared and produced, or whether it is reflecting the truth or replicating fakes and falsehoods. What matters the most for surveillance capitalists is maximizing engagement to increase the possibility of converting human interactions and activities into data (Zuboff, 2015, 2019). Zuboff points out that these applied technical systems’ radical indifference to data-harvesting marks not only a key structural feature, but the opposite of journalism’s analytical strengths. Zuboff describes journalism as the “precise opposite” (2019, p. 507) of these data-driven logics that emerge in these technical systems. Journalism functions under a different logic that entails producing news by distinguishing between truths and falsehoods (Zuboff, 2019, p. 507).

3.2.2 Criticism of Zuboff’s surveillance capitalism theory

Zuboff’s theory is a strong analytical lens to understand and trace the intangibles and challenges of an unfolding new economic logic enabled by new technologies for data extraction, leading to an unprecedented concentration of knowledge and power. However, other scholars have criticized her work. The most prominent criticism comes from Morozov (2019), who views her theory as a limited and incomplete picture of the digital economy that is blind to the underlying roots of the main problem, which in his view is capitalism itself. Morozov (2019) traces important influences on Zuboff’s work and is skeptical of her perspective, which is anchored in the traditions of “managerial capitalism,” which he views as blind to organizational processes beyond consumer-facing operations (p. 28).

Also, Doctorow (2021) objects to Zuboff's theory by pointing out that the danger arises less from the potential of behavioral modification or IT giants' "brainwash-possibilities," but rather from their monopoly power, which allows them to influence public opinion, media, research, and policy, as well as avoid regulations. Other scholars also support this hypothesis (Dachwitz, Rebiger, & Fanta, 2019; Fanta & Dachwitz, 2020; Lindén, 2020), as do journalistic investigations (Clark, Williams, & Swindells, 2021), global anti-corruption organizations such as Transparency International EU (2021), different activist groups, and European think tanks such as DataEthics.eu (Tranberg & Hasselbach, 2018).

3.2.3 The concept of surveillance capitalism in light of Beck's metamorphosis theory

Looking at Zuboff's theory from a sociological perspective, the analytical concept of surveillance capitalism resonates strongly with some key points reflected in Beck's (2016) metamorphosis theory. Beck is known for developing some of the most influential sociological concepts of the late 20th and early 21st centuries (Mythen, 2020), such as risk society (Beck, 1986), world risk society (Beck, 1999), reflexive modernization (Beck, Giddens, & Lash, 1994), individualization (Beck, 2002), and cosmopolitanism (Beck, 2006). In his well-known theory of risk society (1986) and the further developed concept of world risk society (1999), he aimed to describe how society shapes reality against the backdrop of intense technological progress. Beck identified *risk* around the mid-1980s in this context as a key term for understanding the social and political dynamics at the end of the 20th century. Thirty years later, he introduced his analytical framework of metamorphosis, which he connects to an ongoing epochal change in which "the metaphysics of the world are changing" (Beck, 2016, p. 6). He uses the metaphor of Franz Kafka's (1915) classic novella *Metamorphosis* to capture the ongoing radicality of societal change. Beck argues that ongoing developments in society are enormous, accelerated, and closely connected to global risks that are characterized by being complex, invisible, and, thus, very challenging to grasp and conceptualize through social theory. Beck criticizes other social theories and known theorists such as Bourdieu, Foucault, and Luhmann who, in his view, focus on reproduction of social and political systems, rather than on their transformation or the possibility of even more radical changes, which he tries to capture with his concept of metamorphosis (Beck, 2016, p. 70). Beck (2016) views metamorphosis as something more radical than transformation, as it requires theorizing to grasp "the meaning of and madness of modernity

in the context of continuity and discontinuity” (Beck, 2016, p. 71). Beck (2016) perceives the dawn of a new era as the 21st century unfolds, as humanity witnesses a destabilization of certainties and a shift in focus toward “*events and processes which are unintended, which generally go unnoticed, which prevail beyond the domains of politics and democracy as side effects of radical technical and economic modernization*” (Beck, 2016, p. xi). As examples of societal confrontations with metamorphosis, he refers to several “insane events” (Beck, 2016, p. xii) that have become global events that mass media observe and transmit, such as the fall of the Berlin Wall, the 9/11 attacks, climate change, the Fukushima reactor disaster, the global financial crisis in 2008, and threats from totalitarian surveillance as revealed by Edward Snowden (Beck, 2016, p. xii). The list can grow with events after Beck’s death, such as the US presidential election in 2016, the UK’s exit from the European Union, and the current COVID-19 pandemic.

I argue that Zuboff’s theory captures what Beck identifies as “the meaning of and madness of modernity” (Beck, 2016, p. 71), or formulated differently, processes that capture radical technical and economic modernization’s side effects. Zuboff’s surveillance capitalism theory corresponds to Beck’s thinking by drawing attention to unintended and invisible side effects from rapid digitalization of society that go beyond the domains of politics and democracy.

By focusing on new information technologies and their capabilities to produce new knowledge, Zuboff unraveled the privatization and division of learning in society enabled by new information technologies and pushed by an emerging new economic logic that metamorphoses digital infrastructures into an unprecedented surveillance network. The privatization of knowledge and learning through emerging power structures in the digital sphere becomes what Beck (2016, p. 142) refers to as a “global digital risk,” in which infrastructures turn out to be a global freedom risk by threatening fundamental human rights, access to knowledge, and the foundations of a democratic order.

3.2.4 The impact from Zuboff’s theory

For policy makers, as well as those in academia, the significance of Zuboff’s work in international debates can be compared metaphorically with the effects from Baroque composer Joseph Haydn’s Symphony No. 94, better known as the “Surprise Symphony” (in German “*Paukenschlagsinfonie*”), which he composed to wake up the often-sleeping and numbed aristocratic audiences of his music. The impact from Zuboff’s surveillance capitalism theory can be compared with that of a thunderbolt, providing a wake-up call for

many activists, intellectuals, private and public institutions, and politicians worldwide to think more critically about digitalizing society and ongoing power shifts in the digital sphere.⁴

Zuboff's work has stimulated public debate worldwide, catalyzing fruitful production of academic work and public discussion on a broad range of different themes and topics, such as digital economy, digital infrastructures, democracy in the digital age, AI, and ethics. Her work also has influenced national and international policy making strongly, particularly the European human-centered approach to digitalization.

⁴ Zuboff's book, *The age of surveillance capitalism: The fight for a human future at the new frontier of power*, was first published in German (November 2018) and spurred international developments that were characterized using the popular term *techlash*.

4 Methods

In this chapter, the aim is to provide a richer description of the applied methods on which this thesis is built. The two empirical papers are inspired by ethnographic research and based on different qualitative approaches, such as participant observation, in-depth interviews, and informal conversations. In this chapter, I provide more insights into the methodical approaches, reflections, and experiences during fieldwork and the various data collection methods used, including some of the obstacles and challenges that I experienced along the way. I start with explaining why I chose a qualitative approach for my empirical work. I then briefly provide some insights about a small informal pre-study that I conducted to map the field and sound out possibilities for data collection. I then provide a brief explanation as to why these two particular cases were chosen for investigation, followed by a section about a challenge that is relevant not only for both of my research cases, but also for ethnographic-inspired methods in general – the challenge of obtaining access to the field. After that, I outline methodical aspects of ethnography and participant observation, in which I discuss ethical considerations when conducting research on social media environments and explain my data collection methods. I also discuss the applied methods used when conducting in-depth interviews and informal conversations, as well as my approach to data collection. I conclude the chapter with critical reflections on the applied methods and possible alternative methodical inquiries that would fit one of the examined cases.

On a side note: The methodical approaches in both empirical papers overlap, i.e., I first tried to describe some methods and methodical aspects more generally, then carve out some specifics on each study along the way.

4.1 Why choose a qualitative approach?

A qualitative approach is viewed as suitable in situations in which the researcher aims to examine human experiences, attitudes, behaviors, and interactions with an emphasis on social practices and realities (Silverman, 2020). Qualitative methods collect up-close information by talking directly to people and observing them behave and act within their specific contexts (Creswell, 2013). It is also referred to as an *interpretative* approach and aims to study people in their natural settings while considering contextual issues that take into account their behavior, beliefs, motivations, and experiences (Hennink, Hutter, & Bailey, 2020). This applies in particular to my research interest, i.e., finding answers to the

question of defining responsible innovation in mobile journalism and examining how journalists learn and gain knowledge about applying smartphones as a holistic production tool, for which a qualitative approach is deemed an appropriate research method, offering not only the possibility of exploring social realities, but also providing a complex and more detailed understanding of various examined phenomena.

4.1.1 Mapping the field

The adoption of mobile technology in journalism practice and how journalists learn about using smartphones as a holistic production tool, as a phenomenon, generally is difficult to trace for several reasons. In this section, I briefly describe the steps I have taken to map the field and the possibilities for data collection, including some challenges related to the study. A small informal pre-study was conducted between January and March 2017, in which I contacted several German and Norwegian news outlets (Spiegel Online, ARD, NRK, TV2, Bergens Tidende, and VG) to find out more about their mobile strategies and training courses to equip their staffs with the necessary mobile skill sets in the context of a fast-changing media landscape. I learned through informal unstructured interviews and conversations via phone or e-mail exchanges that there are as many different strategies on how to adopt and integrate mobile technology for journalistic purposes and training strategies as there are media outlets. As an area of media innovation, and also as a field viewed as disruptive for journalism, several of the bigger news outlets, particularly broadcasters, remained reluctant to engage more seriously in smartphones as an all-in-one production unit at that time. Some news outlets experimented in several areas, while others delegated exploration of this new technology to affiliated “innovation labs” or “resource persons” within the organization who were given the task of following developments and sharing their knowledge if needed. The former head of training and development at Norwegian public broadcaster NRK, Frank Barth-Nilsen, explained this as follows:

“It is important for us to discover and share best practices as fast as possible. We try this at the moment by building useful intern networks. We also have external networks, e.g., the mobile journalism group on Facebook driven by Gunnar G. At that time, it was a conscious choice to share knowledge from NRK with others in the media sector, but also to identify key persons in the sector who can help each other. From a strategic point of view, we engaged less and less in training activities at NRK. Things are happening (so) fast that we are forced to count on key persons in different areas (to) develop competencies and new skills on the go. Trying, sharing, and learning are becoming an important part of journalists’ work portfolio” (quote from an e-mail exchange with Frank Barth-Nilsen at NRK, 02.01.2017).

This quote exemplifies the speed of change and pressure that many news outlets and journalists confronted when it comes to making sense of new technologies and the importance of journalists adapting their professional skill sets to changing demands from their employers and the job market. It also demonstrates how this has translated into flexible solutions, such as building and identifying networks, as well as pointing out experts or key personnel who specialize in a particular topic, are flexible, and can provide access to knowledge and expertise quickly when needed.

Another issue was the challenge of gaining access to the field. Several contacted journalists that I identified as being engaged in smartphone reporting answered my questions politely, with some even agreed to short interviews, but when it came to questions of getting “more close to the scene” and understanding their working and learning practices by observing their actions in the field, they became more reluctant and hesitant. Most of the contacted journalists had very busy schedules and were literally “very mobile” journalists, i.e., they travelled often. I also got the impression that many of these journalists felt uncomfortable about the idea of an unknown researcher following and observing them. This is a typical challenge that is well-addressed, for example, in the methodical literature on ethnographic research, which I discuss in more detail under subsection 4.3.

4.1.2 Article I: Studying a ‘cultural intermediary’

The first effort to map the field drew my attention to the phenomenon of so-called pioneer communities and networks (Hepp, 2016), which are outlined as significant collective actors in social everyday practices and which are social formations entangled deeply with digital media technologies and platforms. According to Hepp (2016), these communal formations “are at the ‘forefront’ of media-related transformation of society” (p. 920), building on a collective identity, informal networks (p. 925), and “a shared aim for action” (p. 925). Hepp (2016) argues that these pioneer communities can be understood as “cultural intermediaries” that “*provide us with insight into the relationship between those developing media technologies and the everyday appropriation and use of these technologies by ‘normal’ men and women*” (p. 926). Knowledge, Hepp (2016) argues, is highly reflexive in these pioneer communities because these networks are constantly interpreting their actions and themselves.

The pre-study’s results also indicated the existence of a larger pioneer community in the mobile journalism field. Several interviewees described the community during the pre-

study as an important arena from which to gather new knowledge and a meeting point for journalists and media practitioners from around the world with a genuine interest in smartphone reporting.

Examining this pioneer community in mobile journalism to understand innovation in mobile journalism, as well as how and why journalists adopt and learn about mobile technology, seemed like a promising approach for several reasons. First, the community gathered a broad range of mojo practitioners with many different cultural backgrounds, interests, and relationships to media outlets of different sizes, thereby offering a heterogenous data set. Second, unpacking the community's practices and themes of interest would offer insights into how these mojo pioneers develop and appropriate mobile technologies for journalistic purposes, as well as what knowledge and skills journalists with a special interest in smartphone reporting actually seek and develop. Third, gaining access to relevant sites of investigation (physical meetings at the annual conference and a social media Facebook group) seemed to be relatively easy compared with trying to gain access and observe a training course in organizational settings, or observe individual journalists' practice over time. Thus, I concentrated my research activities on relevant field sites to observe activities and interactions within this particular pioneer community in the mobile journalism field.

4.1.3 Article II: Studying a training course in organizational settings

The second article took a different approach, with a case study that focuses on a training situation involving newspaper journalists in organizational settings at a German regional publishing house. This empirical study was only possible to conduct after my engagement with the mojo community in the first study, which gave me the opportunity to develop personal relationships with several pioneers and active trainers in the mobile journalism field and their networks.

In this case, 40 professional journalists were trained for two days during an intensive, two-week organizational training course in smartphone reporting that was part of a comprehensive strategic reorientation of the newspaper. These journalists did not have a genuine interest in smartphone reporting, nor were they skilled in audiovisual reporting: Their employer, more or less, pressured them to broaden their professional skill sets to preserve their jobs by preparing for the paper's "digital turn." Thus, these journalists did not

engage voluntarily in adopting smartphones for reporting, but were forced by their employer, who viewed these skills and competencies as necessary for the staff.

4.2 The challenge of gaining access to the field

In this section, I provide an account of perspectives on the various sites of investigation and discuss the challenge of gaining access in the context of participatory observation and ethnographic inquiries.

4.2.1 Sites of investigation

To study the pioneering community in mobile journalism in *Paper I*, two sites of investigation were the focus: the annual Mobile Journalism Conference (MoJoCon) in Ireland and the community's Facebook group, named *MojoFest Community – Where the Global Mojo Community Meet and Share*, currently comprising about 6,970 members (as of October 2021). Thus, the community has both physical and virtual gathering points that provide spaces for the community's social practices. The Facebook group has been renamed several times, and as of the time of this writing is named *#mojofest Group*, where the global mobile creator group's members meet and share.

The conference has been organized since 2015 and is viewed as pivotal to this community's emergence. Group members also describe it as one of the most important gathering points for face-to-face interactions in the community. The Mojo Community's public Facebook group was an outcome of the first conference, as an effort to find a space between annual conference gatherings to remain in contact with other like-minded members, share experiences, and extend the network of people who are interested in using smartphones for reporting or content creation. Both sites of investigation – the conference and Facebook group – were easy to access because they generally were open to the public.

Attending the Mobile Journalism Conference (MojoCon) in Galway, Ireland, 4–6 May 2017 allowed me to obtain firsthand impressions about journalists' understanding of adopting smartphones for journalistic practices in an arena comprising journalists, mojo pioneers, and mobile media practitioners from all over the world. I obtained an overview about discussed topics and themes related not just to adoption of mobile journalism, but also training and learning issues highlighted at the conference gathering. The conference, held annually since 2016, was at the time the first and largest worldwide conference dedicated to the mobile journalism field, founded by the (former) head of innovation for Irish public

broadcaster RTE. More than 600 participants from 28 nations gathered for three days and were eager to meet other “mojos” and those who wanted to learn more about adopting smartphones and related technologies in journalism and content creation.

How strongly this event’s focus was tied to issues of innovation, learning, and knowledge development can be illustrated through the following example: For some early-bird ticket bookers of the mobile journalism conference, it was possible to get a seat on a train at the Dublin train station (most conference attendees arrived at Dublin airport) to travel to the conference venue in Galway. The conference’s organizers rented a whole train (dubbed the “MojoTrain”), as well as several outstanding mojo experts who hosted workshops during the 2.5-hour trip to the conference venue on the West Coast of Ireland. Attending this special event (including the MojoTrain trip) gave me the opportunity as a researcher to record firsthand impressions and immerse myself into this community’s unique culture and social practices. It also provided the opportunity to meet with and talk to people face-to-face, which was very important in developing trust with the journalists and strengthening my credibility as a researcher. Gaining people’s trust is one of the most crucial requirements to gain access to the field. This is particularly the case in the context of ethnographic work (Bruni, 2006; Geertz, 1973; Neyland, 2007), but also when it comes to other applied qualitative methods, such as in-depth interviews, or particularly participant observation in organizational settings (*Paper II*). Furthermore, gaining access to the field is a trajectory that Bruni (2006) described as “*a never-ending process [...] which one [can] never assume has been accomplished once and for all*” (p. 142). Gaining access depends on the context of organizational ethnography, the *kind of organization* that is in focus (type, size, sector), the ethnographer’s image (Bruni, 2006), the *ethnographer’s ability and creativity* in conveying their motives or research interests, *the mutual benefit* of the research outcome (i.e., to the researcher and organization) and *the researcher’s trustworthiness* (Silverman, 2020, in Bruni, 2006, p. 138).

In *Paper II*, the site of investigation was a two-week intensive training course in mobile video reporting at a large regional German newspaper, held 8–19 October 2017 in Dortmund, Germany, at the publisher’s main building. An experienced and internationally acknowledged mojo trainer with a background in broadcast TV hosted the course. I got the chance to study this training course with professional journalists through this access to the field site because the trainer was a member of the earlier investigated Mojo Community with whom I had established a personal contact. He was informed about my research interests and contacted me later to invite me to participate as his assistant during the mobile video training

workshop. The condition for this offer was that I take over small parts of the journalist training course (which I explain under subsection 4.3.2 in more detail). As a researcher, I embraced this unique opportunity to gain insights and become immersed in social practices that rarely are investigated, as well as access a social reality in a learning situation quite contrary to that examined in *Paper I*.

Although my double role as a researcher and the instructor's assistant was a creative way to gain access to the field, I also needed the approval and consent of the newspaper's chief editorial group, which was responsible for the training course and for the journalists attending the course. Thus, I introduced myself through a formal letter with information about my research interests and objectives in advance of the training, and the attending participants and chief editorial group subsequently approved my request. It should be noted that I view being a native-born German, with German as my mother tongue, as making an impact (at least in this case) in terms of gaining trust and access to the field.

4.3 Ethnography and participant observation

In both studies, I applied participant observation as a data collection method, one that is applied typically in qualitative research and ethnography. Thus, the researcher is the key instrument (Creswell, 2013) and tries to gain a close and intimate relationship with a given group of individuals and their practices through intensive involvement with them in their cultural environment, usually over a long period of time (Atkinson & Hammersley, 1994). Sharing enough time with the subjects to investigate them substantially is necessary to gain an appropriate "thick description"⁵ (Geertz, 1973) of the observed culture and provide a detailed view of their everyday life and practice.

For both papers' research purposes, it was important that I had the possibility of encountering the social realities of journalists engaged in learning and innovation processes firsthand, and to observe these realities from the perspective of those who create and live in this community (Watson, 2012). Such an approach normally requires that the researcher have fairly lengthy contact with the actors to study them within the settings in which they operate (Hammersley, 2006). In *Paper II*, this was limited to the training course's duration,

⁵ The term *thick description* is one of Clifford Geertz's key terms in his anthropological theory from 1973, which tried to explain cultures through descriptions with many details, conceptual structures, and meanings. He outlined four parameters for an adequate "thick description" and a study of culture.

and in *Paper I*, to the conference gathering's duration. However, the examined Mojo Community (*Paper I*) could be outlined as a typical "hybrid community" that conducts its social practices both in virtual and physical spaces, i.e., it also was important to investigate the community's interactions on the web, including its main social media group (Facebook). Studying social practices remotely in virtual spaces (Postill, 2017), particularly forms of virtual ethnography (Hine, 2000, 2008, 2017), increasingly is important, particularly when it comes to understanding practices of mobile journalists who are deeply embedded in an interconnected network of online and offline interactions. Applying methods inspired by virtual ethnography (Hine, 2008) and non-participant observation (Hammersley, 2007) helped me enrich my material and prepare my fieldwork at the conference in Galway. I started observing interactions in the Mojo Community's Facebook group three months ahead of my investigation at the conference (from February to April 2017, about two to three times a week). After the conference, I continued my observations over a period of about two years (until February 2019). During that time, I visited the Mojo Community's Facebook group two or three times a week and noted issues and themes that emerged in the Facebook group's newsfeed, as well as identified (over time) community members who were very active in the group, indicating that they would be interesting interlocutors to contact.

Observing and participating in activities and interactions on Facebook depended on my becoming a member of the community. As a member of the Facebook group, I functioned as a passive community member (i.e., I was not engaged actively myself, but instead followed public discussions posted on the group's newsfeed). My role in the Facebook group corresponded with what Creswell (2013) described as a complete or non-participant observer, in which the researcher is neither seen nor noticed by those being studied. Of course, this raises some ethical questions – even more so in the context of social media platforms, in which groups comprising thousands gather, and boundaries between what is deemed public and private are blurred.

4.3.1 Ethical considerations when conducting research on social media

The problem of ethical considerations and obtaining consent when conducting research on social media is discussed by Elgesem (2015), who proposes a model for ethical assessment and argues that in some cases, research on social media is ethically responsible without consent:

“In situations where the researchers’ observation and registration of the communication do not undermine the conditions for participation, typically public debate arenas, consent is not the only way to take the research participants into account” (p. 33).

Elgesem (2015) argues that how the gathered information is used and how the results are presented must be considered, e.g., whether it is possible to identify participants when quoting them and what value this holds for the quality of the research. Elgesem (2015) presented a list of several considerations that influence or affect the weight of ethical considerations when studying social practices in social media contexts, e.g.,

“the vulnerability of the people being studied, the sensitivity of the topic of communication, searchability of the information being presented, the degree of interactivity with those being studied, and the participants’ actual competence in and understanding of how social media function” (p. 33).

The investigation’s focus mainly centered around themes and issues discussed publicly on the Facebook group’s newsfeed and recorded by the researcher in handwritten field notes that were developed further over time into an observational protocol for emerging themes, then finally codified and thematically analyzed. Following Elgesem’s (2015) considerations and examining the particular site of investigation (a public Facebook group), it was impossible to obtain consent from all 6,970 members of the group. However, I informed the moderators, as well as the whole community’s Facebook group in several public postings, about my research and its objectives.

4.3.2 Recording research data

An important issue was recording the data during the observation processes. This was an easier task when it came to observations in “controlled” and structured online spaces, rather than offline spaces such as the Mojo community’s gathering at the conference (*Paper I*) or the training course for newspaper journalists (*Paper II*). While observable interactions, e.g., in the Mojo community’s Facebook group, were structured strictly and determined by Facebook’s application design and algorithmic logics, I was struck by the social reality’s overwhelming complexity when conducting my fieldwork in offline spaces. In the study on the training course for German newspaper journalists, I also was confronted with the challenge of having a double role (instructor and researcher simultaneously), which partly kept me from taking field notes in situations when I was tasked with instructing journalists. However, the training course in Germany followed a tight schedule to ensure that all

journalists were trained alike, giving me the opportunity to structure my observations more easily.

During my fieldwork at the MojoCom conference, a helpful way “to funnel the observations from the broad picture to a narrower one” (Creswell, 2013, p. 172) was for me to use a less-structured protocol for my observations, i.e., taking notes on them more freely, collecting myriad available printed materials and documents, and taking pictures that tied in with topics, issues, and artifacts presented for the community. I used this to structure my gathered impressions at the end of the day by writing them down and outlining issues or themes that I felt played more prominent roles.

Concerning my “double role” as a researcher and assistant of the instructor during the journalist training course at the German regional newspaper (*Paper II*), my main task as assistant to a professional Mojo trainer was to explain some key functions and basic procedures (e.g., editing a simple video clip with audio and super overlay) in LumaFusion, a professional video-editing program developed for mobile platforms. I was tasked with preparing in advance some shots and a couple of short mobile videos that could be used for tutorial purposes when explaining the video-editing program. I also assisted the journalists while attending the training course through their practical exercises in the field. This double role of being an instructor and researcher simultaneously was a double-edge sword, providing advantages and disadvantages. The main advantages, as already mentioned, were gaining easier access to the field and building trust with course participants. However, this double role confused some of the journalists, while others expected me to be a mojo expert in all practical and theoretical matters. On one hand, this sometimes was a very uncomfortable and challenging situation. However, it made it possible to approach this journalist training course from two very different perspectives. Working so closely with the instructor allowed me to gain firsthand impressions and become deeply immersed in the training situation. I also obtained a close account of the instructor’s perspective, as well as his experiences and reflections about training the journalists.

4.4 Qualitative interviews and informal conversations

Another important data collection method for both empirical studies was to conduct in-depth interviews with selected subjects and enrich these data through informal conversations.

Interviews are a widely acknowledged and often-applied method for producing scientific knowledge, and according to Brinkmann and Kvale (2018), “the interview is a specific form

for conversation where knowledge is produced through the interaction between an interviewer and an interviewee” (p. xxii). In other words, the interview is an instrumental dialogue that the researcher applies to produce knowledge about a certain topic. In both studies (*Papers I and II*), I applied semi-structured interviews, which Brinkmann and Kvale (2018) defined as an interview type that has “the purpose of obtaining description(s) of the life world of the interviewee with respect to interpreting the meaning of the described phenomena” (p. 9).

In the first study, which examined the community of mobile journalist pioneers, 17 semi-structured in-depth interviews were conducted to examine the interviewees’ motives and reasons for being part of the group, and to engage in community activities. The interviews lasted between 45 and 60 minutes each and were prepared thoughtfully in advance based on online fieldwork. The interviews followed an interview guide comprising three sections. In the first section, the interviewees were asked about their professional backgrounds, journalistic experience, and how they were first introduced to the practice of mobile journalism. The second part of the interview concentrated on their experience applying mobile technology to their professional journalistic production in their current work environment. The third section examined the role of community for the informants. The interviews were conducted over a two-year-plus period from February 2017 to September 2019, and all were recorded using professional mojo equipment (at the time), including an iPhone 7 and a digital stereo condenser microphone (SHURE MV88) that can be plugged directly into an iOS device and comes with a software application called MOTIV that allows for changing microphone settings and recording, editing, and sharing audio files. The use of professional mojo equipment (during the interviews at the conference) was not only advantageous in gaining excellent audio quality, but also praised by the interviewees and often a welcome icebreaker for conversations.

Only six interviews were conducted during the conference because many of the interesting interlocutors had tight schedules. Thus, appointed interviews after the conference using a video-conference tool proved to be the best data collection method in this case. Furthermore, many mojo pioneers who gathered at the conference were situated on different continents and were very frequent work travelers.

A practical challenge by conducting the interviews through a technological intermediary (video-conference tool) was the ability to keep informants on track, i.e., focused on the issues I asked them about. Several interviewees were experienced speakers and were more focused on their self-portrayal and personal projects than on reflecting on the

matters on which my research was focused. Although talking through a video-conference tool is a reasonable alternative, using such technological tools comes with some ethical questions: What happens to the data? Does a third party record the conversation? What about the metadata from these conversations? If possible, I usually prefer talking to people face-to-face not only because it gives the researcher a much richer communication experience, but it also makes it easier to intervene if the informant suddenly changes the subject or does not really answer the questions.

4.4.1 Sampling and data collection

The selected informants were identified as global pioneers in using mobile technologies for solo multimedia storytelling and reporting, as well as experienced practitioners who described themselves as “mojo trainers” or “mobile consultants” who spread knowledge about mojo practices to other groups beyond the journalism community. Their level of engagement in the community varied to some degree. While some informants were very active members, often or regularly engaged in discussions on the Facebook group, others followed these arenas more passively or mainly attended the annual physical gathering at the conference. They all were members of the community from the beginning of this social network.

During data collection and in the context of research on a global community that attracts various people with different cultural backgrounds, the issue of basic communication issues emerged. The selected informants came from 11 different nationalities and four continents. The interviews were conducted in the “strongest language” that the researcher and informant shared, in this case German, Norwegian, or English. English was used most often, but it proved to be challenging for informants who were non-native speakers with moderate English fluency. This also exemplified a prominent challenge in the context of qualitative research, specifically ethnographic approaches that rely heavily on language (Creswell, 2013; Harries, 1968). An interesting finding from the study was that several participants who followed the community’s activities had only little or moderate English skills, yet they still managed, at least partly, to follow discussions and interactions in the group due to a strong emphasis on visualization in social media (including the Mojo community).

Altogether, 16 hours of recorded audio data were collected from the interviews, then prepared for further analysis. The audio-recording material was transcribed into text, following suggestions by Poland (2002) and Jenks (2018), then analyzed and tagged into

different categories and issues based on the research questions, interview guide, and newly emerging topics. These categories then were sorted into preliminary themes and topics, as suggested by Creswell (2013) and Silverman (2016). Thereafter, these themes were sorted into overlaying thematic categories on issues that motivated the respondents to participate and engage in the community.

In the second study (*Paper II*), 14 in-depth interviews were conducted with journalists attending the training course, including the course instructor. The sampling of the informants tried to reflect the participants' demographics in terms of gender-ratio balance, hierarchical roles in the news organization, journalistic work experience, age, and employment duration at the organization. Most of the interviews were conducted on site or at some distance from the news organization, as some felt uncomfortable talking about their experiences in their workplace. The interviews followed a prepared guide, and the informants were asked about how they perceived their professional roles, ongoing changes in the news organization, and the training course, as well as perceived expectations of their employer to extend their professional skill sets. The course instructor was asked about his experiences training print journalists, challenges and opportunities arising that provide mojo learning situations, and the implications for news organizations with a strong tradition in print to engage in audiovisual content creation and mobile technology.

The interviews were recorded in the same way as in the first study, using professional mojo equipment (iPhone, SHURE microphone, MOTIV App), with the text transcribed afterward. The text (in the same way as in *Paper I*) then was read thoroughly several times, and emerging issues were tagged into categories and condensed into emerging themes.

It should be noted that the second study, within organizational contexts, allowed for much closer contact with the interviewees during the intensive training sessions compared with the informants in *Study I*. However, some of the informants seemed biased or were not comfortable sharing their views openly in the context of the corporate culture within the news organization.

When analyzing the data, it became obvious that many important issues related to how the journalists perceived the training course and what it meant to them, i.e., being expected to become mobile reporters, emerged through informal conversations or discussions during the training course, rather than from the formal in-depth interviews. This also provides an account of how important it is when researching social realities to apply several methods to uncover relationships and knowledge that is either tacit or

(un)consciously overlooked, e.g., by applying formal and more- or less-structured interviews.

The results from both empirical studies were presented in both papers through rich descriptions that aimed to describe the investigated social realities and practices of the newspaper journalists and the community of mojo pioneers.

4.4.2 Research data handling

Before the empirical research was conducted, the research plans and data collection procedures were presented to the Norwegian Center for Research Data (NSD), and data collection procedures were cleared with the Norwegian Privacy Ombudsman (project No. 56797) and conducted in accordance with Norwegian guidelines for ethical research practices. The informants who participated in the in-depth interviews, including all attendees of the training course and the newspaper's management at the German publishing house, were informed both orally and in writing about the research process and objective. The in-depth interviews were recorded, transcribed, and anonymized using a coding scheme that only I can access. After the transcription, the audio files were deleted. In the empirical articles and the final contribution presented here, most of the informants were anonymized, with some exceptions. In these cases, I obtained explicit consent to quote these informants using their real names.

4.4.3 Summary and reflections on applied methods

The applied research methods and investigated cases in *Papers I and II* sought answers to the following research questions:

RO1: How and where do professional journalists develop new professional practices and adapt to mobile technology, and what are their reasons for doing so (Article I)?

RQ2: How and what do professional journalists learn about mobile technology in organizational settings, and how do editors and reporters perceive such a phenomenon (Article II)?

Other avenues can be taken to find answers and gather more knowledge about these questions. However, and as I have mentioned before, this poses several challenges, such as gaining access to important field sites and earning study subjects' trust, as well as making significant engagement demands on the researcher. Qualitative research, particularly

ethnographic-inspired inquiries, are a resource-intensive type of academic research that demands significant researcher dedication, e.g., genuine interest in the topic, heavy demands on time and patience, and the financial resources needed to share time and space with the research subjects. However, this significant investment often is rewarded with contextualized insights on complex social realities, as well as newly emerging phenomena that otherwise would not have been identified nor examined.

The investigated pioneer community of mobile journalists (*Paper I*) represents a typical outcome of networked social life and digital culture (Hepp, 2016; Stalder, 2018) that emerges as a hybrid community in which online and offline interactions are enmeshed deeply. In this context, it would have been interesting to apply an even more sophisticated approach through a multi-method mix combining a qualitative, ethnography-inspired perspective with quantitative and technology-enhanced methods, such as network analysis (Kim & Hastak, 2018) and the application of different tools for social media analytics. Although such an approach seems very appropriate and probably would uncover interesting new insights, several ethical traps are connected to this, as well as an enormous workload that was barely manageable under a single researcher. The study on the training course at the German regional newspaper (*Paper II*) was limited by the relatively short time I was given access to the field and the fact that I had to balance the double role of researcher and an instructor's assistant during the study's fieldwork.

5 Findings and discussion

In this chapter, I first present some of the main findings from the two empirical studies, then outline the conceptual-analytical article's main arguments. I then condense these insights to provide answers to the overarching research question: *What is responsible innovation in mobile journalism and how can mobile technology be adopted in journalism in a responsible way?*

5.1 A community of global mojo pioneers and innovators

In the first empirical study, I examine an emergent global network of pioneers and forerunners in the mobile journalism field. This global network can be viewed as a typical community of practice (Wenger, 1998) in which a group of professional broadcast journalists examine, experiment, and learn about mobile technology's disruptive potential in journalism by engaging through a network of peers. The community's domain revolves around a special interest in mobile and related technologies (hardware and software) at the nexus of journalism and the more generic field of mobile content creation. My study's findings suggest that the "Mojo community" is a typical hybrid community, i.e., this group's activities lie between offline and online arenas. Many members of the community's core group can be described as tech-savvy journalists with backgrounds in TV journalism and affiliations with several Western (mostly European) public broadcast corporations. A main motive of the interviewed journalists in engaging with this particular community is to develop a so-called "mojo mindset," which is rooted in the shared belief in *mobile technology as the most important, disruptive tool for journalism*. Thus, these journalists described ongoing advances in mobile technology as "having wide-ranging consequences for broadcast journalism." Many of them are worried about a perceived resistance from Western legacy broadcast organizations, who are viewed as not taking mobile journalism practices more seriously and downgrading mobile technology as just another tool in the journalist's toolbox. This perceived skepticism hinders wider adoption of mobile journalism practices, particularly among larger Western legacy broadcast corporation, a trend also detected in other research (Hadland et al., 2019; Karhunen, 2017; Perreault & Stanfield, 2019) and rooted, e.g., in a general resistance to altering long-established work routines and quality principles, as well as a continuously increasing workload related particularly to practice as a solo multimedia journalist. In this sense, mojo practices represent, for journalists with roots

in traditional audiovisual journalism, what Min and Fink (2021) describe as “neoliberal forces on journalism” (p. 5) and a main reason for active interference by broadcast unions against wider adoption of mojo practices.

To deal with Western legacy broadcast organizations’ reluctance to engage more seriously in mobile journalism practices, some individual journalists searched for alternative ways to engage, explore, and learn about the capabilities, as well as limitations, of applying smartphones (and related technologies), thereby transforming individual journalists into full-fledged multimedia production units for reporting and content creation. An outcome was the emergence of this mojo community, with these journalists exploring the capabilities and limitations of smartphones and related hardware and software technologies (e.g., stabilizing equipment, external microphones, batteries, or lights and apps) for reporting and content creation.

Studying this community’s practice not only elicited insights on its origin, structure, and domain, but also revealed a so-far-overlooked interstitial space where professional journalists and others develop new professional practices, as well as innovate and try to adapt to a fast-changing media environment, including technological developments. Analyzing the reasons for these journalists’ engagement in this particular community, this study’s informants, who all were part of the community’s core group, were driven mainly by four main motives (Salzmann et al., 2020, pp. 620-632): (1) *a strong sense of belonging* (i.e., they identified the community as a place to meet like-minded people or “work family”); (2) *perceived resistance against mobile journalism in traditional TV newsrooms* (i.e., a common feeling that mojo has been misjudged and has not been taken seriously); (3) *a need for orientation, knowledge extension, and support* (i.e., mobile journalism is embedded in a very complex environment and on technologies shaped by rapid innovation and technological advances that increase the need for orientation and support); and (4) *sustainable protection of jobs* (i.e., active engagement with new technologies and enhancement of skills were viewed as ways to be competitive on the labor market).

Tracing and examining the domain, structure, and practice of this typical community of practice (Wenger, 1998, Wenger et al. 2002) over a two-year period revealed that the community has emerged as an important and, at least academically, so-far-overlooked collective actor in the mobile journalism field. The community not only develops and administers knowledge, expertise, and a complex set of resources related to the practice and understanding of mobile journalism, but also is engaged actively in experimentation and innovation in the field. Many members of the community’s core group were not just

interested in new technology, but emphasized that they enjoy exploring and tinkering with new technology. Many of them can be viewed as “horizon scanners” (Rogers & Shoemaker, 1971), describing themselves as “being at the forefront of engaging in new technologies and working up solutions for how such technologies can transform how traditional media organizations work” (Staschen & Wellinga, 2018, p. 7). Furthermore, all the informants were active internationally as so-called “mojo trainers,” i.e., they were involved actively in disseminating innovations, concepts and framings, ideas, knowledge, and resources developed through collaborative learning processes that this global network enabled. For the interviewed journalists, this community played an important role in experimenting, innovating, and orienting themselves in a field characterized by rapid technological advancements, different cultural approaches, and fast-changing trends. The community emerged in this respect as a social fabric that constantly and collectively makes sense of new developments related to applying smartphones for reporting and content creation through ongoing negotiation processes. Through mutual engagement and collaborative means, new work practices, concrete artifacts, and technology for smartphone reporting are negotiated and co-developed.

Over time, this community’s activities and practices have attracted a broader range of other people and groups with different interests who benefit from this community’s activities and practices, such as mojo equipment manufacturers, large software and hardware development companies, researchers, and others in business communication.

5.2 Turning newspaper journalists into mobile video reporters

Unlike the first paper, in which journalists voluntarily and proactively tried to deepen their knowledge about applying and exploring mobile technology for reporting and content creation, the second paper took a different stance by examining how professional print journalists learn about mojo practices in formalized training courses in organizational settings and how editors and reporters perceive such mojo trainings, as they are novices in audiovisual reporting. The training course examined in this study was part of a larger strategic reorientation of a regional German newspaper and a top-down initiative from the newspaper’s management that aimed to put more emphasis on digital and audiovisual content to react to decreasing subscription rates and an increasingly aging readership.

The study of this particular training course offered the opportunity to understand which role training and re-skilling of journalists played in the background of a larger organizational transition process and how news organizations want their print journalists to adapt to mobile technology and develop new skills. Furthermore, examining the training situations allowed for unpacking what is viewed as important competencies and skills for practicing mobile journalism, as well as the perspectives from journalists whom their employers expected to become mobile video reporters. The study's findings are related closely to the background and objective of the training course, which I outline briefly below.

The training course was organized strategically only a couple of days after the newspaper's editorial team from the paper's cross-editorial section (in German: "*Mantelredaktion*") decided to reallocate available resources and give a push toward organizational efficiency. The decision to resolve a structural core unit of the newspaper was described by Röper (2017) as "a very unusual and bold step" and that the decision shook the whole staff. The newspaper's editorial team originally was entrusted to plan, build, and fill the general news umbrella section of the paper (in German: "*Mantelzeitung*"). This means that the editors working on this unit were responsible for the paper's front page, daily world news, background stories, and miscellaneous news that was relevant to the region (so-called "page three news"). Furthermore, the team delivered the general news umbrella section, as well as content for other local newspapers that were either fully or partly owned by the same publisher. These particular content production practices, particularly among other newspapers, are discussed vividly in German academic literature (Dogruel, Berghofer, Vonbun-Feldbauer, & Beck, 2019; Röper, 2018; Weischenberg, 2018) and are referred to as *zombie newspapers* (in German: "*Zombie-Zeitungen*"). According to Weischenberg (2018), the term refers to a phenomenon that is particularly observable in regional German newspapers, describing a situation in which newspapers "are produced without any (own) editorial staff, but through copy-paste with content from other newspapers and sold under their own brand" (Dogruel et al., 2019, p. 329). Camouflaged by publishers as "a model for editorial cooperation" (Weischenberg, 2018, p. 48), the phenomenon reflects tendencies toward increasing newspaper consolidation in the German newspaper market.

Sacrificing a central editorial part of the newspaper took the whole news organization's editorial staff by surprise and was referred to by informants as a very painful and shocking experience. The team was described as "the news organization's vivid center" or "the heart of the paper, where all threads were coming together." Most of the 26 affected editors working at the unit, after the spontaneously announced dissolution, had only a vague

idea of their new future role in the news organization, but were offered job prospects on the condition that they agree to professional development and to participate in several training programs. In this context, newspaper management intended for mobile video training to mark “a symbolic kickoff” after this radical change and to give the editorial staff a glimpse of the paper’s new direction. Part of this new direction, according to interviewed managers, entailed eliminating “outdated newspaper thinking” and developing a new “digital mindset.” Managers viewed the training arrangement in smartphone video reporting as the first important step toward cultivating this new mindset.

What this new thinking means for print journalists, who are supposed to adopt mobile technology for reporting, is described in the paper as developing “a mojo mindset,” which is related to three broad themes identified as relevant when training print journalists in audiovisual storytelling and smartphone-based reporting: (1) mastering mojo skills; (2) adopting audiovisual thinking; and (3) integrating ethical and legal awareness. The first dimension emphasizes the need to use and operate various artifacts and tools needed to practice mobile journalism. This is also well-documented by other research (Borum, 2016; Kumar & Haneef, 2018; Wenger & Potter, 2014) and tightly interconnected with the tools of the trade (Weilenmann et al., 2014). Becoming a smartphone reporter means also becoming a multi-skilled all-rounder, also called “a jack of all trades,” as other scholars have noted (Bock, 2012; Deuze, 2004; Peter H. Martyn, 2009; Perez & Cremedas, 2014; Phillips, Singer, Vlad, & Becker, 2009). This gets very obvious when examining the skills that a smartphone reporter needs to function efficiently in the field. Any journalist who engages in mobile video reporting needs a combination of traditional journalistic skills, technical skills, digital competencies (see also Borum, 2016), and physical commitment (e.g., “Zoom with your feet”) (see also Bock, 2012) to shoot videos with a smartphone. It is not enough to learn basic principles and routines from broadcast journalism; the reporter must embrace a new way of thinking and reporting enabled by smartphones and influenced by new trends in digital culture. Another essential meta-skill interlinked with necessary technological tools and artifacts is described through the phenomenon of tinkering, which can be understood as an individual’s creative ability to solve emerging problems related to technology or to find alternative solutions, described in the paper as “mojo hacks.” In other words, these journalists’ dependence on technology requires preparedness for potential technical failures and a willingness to embrace alternative or innovative solutions. The second dimension of developing a mojo mindset is related to the need to adopt audiovisual thinking. Mastering the tools of the trade is one thing, but training journalists

with a strong affinity toward text and linguistic thinking challenges old thinking, perceived by the informants as a completely different craft that conflicted with their own perceived identity that was deeply rooted in being a writer. Several informants linked audiovisual thinking with a natural ability toward visual dexterity, based on personal traits and interests. This presented a serious obstacle for several of the interviewed journalists, who viewed their particular strengths as lying in the domains of writing and “describing the world with words,” rather than working with pictures and audio.

The third dimension in developing a *mojo* mindset is related to broader (and new) ethical and legal considerations related to the neo-journalistic practice of mobile reporting. While following ethical principles and guidelines is nothing new for the professional journalists who attended the training course, it became clear quickly during the course that codes of conduct related to audiovisual reporting (particularly in the cultural context of Germany) demanded greater awareness of ethical challenges and legal requirements. Topics related to ethical and legal questions became a very prominent issue during all training sessions because smartphone reporting is accompanied by new ethical dilemmas, such as live reporting (Guribye & Nyre, 2017), high-speed reporting, or filming in a less-intrusive manner that allows for greater physical and psychological accessibility (Karhunen, 2017) to subjects of interest. The issue was so complex in the context of German regulations that findings from the study suggest that institutional preparedness is needed based on establishing routines and ethical guidelines, along with legal resources that support smartphone journalists’ work and practice.

Summarizing these findings, it can be said that training print journalists in mobile journalism seems, at first glance, to be an easy, affordable, and timely way to turn writers into audiovisual storytellers, preparing staff with skills that increasingly are in demand in journalism curricula (Borum, 2016; Wenger & Potter, 2014) and stimulating institutional innovation. However, a closer look at the data suggests that turning print journalists into multi-tasking, fast-thinking smartphone video reporters is a highly challenging and ambitious endeavor that often conflicts with reporters’ established identities and a lack of institutional preparedness.

5.3 Mobile journalists as traceable data objects

Adopting mobile technology for journalistic production leads to the fact that journalists not just rely more on technology, but rather on a range of not-entirely-visible technologies

integrated into smartphone devices and outlined by scholars (Beck, 2016; Jasanoff, 2016; Jirotko et al., 2017; Stahl et al., 2013; Stahl et al., 2017) and European authorities (European Union Agency for Cybersecurity, 2021; European-Parliament, 2020) as risk technologies, such as AI, cloud computing, sensor technology, advanced camera technology, biometric sensing, and ambient computing. Furthermore, mobile technologies are embedded deeply in digital infrastructures owned by a handful of US IT companies that concentrate knowledge, resources, and decision-making power when it comes to data flow and extraction (Christl & Spiekermann, 2016; Van Dijck, 2014; Zuboff, 2015, 2019), enabled by mobile devices and several integrated and interrelated technologies (see 2.2.1). Thus, the question arises: How does this affect the practice of mobile journalism and innovation in the field?

Zuboff's surveillance capitalism theory is suggested in the third paper as a suitable approach to shed more light on risk technologies embedded in smartphones, the digital infrastructures that surround this neo-journalistic practice, and the new and emerging economic logic based on comprehensive data extraction and further data utilization. It has been argued that through the lens of Zuboff's theory, the practice of "mobile journalism might be perceived along with other human experiences and activities as traceable and tradeable data objects that emerge as raw material for surveillance capitalism" (Salzmann et al., 2021b, p. 132) – what Zuboff (2019) refers to as a newly emerging economic logic. Mobile journalists, and journalists in general, who use smartphones automatically generate complex digital data traces that can be aggregated and triangulated with other data or metadata⁶ from other varied sources, rendering the journalist and his or her behavior transparent to third parties. To understand and describe this phenomenon, the concept of dataveillance (Clarke, 1988; Van Dijck, 2014) is outlined in the article as being useful. *Dataveillance* can be understood as a form of surveillance that builds on mass data collection with "unstated preset purposes" (Salzmann et al., 2021b; Van Dijck, 2014, p. 205), enabling de-anonymization of individuals, in which profiles of individuals and their behavioral patterns can be created. The concept has gained much attention after the Snowden revelations in 2013 that spotlighted politically motivated mass data collection that the US government initiated after the 9/11 terror attacks. However, Zuboff's theory points to another development that indicates profit motives increasingly drive mass data collection, allowing

⁶ Metadata are stored in documents that are not visible to the user or producer of the document. These data also are described as an "electronic fingerprint" that generates additional information attached, for example, to a file or captured when using a service, program, or file, e.g., tracked changes, date and time of creating or accessing a file, or hidden text and objects. Such data also are referred to as "hidden information" (Harvard-Law-School, 2021).

for commodifying people's behavioral patterns to sell so-called "behavioral products" (Zuboff, 2019) on newly emerging markets. This still-unregulated field of mass data collection – enabled, for example, by mobile technologies and accompanying digital infrastructures – opens up the potential to gain comprehensive knowledge about individuals, groups, or organizations, offering possibilities to identify personality traits (Stachl et al., 2019; Stachl et al., 2020), predict future behavior (Schermer, 2011; Zuboff, 2019), interfere in individual decision making through microtargeting (Christl & Spiekermann, 2016; Leistert, 2021) or nanotargeting (González-Cabañas, Cuevas, Cuevas, López-Fernández, & García, 2021), facilitate digital nudging (Helbing, 2019; Huang, Chen, Hong, & Wu, 2018), spur chilling effects (Büchi et al., 2020; Eide, 2019), lead to more doxing (Crete-Nishihata et al., 2020), and elicit search-engine effects (Epstein & Robertson, 2015; Helbing, 2019). The practice of mobile journalism relies on technologies and infrastructures that are optimized for data harvesting, or what Crawford and Joler (2018) termed *extractivism*. Thus, journalists who adopt and apply mobile technology for their journalistic practice are putting their personal data and behavioral patterns at risk of being commodified and sold on emerging data brokerage markets. That these arguments are not just theoretical assumptions is indicated in the article when it refers to several cases of journalistic investigations (Gundersen, 2020; NDR, 2016), as well as research conducted by Christl (2014), Adams (2020), and Christl and Spiekermann (2016).

It was argued in the third article that journalists who engage in smartphone reporting are in a double bind of transparency through these possibilities. Thus, they not only expose themselves to dataveillance, but also help facilitate the tracking of others by relying on technologies and infrastructures optimized for data extraction. Smartphones in particular entail several specific risks, as Christl and Spiekermann (2016) outlined, especially when it comes to privacy. Loss of privacy in the context of journalistic work can elicit fatal consequences⁷ on both individual and societal levels. In examining the mobile reporting situation presently, the whole process of mobile journalism invites journalists to become tradeable and traceable data objects, placing them, as a societal risk group, in a vulnerable position that erodes the basis of a free press as an important pillar of a democracy-based order.

⁷ Privacy is a fundamental human right, comprising the basis for the idea of a free press and, thus, an open, liberal, and democratic society. A glimpse of the consequences and societal side effects from "total surveillance" supports Han's (2015) concept of a "transparency society," in which societies based on trust are transformed into societies of control.

To meet these fundamental challenges that accompany mobile technologies, interrelated infrastructures, and the new economic logic outlined by (Zuboff, 2019), I suggest employing the concepts and ideas of the RRI framework as a possible approach for individual, organizational, and societal action. What this specifically means and entails for journalists, their practice, and innovation in the mobile journalism field is outlined in the next section.

5.4 Responsible innovation in mobile journalism

To find answers to this overarching question (What is responsible innovation in mobile journalism?), I combined narrow and broad perspectives on mobile journalism and the concept of innovation, i.e., I examined adoption of mobile technology as a new working tool and neo-journalistic practice, while also considering that mobile technology is part of a larger digital infrastructure that encompasses different risk technologies.

Innovation is conceptualized in the empirical part of this work as an interactive learning process that comprises learning, knowledge sharing, and developing sociotechnological and sociocultural dimensions. In the theoretical part of this thesis, I focused on responsible innovation as a meta-category of innovation by focusing on systemic challenges and taking a political economy perspective on learning and knowledge production when it comes to adoption of mobile journalism practices.

In the following section, I synthesize the conceptual-theoretical article and empirical paper's findings, outlining mobile technology as an irresponsible innovation and pointing out what can be viewed as an example of irresponsible adoption of mobile technology for journalistic practices. After that, I explain what I understand as responsible innovation in mobile journalism and how mobile technology can be adopted in a responsible way.

5.4.1 Mobile technology as irresponsible innovation

Through the lens of Zuboff's surveillance capitalism theory, with the help of the RRI perspective on mobile journalism, the third article outlines an example of "irresponsible adoption of irresponsible technology" (Salzmann et al., 2021b, p. 134). It was argued that key technologies and infrastructures of mobile journalism are building on what Von Schomberg (2013) terms "irresponsible innovation" (p. 14). Von Schomberg (2013, p. 14) differentiates five different types of irresponsible innovation: *technology push*; *neglect of*

fundamental ethical principles; policy pull; lack of precautionary measures; and technology foresight (italics in original).

Neither smartphones, which the practice of mobile journalism centers around, nor embedded risk technologies (e.g., AI) and infrastructures, as described by Zuboff (2019), are developed or shaped in a manner that comes close to what is framed under the umbrella term “responsible innovation,” i.e., in a way that holds research and industry accountable to public values. On the contrary, smartphones are outlined as a “radical innovation” (Edwards-Schachter, 2018), thereby changing the rules of the game and giving innovators advanced and concentrated knowledge (Zuboff, 2019). RRI scholars view fundamental human rights – such as privacy, human autonomy, human dignity, and a democratic order – as being threatened in the context of current information and communication technologies optimized for data harvesting.

In particular, smartphones and built-in technologies such as AI are key for the practice of mobile journalism (as well as associated social media platforms). They represent technologies that combine several of Von Schomberg’s (2013) irresponsible innovation criteria. Private companies bring these technologies to market, introducing an array of fundamental ethical challenges to which it is difficult to find culturally adaptable, or even more general, ethical solutions. These technologies are introduced in society with improper precautionary steps and/or measures of technology foresight, and even if such measures are taken, they have not been shared publicly. Moreover, these irresponsible innovations are reinforced through the logics of a newly emerging economic logic in the digital sphere, termed by Zuboff (2015, 2019) as surveillance capitalism. Within the political economy of learning processes enabled by technologies associated with the practice of *mojo* lies the challenge of unregulated dataveillance, as well as what Spiekermann (2019, p. 203) termed the “privatization of knowledge production,” which is deeply problematic in the context of what is understood and outlined in this thesis as responsible innovation (see 2.3). An increasing privatization of knowledge production not only would undermine values promoted by RRI – as well as RI, which aims for “the public good” or developments that fit “societal needs” – but also would stall societal innovation capacities in general.

5.4.2 Irresponsible adoption of mobile technology

While keeping these broad and systemic challenges in mind, examining findings from the empirical studies was interesting, in which I investigated, in different settings, where and how professional journalists learn and gather knowledge about adopting mobile technology

for journalistic practices. An exploration of the various learning situations indicates an emphasis on gathering and disseminating knowledge about new tools and artifacts, as well as exploring and mastering these tools through a common call for a change in mindset that fits digital culture, but conflicts partly with journalists' professional identities. An investigation within arenas in which journalists discuss, learn, and are trained in adopting mobile technology indicates that smartphones in particular are framed and understood as being more isolated and viewed as "working tools," rather than part (and a key technology) of a larger and, to a greater extent, pervasive and commercially motivated ecosystem based on mass data extraction, profiling, and adoption of several risk technologies. The adoption of smartphones in the examined empirical cases – in which professional journalists learn, discuss, and are trained in adopting mobile technology – is narrowed to "a tool perspective" or what can be termed *surface technology*, rendering smartphones as just another tool in the journalist's toolbox (Burum, 2016, 2020; Burum & Quinn, 2015; Dean, 2019; Jokela et al., 2009; Westlund & Quinn, 2018). Crawford and Joler (2018), who examined the hidden costs of AI by developing an "anatomical map" of a voice-enabled AI device (Amazon Echo), provided a fitting description of what I refer to as *surface technology*:

"Anything beyond the united physical and digital interface of the device itself is outside of the user's control. It represents a sleek surface with no ability to open it, repair it, or change how it functions" (p. VII).

This description also applies when it comes to a mobile journalist's core working device – the smartphone, as many modern digital devices represent platform technologies, or "hubs" that integrate or closely relate to other technologies that are opaque for most users. These invisibilities camouflage not just side effects from adopting mobile technology, but also prevent it from being understood thoroughly. Subsequently, a shallow and narrow "tool perspective" observed in the examined training situations and arenas for mobile journalism innovation (as well as in academic discourses) is problematic in several ways: It makes mobile adopters blind to infrastructural dependencies and risks related to adoption of innovative technologies spurred by a tracking-based digital economy. Furthermore, viewing an outlined "radical innovation" (Edwards-Schachter (2018, p. 74) (see 2.2.1), such as smartphones, as just "another tool in the journalist's toolbox" hardly can be viewed as a responsible way to adopt the neo-journalistic practice of mobile journalism. A simplified view that provides a deeper and broader perspective on the applied technologies' infrastructural dependencies and related side effects – such as dataveillance, privatization of knowledge, and underlying threats posed for fundamental human rights – cannot be viewed as a responsible adoption

practice, particularly when it comes to professional journalists, who represent a societal risk group. Thus, I argue that the empirical studies' findings indicate examples of irresponsible adoption of mobile technology.

5.4.3 Responsible adoption and innovation in mobile journalism

The argumentation above (5.4) leads to the overarching question of the thesis: What is responsible innovation in mobile journalism? And consequently, if mobile journalism is based on a technology that is viewed as irresponsible, how can journalists adopt such technology in a responsible way?

Responsible innovation in mobile journalism in this thesis is understood as a learning process that applies a deep, broad, and critical perspective on the neo-journalistic practice of mobile journalism. Meanwhile, it takes the infrastructural and technological complexity, resulting in risks to applied technologies and the newly emerging economic means of data extractivism into account. Therefore, it is viewed as a process that includes several stakeholders; is conducted in an inclusive, deliberative manner; and has journalistic values and other preconditions as a guiding principle, allowing journalists to enact their role as societal watchdogs.

Innovation in mobile journalism is related to and conducted by many different actors and in very different arenas, as exemplified in the empirical part of this thesis. The irresponsibility of innovation in these contexts arises for many reasons, such as a general unawareness or ignorance about broader societal consequences, short-term rather than long-term thinking, pressures from organizational restructuring, a narrow view on complex and networked computer technology, or through perspectives on technological determinism and blurring boundaries of what it means to be a journalist in the 21st century.

However, a complete rejection of mobile technology and related technologies is not a realistic option or solution because it would mean nothing less than opting out of modern society, as Christl and Spiekermann (2016) noted. The smartphone and related infrastructures have become, in many respects, the essence of what we call modern life; thus, journalists also need to find a way to adopt and adapt to these highly pervasive computing platforms and related infrastructures. However, conscious and cautious handling of highly pervasive and innovative technology, ideally by responsible groups in society, always should be a matter of course. Increasing knowledge about the risks and what is at stake when journalists and their activities become collectable and analyzable data sets by engaging cautiously with surveillance technologies, such as smartphones, is an important issue that

should be raised in every journalism training course, and particularly discussed in groups that examine these technologies' boundaries (see Article I) as reporting tools, including academic institutions. Furthermore, journalists and journalism students need to understand and learn about the trade-offs by adopting mobile technology and what it means to work in technologically pervasive environments. This includes developing *digital systems literacy* and *digital self-defense practices*, as well as (not only technological) solutions to protect themselves and their sources.

A possible approach to guiding adoption and innovation in mobile journalism into a responsible and more sustainable direction entails ideas and tools from the RRI framework (see 2.3.2), as suggested in the third article of this thesis. The approach can be viewed as a framework for societal action that acknowledges possible negative side effects from sociotechnological developments by applying different forms of technological assessment (e.g., asking "What if...?" questions). The European Union, through the RRI approach, aims for more responsible and sustainable innovation and research activities, and has marked itself as a pioneer when it comes to regulatory attempts that address new digital technologies' downsides. This includes emerging digital commercial logics, addressing comprehensive tracking and surveillance activities, outlining and developing guidelines for adoption of emerging risk technologies, and emphasizing what is at stake at the individual, organizational, and societal levels if these measures are not taken.

In the third article, I outlined how challenges for journalists emerging from adopting risk technologies and surveillance capitalism (Zuboff, 2019) can be met on individual and organizational levels. By envisioning responsible practice and innovation in mobile journalism based on RRI, ideas and concepts such as AREA (anticipate, reflect, engage, and act) can be adopted.

What can individual journalists do to adopt mobile technology in a responsible way?

As outlined earlier, avoiding the use of mobile technology is not a solution and would be a burden for many journalists, complicating their work routines. However, on an individual level, precautionary steps can be taken to minimize involuntary and uncontrolled data extraction when using smartphones by following data-flow minimization principles, known by the sharp German formulation as *datengeiz* (English: "data stinginess") (Salzmann et al., 2021b), which entails developing a conscious, critical, and cautious mindset. This is particularly important when it comes to younger generations of journalists who have grown

up using smartphones in all areas of their daily lives. The German journalist and privacy activist Moßbrucker (2019) points to journalists' "right to anonymity as a central task of journalists' digital self-defense" (Salzmann et al., 2021b, p. 135) and highlights in this context the role of encrypted communication for journalists. According to Moßbrucker (2019), darknet features should be implemented as part of journalists' communication tools and infrastructures.

Incidents such as the so-called "Pegasus scandal" (Pegg & Cutler, 2021) – in which a team of international investigative journalists uncovered how governments spied on journalists, human rights activists, and other persons of interest by using private spyware, a so-called zero-click Trojan virus that provided full access to targeted smartphones and their data, including images, access to microphones, smartphone cameras, images, and data such as geolocation – help raise societal awareness of the threats and dangers that arise for journalists when using mobile technology. Increasing societal awareness about these challenges can help generate more collective and political action, as well as stimulate technological developments, allowing for better privacy-ensured communication.

What can news organizations do to adopt mobile technology in a responsible way?

Media organizations are in a delicate situation because they compete on the Internet with Big Tech giants for attention and advertising revenue. They are themselves involved in tracking and acquiring data about their users (Adams, 2020; McCann, Stronge, & Jones, 2021; Soe et al., 2020). Furthermore, media organizations depend on Facebook and Google to reach their audiences and are in complex relationships with these intermediaries (Fanta & Dachwitz, 2020; Lindén, 2020), whose systems are described as complex and opaque (Christl & Spiekermann, 2016; McCann et al., 2021). A recent study on surveillance-based advertising (McCann et al., 2021) outlined "the self-destructive nature" (p. 70) of publishers' current relationships with and dependence on Big Tech intermediaries and the current obligated tracking and surveillance-based advertising model. In the conceptual paper (Article III), it is argued that Zuboff's theory can serve as an 'eye-opener,' challenging media organizations to reflect more critically on the long-term implications of digital economy" (Salzmann et al., 2021b, p. 135) and the application of data-harvesting technologies, such as smartphones, in journalism practice and production. As a guideline for action and "to ensure a responsible adoption of mobile technologies, media organizations could apply the RRI concept AREA" (Salzmann et al., 2021b, p. 135). This would allow organizations to anticipate, reflect,

engage, and act responsibly when it comes to motivations, investments, and outcomes from organizational activities in mobile journalism. While applying RRI methods to approach the adoption of risk technologies in organizational settings implies “high investments in (the) form of time, money, and social coordination” (Salzmann et al., 2021b, p. 136), the article suggests that it as “an appropriate way to understand and bypass extensive surveillance structures related to mobile technology and the ecosystem in which it operates” (Salzmann et al., 2021b, p. 136). The RRI concept stimulates long-term thinking and collaborative reflection on organizational activities. Translated into practice, responsible in-house-training courses in mobile journalism would encompass not just a focus on the applied surface technology (smartphones, apps, and relevant artifacts from the mojo kit), but also practices and digital self-defense strategies that allow journalists to minimize data exploitation and dependence on surveillance-based infrastructures.

Such measures definitely are complex, challenging, and costly, particularly for media organizations that operate in highly competitive markets and with tight budgets. Furthermore, several existing constraints can counteract, for example, an organization’s security culture (Crete-Nishihata et al., 2020), e.g., a lack of managerial understanding or inflexible IT policies. However, as a reminder of what is at stake (journalists’ security and autonomy, media organizations and professional journalism’s role in the current news ecosystem, and a well-functioning democracy), it is indispensable to engage with caution and reason when adopting technologies and neo-journalistic practices that render journalists radically transparent to third parties.

The consequences for individual journalists and media organizations, and the risks to society are so wide-ranging and problematic that the most effective and promising measures would be to meet these fundamental challenges with collective and, thus, regulatory and legislative action. The EU has emerged as a pioneer with regulatory attempts to address downsides from new digital technologies and emerging commercial logics because fundamental European values (human rights and dignity) and principles (freedom, democracy, equality, and rule of law) enshrined in the EU Charter of Fundamental Rights (European Parliament, 2000) are threatened by unfair competition, gatekeeper-platform companies’ monopolistic tendencies, and surveillance-based risk technologies. European authorities have underlined the need to protect individuals’ privacy to preserve a well-functioning democracy. Thus, Europe’s digital strategy is based on a human-centered approach to digitalization, thereby focusing on responsible and sustainable digitalization that safeguards European principles and fundamental human rights. In this context, the European

Commission (2021) emphasizes the importance of “digital sovereignty,” i.e., finding solutions to entail less dependence on non-European software and hardware and ICT infrastructures, as well as avoidance of so-called “gatekeeper-platforms,” which is fundamental to Europe’s economic prosperity and technological competitiveness.

6 Conclusion

Mobile journalism definitely speaks to the new media ecosystem and the core of modern digital culture, thereby offering media organizations or individual journalists a playground for media innovations and new forms of reporting and storytelling. Several ancillary journalism organizations (e.g., Thomas Reuters Foundation, Konrad Adenauer Foundation) and scholars (Borum, 2016; Quinn, 2012; Silva-Rodríguez & Toural-Bran, 2018) have embraced the practice of mobile journalism as a way to re-invent journalism and celebrate it as a democratizing force (Borum, 2016; Eltantawy & Wiest, 2011; Howard & Hussain, 2011). The Konrad Adenauer Foundation (2020) promotes mobile journalism on its webpages as a way to defend “a free, ethical, and responsible press.” However, the picture of mobile journalism gets more complicated from the perspective of my work, and it is reasonable to ask whether mobile journalism can be viewed instead as a Trojan horse in journalism.

By examining professional broadcast and print journalists’ learning processes in different settings, this work sheds light on how smartphones are applied as a new tool for journalistic practice, and how some journalists and scholars view them as a key technology for journalism innovation. However, through a conceptual analysis of mobile journalism that applies the lens of Zuboff’s surveillance capitalism theory, this thesis also brings the broader societal consequences that are attached to this journalistic practice into view.

It has been argued that adoption of mobile technology from a narrow “tool perspective” in the context of journalistic practice, which views, e.g., smartphones as a *surface technology* makes mojo adopters blind to infrastructural dependencies and related side effects from engaging in mobile journalism. Smartphones are highly convergent technologies that encompass several risk technologies and are embedded in complex infrastructures that Zuboff (2019) contends have spurred a new economic logic in the digital sphere. Thus, while outlined by innovation theorists as a “radical innovation” (Edwards-Schachter, 2018), journalists need to adopt mobile technology as a societal risk group in a cautious and responsible manner. I argue that this is only possible if actors and stakeholders involved in the adoption of mobile technology take into account the infrastructural and technological complexities of applied technologies, as well as newly emerging economic means of data extractivism. Engaging in full-fledged smartphone journalism may be an attractive and reasonable choice in journalists’ daily working routines and for media organizations under increasing financial pressure. Training in smartphone reporting and its practice may put a

journalist on the cutting edge of technological developments and make him or her more attractive on the job market as a “jack of all trades,” but from a broader and long-term perspective, uncritical engagement and promotion of this neo-journalistic practice poses fundamental challenges, such as undermining journalists’ security, privacy, and autonomy. Engaging in smartphone reporting on an individual level without taking digital safety and anonymity precautions renders the journalist vulnerable to highly pervasive technologies and infrastructures as “a traceable, tradeable data object” (Salzmann et al., 2021b) and an easy target for, e.g., dataveillance or other surveillance practices. From a societal perspective, it has been argued that the practice of mobile journalism can be viewed through Zuboff’s surveillance capitalism theory as feeding into the supply chains of algorithmically steered logics that undermine the very essence of journalism (i.e., separating truths from falsehoods). To meet the challenges and risks related to mobile journalism practices and innovation, ideas and methods from the IRR framework are suggested in this thesis. Furthermore, implications and possible approaches to counteract the risks from engaging in mobile journalism are outlined on individual, organizational, and societal levels.

In summarizing my work, it can be said that the mobile journalism field, in many respects, reflects current socio-technological developments, as well as ongoing societal shifts enabled by these rapid developments through adoption of complex technology. It is not only a field of media innovation, but also a coupling point between traditional media and journalistic practices with digital network culture, platform structures, arising neo-liberal logics of labor, commercial exploitation, and political manipulation enabled by new technologies, such as machine learning, cloud computing, and pervasive computing. It also provides an exceptional example through which to investigate and understand more thoroughly how professional journalists’ work and practice are transformed in the light of technological and sociocultural advancements, including the societal costs attached to them. The increasingly more visible systemic risks attached to some outlined IT technologies – particularly when it comes, for example, to the possibilities from machine learning or AI – encourage responsible researchers and innovators to change their perspective from “Could I build this?” to “Should I build this?” toward what Grosz (2021) calls “Designing society-compatible systems.” In transferring this perspective on mobile journalism, the question for journalists would be “Should I adopt it?” and “How can I adopt mobile technology without putting me or my sources at risk?” Individuals and groups exploring mobile technology for reporting could engage in *designing responsible mobile reporting systems that are compatible with journalistic purposes*, i.e., they take into account the technologies’

pervasiveness and related infrastructures, finding practical and technological solutions that render the journalists' work with built-in risk technologies and environment more secure and sustainable. This also would encompass the insight that smartphones and mojo practices are not just an "all-purpose tool," but rather *a complex networked computing platform based on several risk technologies*, thereby triggering questions such as: For what purposes is mojo a suitable or unsuitable approach? What is a mobile journalist's mission and ambitions? How does mobile journalism fit this purpose, and how can it maintain control of generated data traces and flows?

Certainly, responsible development and adoption of complex ICT technologies, particularly among societal risk groups, are not easy endeavors. However, it arguably is less a question of technological ability than a question of individual, corporate, and political will.

7 Limitations and implications for future research

This dissertation set out to answer the overarching research question *What is responsible innovation in mobile journalism?* It also aimed to increase understanding of how responsible innovation in mobile journalism can be envisioned and how journalists can adopt and apply mobile technology, which comprises several risk technologies, responsibly.

The approach of this thesis allows for a multi-faceted view of the mobile journalism field and the consequences of applying mobile technology in journalistic practices. However, it must be noted that the approach also has limitations. The presented empirical studies are limited in that they provide a rich picture of only two selected practices and have not sought to be generalizable to myriad practices in which mobile journalism innovations occur. As outlined in Subsection 4.4.1, there are probably as many strategies for adopting and developing *mojo* practices as there are media outlets to find. Furthermore, the neo-journalistic practice of mobile journalism also unfolds dynamically beyond traditional news contexts and structures, e.g., media organizations or ancillary journalism organizations. Thus, the two discussed cases provide only a glimpse of innovation activities, while providing a set of concepts that can be used when analyzing and understanding how professional journalists develop new professional practices and adapt to new technologies during their professional careers, as well as how they experience these learning practices. The dynamic field of media innovation comprises many actors, arrangements, and cultural contexts in which innovation and learning activities are evolving. More research is needed to map and understand these arenas and actors related to mobile journalism innovation. This could include examining more closely how these actors approach aforementioned risks associated with applying a highly pervasive technology for reporting, or how they resolve the reality that mobile technology can empower their work while simultaneously threatening the free press. The aforementioned Pegasus scandal (Pegg & Cutler, 2021) and statistics on worldwide imprisoned and killed journalists that the International Federation of Journalists (2021) has published can be viewed as a signal to address these challenges and risks more prominently in journalism research and contribute through collaborative efforts to develop responsible mobile reporting systems and ideas for safer and encrypted infrastructures.

The argumentation in the conceptual-analytical part of the thesis mainly builds on Zuboff's theory of surveillance capitalism, which presents one of the most prominent and recent theoretical approaches to grasp societal, economic, and political side effects from rapid digitalization. As Morozov (2019) points out, Zuboff's theory provides an incomplete

picture of the complex digital economy's landscape and only a glimpse of current surveillance practices related to mobile journalism. More scholarly attention is needed to investigate economic logics related to data extraction and research that investigates complex interrelations between different digital infrastructures and applications applied by journalists, as well as often-invisible and heterogenous data flows generated in these structures. For this purpose, creative and transdisciplinary methods are needed that enable researchers to trace these complex data flows in interconnected and networked systems. These systems can provide convenient functions, but they also can compromise journalists and their sources' privacy and anonymity, exposing personal data to possible abuse, against the backdrop of an unknown potential political climate in the future. Thus, future research should investigate how journalists are imperiled while using mobile technology and other technologies attached to advanced forms of data extraction (e.g., the "Pegasus scandal"; Pegg & Cutler, 2021).

Furthermore, the RRI framework used in this thesis as a possible normative and value-based approach to mitigate risks attached to mojo practices reflects a European perspective, exerting significant influence on the concept of responsible innovation discussed in this thesis. From a broader Western perspective, different understandings and nuances may surface when defining "responsible innovation" and responsible adoption of new technology. Furthermore, the term *responsible*, particularly in non-academic and academic discussions around AI development, has emerged as a prominent label to ensure social acceptance and raise public trust in certain AI technologies and applications. Increasing interest in IT industry in ethics reflects this debate, and some scholars view it as "ethics washing" and a way to prevent regulatory efforts (Bietti, 2020; Wagner, 2018). However, underlying values and varying cultural understandings of what is labeled *responsible innovation* and *responsible adoption of risk technology* merit more academic scrutiny.

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PART II: The articles

“We in the Mojo Community”– Exploring a Global Network of Mobile Journalists

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ABSTRACT

Mobile journalism is a fast-growing area of journalistic innovation that requires new skills and work practices. Thus, a major challenge for journalists is learning not only how to keep up with new gadgets but how to advance and develop a *mojo mindset* to pursue their interests and solidify future work options. This paper investigates a globally pioneering network of *mojo* journalism, the Mojo Community, that consists of journalists and practitioners dedicated to creating multimedia content using mobile technologies. The study is based on empirical data from interviews with and the observation of the participants of the community over a two-year period. The analysis draws on Wenger's concept of “communities of practice” to explore the domain, structure, and role of this communal formation for innovation and change in journalistic practices. The community's core group is comprised of journalists mainly affiliated with legacy broadcast organizations and with a particular interest in and extensive knowledge of mobile technologies. The participants perceive their engagement with the community as a way of meeting the challenges of organizational reluctance to change, fast-evolving technological advancements, and uncertain job prospects.

KEYWORDS

Mobile journalism;
community of practice;
mobile technologies; *mojo*
community; digital culture;
mojo; smartphone
reporting; mobile content
creation

Introduction

Mobile journalism is considered to be one of the fastest growing areas of journalism (Hill and Bradshaw 2019; Perreault and Stanfield 2018) and is characterized by the close entanglement between journalism and technology. Westlund and Quinn (2018) describe mobile journalism as a journalistic process, and Burum (2016) refers to it as a “holistic form of multimedia storytelling” (153) whereby a professional journalist writes, shoots, edits, and publishes news stories entirely on a mobile, networked, handheld, multimedia device (see Jokela, Väättäjä, and Koponen 2009; Westlund and Quinn 2018). In this study, the practices of mobile journalism, also called “*mojo*” and “*mojo* practices,” are understood as a form of all-around, multimedia solo reporting in which the smartphone serves as a complete production unit for collecting, editing, and disseminating news. *Mojo* practices have been labeled as a market-driven, neo-journalistic approach (Burum 2016) and constitute a breeding ground for innovative journalistic practices evolving within and beyond the

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scope of traditional news institutions. While mobile phones have been used by journalists for decades as a basic working tool (Quinn 2012), smartphones have become an “all-in-one-tool” that is also referred to as “the swiss army knife” (Quinn 2009) or a “pocket-sized mobile creative suite” for journalists (Borum and Quinn 2016). According to Pavlik (2019), smartphones are considered to be the most important resource for any journalist to handle the constantly expanding opportunities for multimedia storytelling. In tandem with technological advancements (Berry and Schleser 2014; Westlund 2013; Quinn 2013), practices of mobile journalism have gradually developed from applying the first solo video news-gathering tools in the 1990s (Bock 2012; Martyn 2009; Cameron 2011) to using smartphones as full-fledged multimedia production units (Borum 2016; Staschen and Wellinga 2018).

Adopting *mojo* practices in news organizations should be attractive for a number of reasons: mobile productions tend to be very flexible and hold the promise for organizations to reduce production costs and present a fast way to produce video, audio, and multimedia content for multiple platforms (Sundet 2012; Jokela, Väättäjä and Koponen 2009; Staschen and Wellinga 2018; Mills et al. 2012). *Mojo* practices make the journalist fully operational for a 24/7 news production cycle (Carolus et al. 2018; Westlund and Quinn 2018; Guribye and Nyre 2017; Bruck and Madanmohan 2013; Lund 2012). Furthermore, *mojo* practices are closely entangled with social media platforms and are open for new formats and ways of storytelling (Montgomery 2018) that hold the promise to reach younger audiences (Gentilviso and Aikat 2019; Molyneux 2017) by engaging with social media practices and emerging new visualities (Schleser 2014).

However, while *mojo* is commonplace in some news organizations and media start-ups, the practices are still met with skepticism within Western legacy broadcast organizations (Perreault and Stanfield 2018; Karhunen 2017; Hadland, Borges-Rey and Cameron 2019). Traditional broadcast organizations are challenged to overcome long-established institutional working routines as well as defined professional roles and existing principles of quality (Wallace 2009, 2013; Guribye and Nyre 2017). In some cases, broadcast-journalist unions deliberately try to slow down the adoption of all-round solo reporting practices (Perez and Cremedas 2014) as such practices place more tasks on the individual journalist and increase potential work-related health risks such as burnout (Blankenship 2016; Wenger and Potter 2014).

Research on the learning and innovation processes of professional journalists is mainly limited to experiences from journalism education (Steensen 2018 in Porcu 2016). There is still little knowledge about how and where professional journalists develop new professional practices or adapt to new technologies. This study addresses this issue by focusing on a group of professional broadcast journalists who explore the disruptive potential of mobile technology in journalism by engaging in and learning through a network of peers. They are the forerunners and early adopters (Rogers and Shoemaker 1971), or journalistic pioneers (Hepp and Loosen 2019), of mobile journalism, organizing themselves in a global community dedicated to pursuing knowledge on how to apply mobile technologies for journalistic purposes and mobile content creation.

Drawing on Wenger's ([1998]; 2002) theoretical concept of “community of practice” (CoP), this study investigates *the role* of this particular community as an overlooked collective actor in the field of mobile journalism. Furthermore, the study *explores the individual motives* of selected community members who serve as so-called “*mojo* trainers.” These

mojo trainers are involved in spreading the knowledge, ideas, and meanings developed by this peer group to a broad range of stakeholders beyond the confines of the community. The analysis is based on qualitative data collected through participant-observation at the Mobile Journalism Conference in Galway, Ireland, 2017 and on 17 in-depth interviews with mojo trainers from eleven different countries. The analysis shows that this particular community is an important *orientation, experimentation, and innovation hub* for its participants. The hub is particularly important for the many international mojo trainers who teach mojo to journalist colleagues and mobile content creators in many countries based on negotiated meanings, practices, and resources developed in the community. The data indicate that this journalistic pioneer community serves an important role as an intermediary in developing the field of mobile journalism and content creation practices, negotiating and envisioning as well as spreading knowledgeable arguments for future developments in the field. The analysis also offers insights regarding the importance of a social space for journalistic innovation and learning culture. This study thus provides perspectives beyond the increasingly criticized “newsroom-centricity” of journalism research (Wahl-Jorgensen 2009; Anderson 2011; Hermida 2019; Deuze and Witschge 2018).

The paper is divided into four main sections, we start by briefly explaining the background and the theoretical framework of the study, then describe the empirical data and method, and finally discuss the results.

Background

The adoption of mojo practices can lead to tensions and conflicts in news organizations. According to Perreault and Stanfield (2018), journalists promoting mojo practices in such organizations were perceived as “a burden” and as being “the harbinger of changes to come” (8) and thought that news managers and senior editorial staff were less willing to embrace the necessary changes. Furthermore, “professional journalists’ ambivalence to new technologies” (Hadland, Borges-Rey and Cameron 2019, p. 18) might be due to the difficulties in integrating the new technologies into the established production systems and the tight connection to the challenges of verifying mobile news content produced by amateurs. Innovations in journalistic practice thus challenge existing workflows, practices, values, and the understanding of professional roles (Wallace 2009; Borger et al. 2013; Perez and Cremedas 2014). The issue of quality plays a special role in the context of broadcast journalism marked by long-developed principles and standards of quality of audio-visual content production (Mills et al. 2012; Hadland, Borges-Rey and Cameron 2019; Ellis 2015) as well as TV journalism’s reliance on teamwork to manage the complex technological challenges involved in TV productions (Ellis 2015). Blankenship (2016) found a negative perception of solo journalism among TV journalists, who associated models of solo- and multi-skilling with cost-cutting and a lack of journalistic quality (see also Karhunen 2017).

While there are several challenges for the adoption of mojo practices, especially in major Western broadcast organizations, scholars have pointed out that mobile production skills are increasingly required for professional journalists (Wenger, Owens, and Thompson 2014) and are considered as “salient in the current media environment” (Jones 2017, p. 344). According to Deuze and Witschge (2018), journalists are expected to update

their skill portfolio and work routines in order to keep up with the developments that change the news industry. This applies also to novel journalistic practices such as mobile reporting and mobile content creation that require distinct competencies and skills to be trained and developed (Kumar and Haneef 2018).

Research on learning processes within legacy media newsrooms is mostly limited to experiences from journalism education (Steel et al. 2007; Porcu 2017). Porcu (2017) explored innovative learning cultures within legacy media newsrooms and argued that the scarcity of scholarly attention to learning and innovation processes of professional journalists was “the biggest gap in the media innovation literature” (12). Lowrey, Sherrill and Broussard (2019) explored journalistic learning cultures by focusing on the example of data journalism and by looking at ancillary organizations as key agents involved in ongoing journalistic developments and innovation processes. They claimed that journalism labs, professional training centers, and membership organizations, foundations, and academic programs are important intermediaries in the ongoing development processes in journalism, fostering communication between actors, defining “the meaning of innovations” (6), and helping to legitimize innovation processes. Hepp and Loosen (2019) conceptualized pioneer journalists and pioneer communities as intermediaries of organizational change processes in the news industry. Journalists who emerge as forerunners or early adopters (Rogers and Shoemaker 1971), stimulating and exploring innovative journalistic practices and technologies, serve as agents of such transformation processes (Quinn 2012, 2013; Mills, Pellanda, and Pase 2017). Hepp and Loosen further argued that pioneer journalists in their role as intermediaries between media development, journalistic work, and other social fields rely on an ongoing exchange of ideas and knowledge across various institutional, formal, and informal contexts (see also Hepp 2016). Thus, pioneer journalists are typically embedded within communities of practice and “embody imaginations of possible future scenarios” (Hepp and Loosen 2019, 6).

Theoretical Framework

The theoretical concept of “community of practice” (CoP) originates from the work of Lave and Wenger (1991) in the early 1990s and was coined to address the situated and social nature of learning. In this framework, learning is understood as a socially constructed experience of meaning-making situated in a cultural and historical context (Farnsworth, Kleanthous, and Wenger-Trayner 2016), and the resulting CoP is characterized by three fundamental and interrelated dimensions of shared experience: *mutual engagement*, *a joint enterprise*, and *a shared repertoire* (Wenger 1998, 72–73). Later, Wenger revised and renamed the three structural dimensions of a CoP to *domain*, *community*, and *practice* (Wenger, McDermott, and Snyder 2002).

Wenger’s (1998, 2002) concept of CoP applies to a specific structured process of social interaction and negotiation of competence in a special area, or “domain,” over time (Farnsworth, Kleanthous, and Wenger-Trayner 2016, 143). It is defined as “groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” (Wenger, McDermott, and Snyder 2002, 4).

In the contemporary context of networked social life and studies of digital culture, the concept of CoP has attracted renewed attention. Stalder (2018) identifies “new forms of

communality that develop in the offshoots of networked life” (83) as a fundamental part of digital culture that is promoted by new virtual spaces for social interaction and that increasingly play a role in influencing social action. Thus, Stalder highlights the concept of CoP as a productive means of looking at and understanding new ways of social acting, learning, practicing, and knowing (84–85). CoP also serves as an umbrella term that encompasses previously developed concepts such as vicarious learning and observational learning (Bandura 1974).

Methodological Approach and Sites of Investigation

This study follows a qualitative approach based on empirical material gathered through participatory observations at key sites for mojo community interactions and 17 in-depth semi-structured interviews with selected members (mojo trainers) of the community. The annual Mobile Journalism Conference (MoJoCon) in Ireland and the community’s public Facebook group named Mojofest Community – Where the Global Mojo Community Meet and Share, which currently has about 5,800 members (as of November 2019), were identified as important field sites for research on the community.

The conference has been organized since 2015 and was originally initiated and hosted by the Irish public broadcaster Raidió Teilifís Éireann (RTÉ). The event is considered pivotal for the emergence of the mojo community and is furthermore one of the most important gathering points for face-to-face interactions by the community’s core group. We chose the conference as one of our fields of investigation to gain access to the community, to obtain empirical data through participatory observations on the community’s social interactions, and to establish contact with relevant interlocutors. The data was gathered during the third Mojo conference, which was carried out in Galway, Ireland, from May 4–6, 2017. The data was logged by taking field notes during the event and by collecting documents and material, including news media coverage between 2015–2018 that was publicly available and related to the activities of the community. In order to prepare the interviews and to enrich background data about the conference and the community, social interactions in the community’s Facebook group were observed regularly and data recorded using field notes.

The 17 in-depth interviews with active mojo trainers from the community lasted between 45 and 60 min each and produced more than 16 h of recorded data that were transcribed. The interviews were conducted over a two-year period, from February 2017 to September 2019. The first one was conducted in February 2017 during a local mojo training in academic education and the following six interviews during the conference in Galway, Ireland, in May 2017. The tight-packed time schedule of many potentially interesting interlocutors attending the conference proved to be very challenging in order to collect more interview data at this particular meeting point. Therefore, also due to the fact that many interesting informants were situated on different continents and were frequent work travelers, appointed Skype-interviews proved to be the best solution for gathering more interview data and following-up on interviews. The selected informants were identified as pioneers in using mobile technologies for solo multimedia storytelling and reporting. They were experienced practitioners, describing themselves as “mojo trainers” or “mobile media consultants,” thus being involved in spreading knowledge about mojo practices to other groups beyond the circles of the community. However, their roles

and levels of engagement in the community varied to a high degree. Six persons with very high degrees of engagement were identified as being part of the community's core group. Seven interviews were done with active members who participated and engaged on a regularly basis in the community activities. The other four informants were more passive community members; they followed the activities of the community but were not very active in social interactions during the time of observation. Twelve of the interviewees were male and five female, altogether representing mobile journalists and mobile content creators from 11 different nationalities and four different continents.

Nearly all informants (14 of 17) had received professional education or training as a journalist. Only two of them had gained their journalistic skills based on practical training alone. One informant was a technician who had worked for many years as a broadcast engineer and later on as the head of the innovation department at a national broadcast corporation in Europe. Eight informants were freelancers, and nine were permanent employees. Eight of the permanent employed informants were contracted at a Western media broadcast organization, while the last one worked as a lecturer in an academic journalism training program. All the permanently employed informants pursued journalistic as well as trainer roles in mobile journalism (mojo trainer), thus spreading knowledge about mojo practices beyond the boundaries of their employing organization and the mojo community.

The interviewed group of freelancers had a more complex and hybrid occupational portfolio. These solo freelancers earned their living optionally and often combined jobs as mojo trainers, mobile journalists, and mobile content creators for business communication.

The interviews were structured into three sections. In the first section, informants were asked about their professional background, journalistic working experience, and how they were introduced to the practice of mobile journalism. The second section focused on their experience in applying mojo for professional production in their current work environment. Finally, the third section explored the role of the community for the informants. They were asked how they became aware of the global network, how they perceived the activities of the community, and about their motives to participate or engage in the network.

The material was first sorted into the preliminary topics and themes that were identified. The themes were then sorted into overlaying thematic categories on the issues that motivated the respondents to participate and engage in the community. The first author carried out the initial analysis, which was then discussed in a number of collaborative analysis sessions.

Findings

The mojo community can be traced back to global pioneering mobile journalism projects (Borum 2016; Jokela, Väättäjä, and Koponen 2009; Quinn 2009, 2013) and is linked to institutions engaging in mobile journalism practices, such as the news agency Reuters, the Thomson Foundation, the Nokia Research Center, the British Broadcasting Corporation (BBC), the Irish public broadcaster RTÉ, and especially the European Association of Regional Television (Circom), which first brought the mojo pioneers together and supported the first training sessions for professional TV and video journalists. In 2015, the

innovation department of RTÉ, which at the time had been employing mobile journalist pioneers and was a visionary actor in the field of video and multimedia journalism (Burum and Quinn 2016; Staschen 2017), initiated the first worldwide conference on mobile journalism in Dublin, Ireland. The initiative was motivated by the perceived disappointment and frustration among enthusiastic *mojo* practitioners, who had experienced underappreciation by colleagues and the media organizations by which they were employed. A way out of this situation was to gather a larger group of like-minded people outside their common institutional work relations to help each other collectively through new forms of knowledge gathering. The former head of the innovation department at RTÉ described the strategic objective of initiating the first international mobile journalism conference and the *mojo* community as follows:

The idea of [the] *mojo* conference was bringing together a lot of the international journalist pioneers and innovators so that we could share, share knowledge, share ideas, debate the future, and basically create a collaborative community that could experiment and grow their talent as mobile content creators.

The reflections of this respondent correspond well with Wenger's (2002) definition of a community of practice. The idea of a community is here promoted in order to create a social fabric for people who have a common interest in mobile technology at the intersection of journalism and content creation and want to share experiences, knowledge, and new ideas. By participating in a community, people build collaborative relationships, exchange information, establish norms, and negotiate meaning. Consequently, the engagement of members binds them together socially and enables the community to conduct processes of social learning. Wenger (1998) summarized this phenomenon under the structural dimension of *mutual engagement* and noted it as a basic feature of a CoP (76).

The Domain of the Mojo Community

The shared domain or field of interest of a CoP, also referred to by Wenger (1998) as the *joint enterprise*, that links its members together can be described for the *mojo* community as an interest in mobile technology, especially smartphones and related technologies, at the intersection of journalism and the more generic field of mobile content creation. Nonetheless, retracing the *indigenous enterprise* (Wenger 1998) of the *mojo* community, an important pillar to generating community coherence, demands long-term observation. The particular area of activity and the body of knowledge that a CoP organizes itself around is, according to Wenger (1998), a substantial part of the community's ongoing collective negotiation processes and thus is not a fixed matter but is influenced by the conditions of the community, its composition, and the contexts in which it is embedded (Wenger 1998, 84). A shared object of interest and a central symbol for the activities of the *mojo* community is embodied by the artefact of the smartphone. It is paraphrased by community members as a "power center for content creation," a "swiss army knife for journalists," and a "complete content production unit." The smartphone represents an anchor point for the practice of the community and is the core object of identification for its members. The special role of the smartphone is manifested in visual representations of community activities and its developed resources. The mobile appears also in a more abstract sense—that is, in the name of the community and in the habit of community

members to refer to themselves with titles like “mobile journalist” (or the abbreviation “mojo”), “mobile content creator,” “smartphone journalist,” and even “smartphone evangelist.”

Structural Aspects of the Mojo Community

CoPs emerge in various forms and can be identified by several structural features or attributes in order to categorize them into typologies. Communities can be classified according to different attributes such as size (number of members), age (period of existence), lifespan (from temporary to permanent), process of creation (intentional or spontaneous), boundary characteristics, composition (homogenous or heterogenous), and more, like their degree of reliance on information and communication technology (ICT; Wenger, McDermott, and Snyder 2002; Agrifoglio 2015). Based on how much communities rely on ICT, they can be classified into face-to-face (Wenger, McDermott, and Snyder 2002; Dubé, Bourhis, and Jacob 2006) or virtual (digital) communities (Rheingold 1991; Hammond 2016). However, this strict division into physical and virtual interaction is not suitable to describe the social interactions of the community that is the focus of this paper. In the following section, the features that characterize the mojo community are thus discussed in particular.

The activities and interactions of the mojo community are closely intertwined between the physical and digital spaces. While most of the mojo community’s practices are mediated and situated in virtual environments (social media platforms, messenger apps, conference apps, etc.), regularly attending conferences and meetings that enable face-to-face contact is also crucial to strengthening the coherence between community members. During the conference, social interactions happened simultaneously in both spaces (digital and physical) and flowed almost seamlessly between the different social arenas due to community members’ extensive use of smartphones and related technologies. We thus suggest describing the mojo community as a “hybrid community” (Agrifoglio 2015), characterized by an enmeshment of virtual and physical interactions and activities.

Composition of the Community and Levels of Participation

The community’s most ubiquitous and most easily accessible meeting point is found on the social media platform Facebook, which hosts a heterogenous group of people with various cultural and professional backgrounds, motives, and interests. Although primarily initiated and coordinated by professional journalists, the community’s practice attracts also the attention of people with a professional background and interests beyond journalism, including “content creators” (public relations and communication professionals), commercial equipment producers (mojo software and hardware manufacturers), video trainers, educators, researchers, and students.

Members of communities participate with different degrees of engagement. Wenger (2002) identified three main levels of participation. First, there is a small circle of people who form the community’s “core group” and take a leadership role within the group. They are very active, engaging in discussions or debates in the public community forum, initiating projects, and identifying topics that are relevant to the community

(Wenger, McDermott, and Snyder 2002, 56). At the next level of participation there are the “active members,” those who regularly attend events or meetings of the community and engage in the community’s public forum but without the same intensity as the core group. Finally, the largest group consists of members who are a part of the community’s peripheral context and take a more passive, observational role. This also resonates with Bandura’s (1974) concept of vicarious learning emphasizing that observing and imitating the behavior of others is key to learning. In the same vein, Lave and Wenger (1991) used the term legitimate peripheral participation to characterize this form of learning. It is worth noting that the degree of engagement and participation is never fixed and varies for a member over time.

The informants interviewed in this study were part of the community’s core group. Several of them were connected to Western public broadcast corporations such as the BBC (United Kingdom), RTÉ (Ireland), ABC (Australia), ARD (Germany), CBC (Canada), CNN (USA), NRK (Norway), or SVT (Sweden), to name only a few. In addition to that, there were traceable connections of community members to several ancillary organizations engaged in the development of journalism, such as the Thomson Foundation, Circom, or the Konrad-Adenauer-Stiftung. The members of the core group were all active as mojo trainers or mobile media consultants during the time of the study. The majority of members of the Facebook group did not appear to be active but probably observed the interactions of the group or engaged only when necessary. According to the interviewed mojo trainers, an increasing part of these “silent members” are mojo novices who joined the group after attending a mojo training course in order to develop their mojo expertise by benefitting from the gathered resources and collective expertise of the mojo community.

Participatory observations at the Mobile Journalism Conference in Ireland as well as of the community’s interactions on Facebook revealed that the most active members of the community increasingly explore the capabilities as well as limitations of mobile technology and other related technologies in order to develop and test new techniques for reporting and content creation. These forerunners, or mojo pioneers (Hepp and Loosen 2019), are eager to expand the boundaries of existing practices and stimulate journalistic innovations. In a published practical guide for mobile journalism, they describe themselves, compared with their journalistic colleagues, as horizon scanners (Rogers and Shoemaker 1971): “being at the forefront of engaging with new technologies and working up solutions for how such technologies can transform the way traditional media organizations work” (Staschen and Wellinga 2018, 7). All of the respondents in this study indicated being more interested in exploring technology than their average journalist colleagues and reflected by using expressions like “we are nerds” or “the interest in tech is in my DNA.” This special interest in technology became observable in all spaces of the pioneers’ interactions. At the community’s conference in Ireland and on their Facebook group, the exploration and discussion of additional mojo accessories and related software applications played a prominent role. A German respondent put it like this: “What I do see, especially when I see my colleagues and visit the Mojocon, [is that] many have this what I call a ‘feature-itis.’ They are obsessed by new gadgets and stuff.” This corresponds to Brown and Juhlin’s (2015) concept of “enjoying machines.” In other words, the core group members of the

community can be described as journalists who are not only interested in but actually find pleasure in the exploration of new technologies.

Motives and Reasons for Engaging in the Mojo Community

The analysis of the gathered data material provides a rich picture of the role of the mojo community as an agent in journalism innovation. It emerged from the data that a main motive for the informants' engagement with the mojo community was *to develop the mojo mindset*. The need for developing the mojo mindset is rooted in a shared belief in mobile technology as the most important, disruptive tool of journalism. The shared belief in mobile technology is not only a basic connection that links a diverse group of people together—it also influences their interests, point of attention, and worldview. The informants are subsequently attracted to the mojo community by the following motives: (1) a need for belonging and unity with likeminded colleagues, (2) perceived resistance against mobile journalism in traditional Western TV newsrooms, (3) a need for orientation, knowledge extension, and support, and (4) sustainable protection of jobs. The identified themes are not meant to be exhaustive and can be partly overlapping. They are meant to characterize the reasons for participation and the value of the engagement in the community seen from the perspective of the participants. The motives are the reasons and contextual factors that provide a rationale for our informants' participation in the community. They are closely interrelated, and in the following we will explain the four identified motives in more detail.

A Need for Belonging and Unity with Likeminded Colleagues

Not surprisingly, informants expressed “a sense of belonging” to the mojo community when asked to describe their relation to the mojo network. They felt a special connection either to the community's area of interest or to individual community members. A Norwegian journalist, who had experimented with mobile journalism for many years and has participated in the mojo community since the beginning, described his relationship to the community as follows:

We are all a big family [...] it is a mixture of many nice people who have been working with that for many years. Some of them I have known for quite a long time, we meet regularly on conferences, and we have experienced a lot together.

A German journalist described the role of the community by calling it “a work family” that not only presented the opportunity to meet “trusted acquaintances,” “old friends,” or “like-minded people” but “that supports me and gives me the feeling to believe in the same things.” Although most of the contact between community members is carried out virtually, several respondents said they felt as if they had known each other for a very long time.

The phenomenon of mutual relationships is, for Wenger (1998), a very typical structural characteristic of a CoP. People develop ties through common activities and, when sustained over time, these relationships deepen and become more tightly interwoven on a personal level. For some people, these informal social relationships extend even beyond normal work-related activities. Several informants emphasized “a certain way of thinking

within the community” that attracts them to participate and that gives them a kind of “spiritual home,” confirming their own beliefs and convictions. A French journalist formulated his experience as follows: “I am part of the community because mojo is a state of mind, it is a new culture, and we in the mojo community share the same mind-set.” This understanding, which is also reflected in phrases like “family,” “movement,” or even the “united nations of mobile journalists,” establishes a common ground for communal interactions that reinforces a strong sense of belonging and unity, especially with a focus on the community’s core group.

Perceived Resistance against Mobile Journalism in Traditional TV Newsrooms

All informants reflected on the perceived, fundamental change of the media business. The term “media revolution” was used to describe the advances in mobile technology and its wide-ranging consequences for broadcast journalism. One of the informants argued that mobile technology combined with emerging consumption practices of audiences will lead to “a fundamental transition in TV journalism” and to “the rise of a new architecture.” Several respondents expected a “substantial loss of importance of legacy media organizations,” and the majority of the interviewees were worried about a broadly perceived unwillingness of bigger broadcast organizations to change. Especially the larger broadcasters were seen as being “stuck” in rigid organizational structures and established work-routines. The classic “TV mindset” was perceived by several respondents as being in sharp contrast to the “mojo mindset” based on “a completely new culture.” A respondent from Italy explained more specifically why mobile journalism was often framed as “anew culture” or “a new way of thinking,” sketching out how mojo is perceived outside of the mojo community, here alluding especially to the colleagues in traditional broadcasting:

I have worked more than 30 years as a journalist and touched in my life every kind of medium, so I will tell you what’s the state of art at broadcasters, the printing press, and digital media. State of the art is that we have a language that is shaped by traditional broadcast. It’s a visual and video-language that is based on classic TV formats, and these quality standards and mobile journalism as a complete workflow is absolutely not allowed, especially not in TV, because it is considered as something that is of low quality. [...] They [the traditional broadcasters] have a culture of backwardness, they believe they can do it by themselves, they believe it is something stupid, they make them believe that they will get some problems with the unions, about their professional careers, what then will happen to the cameraman, the soundman, and so on. They are really not prepared for where the media market is heading and consider mojo as something like low quality bullshit [...].

The quote points to several reasons for the mutual frustration shared by many informants. Mobile journalism was, in their view, misjudged and misunderstood by their journalist colleagues as being of “low quality” and unable to keep up with the established quality standards in TV broadcast and therefore “is not taken seriously.” A mobile journalist, filming with a smartphone and working solo, was seen by TV colleagues as a “jack of all trades,” and several informants mentioned that they were regularly meeting “a kind of arrogance” from other colleagues. One informant who experimented with mobile journalism at a large public German broadcaster reported that when he planned to film with a smartphone, his colleagues commented jokingly: “Oh no, not you again with your tiny little cinema for mice [German: Mäusekino]!”

The informants were concerned that the potential disruptive effects of mobile technology for the journalism profession are not sufficiently acknowledged by employers who represent traditional broadcast news organizations. Furthermore, they reported strong resistance by broadcast unions against a broader adoption of *mojo* practices. This tendency corresponds with the findings of other studies, such as Perreault and Stanfield's (2018) research on the integration of *mojo* practices in TV newsrooms and professional TV reporters' perceptions of solo multimedia journalism (Blankenship 2016; Wallace 2013; Martyn 2009; Perez and Cremedas 2014). The results of these studies confirm the existing mistrust within traditional Western news organizations toward *mojo* practices and solo reporting, which were, for other TV journalists, associated with a decline in work quality and work overload. Thus they were seen as the harbinger of the transformation ahead (Perreault and Stanfield 2018).

However, the resistance against mobile journalists as full-fledged production units is a typical trait of Western legacy news organizations. In a global context, there are varying degrees of necessity for integrating mobile journalism into the newsrooms. A journalist from Norway summarized as follows: "I think it's important to keep in mind that there are places in the world where they *can* do *mojo*, and other places where they *have* to do *mojo*." His statement was further explained by community members who were trans-nationally active as educators and trainers in the field. They pointed out that to journalists who are embedded in media organizations that can rely on already existing highly specialized equipment, established infrastructures, and relative job security, the mobile device is only an additional tool in the journalist's toolbox (Guribye and Nyre 2017). By contrast, smaller newsrooms and new media actors with tight budgets have no other alternative than to report and produce with mobile devices.

A Need for Orientation, Knowledge Extension, and Support

A third motive for informants to engage in the *mojo* community is also described by Wenger (1998, 2002, 2015) as a core function of a CoP: creating, sharing, and maintaining a shared repertoire of resources and knowledge related to a special topic of interest. As a neo-journalistic practice, mobile journalism is embedded in a complex and quickly changing technological environment closely tied to innovation and technological advancements. Some respondents perceived the field as a "complex jungle of innovation, change, and development," which created a need for orientation. In order to navigate this "jungle," the "crowd" [community] emerged as an important resource "to make sense of things." Thus, one informant highlighted the role of the *mojo* community as "being an essential part of the *mojo* practice." Many informants expressed a need to "keep up with technological developments" or "to observe the actions of other community members." They understood the community as an *indispensable knowledge hub* that offers the opportunity to enhance their skills, get inspired, and learn from the experiences of others, especially experts and innovators in the field. One informant said:

Mojo is a central part of the digital revolution with a completely new language. You see, the mobile is a new medium with new channels and new ways to consume, so that means you need also to consider new ways of production and keep track of all the technical developments. But the old media doesn't understand neither the new language nor how to

produce it, so I have to go where I can learn more about it and talk to experts and pioneers. And that's the mojo community.

In that sense, the community offers for many informants an alternative social arena for learning and knowledge enhancement in a field that not only changes very fast but is considered "new," "with a new language," and "not understood by traditional media organizations."

Another argument that was put forward was the need for a place in which they could test ideas, improve skills, and discuss individual work examples with others. Some respondents thus referred to the community as an "experimental laboratory."

Sustainable Protection of Jobs

An underlying motive for many of the respondents to participate in the mojo community was increasing their personal value in the newsroom and preserving their jobs through active enhancement of their knowledge and skill sets. An Australian journalist working in academic journalism education reasoned as follows:

What I gain from belonging to the community and especially the Facebook group is the information and guidance and expertise that informs my work as an educator by paying attention and practicing and then designing learning programs [...] to create my journalism training. You know, the community is a source of information that is pertinent to my job.

Continuous learning and further training are becoming fundamental prerequisites for journalists in order to adapt to the needs of a fast-changing job environment. The mojo community is perceived by the informants as a social meeting point and a learning arena that enables them through mutual knowledge exchange "to be competitive in the market," "to be better informed," and thus "to act smarter and faster." In that sense, there is a fundamental shared belief in the transformative power of a mojo mindset and its impact on journalism and media business.

Conclusion and Outlook

This study has explored the emergence, structure, and perceived role of a global social formation called the "mojo community." This community was originally initiated by professional journalists and has since grown organically within the spaces of social media and at the annual conference gatherings. The mojo community circulates around a shared interest in mobile technologies, especially smartphones and related artefacts, for visual journalism and mobile content creation.

This international community of mobile journalists and content creators can be characterized by Wenger's ([1998]; 2002) theoretical concept CoP, with its structured processes of informal social interactions in which people exchange knowledge, collaborate, experiment, and learn new ways of working based on applying smartphones as full-fledged multimedia production units. On the one hand, the community serves as an important social arena for people who are eager to foster their knowledge and competencies in ways that are met with skepticism in many traditional media organizations. On the other hand, the community is a nexus not only for journalists but also for practitioners and professionals

from other sectors who are interested in creating, developing, discussing, experimenting, and sharing knowledge on mobile technology for storytelling and content creation.

Many informants of the study and members of the community's core group were affiliated with big Western, mainly European, broadcast organizations. The members can be typified as technologically inclined journalists. A core issue for journalists who engage in the *mojo* community is to develop a *mojo* mindset. The community is seen by the informants as a kind of "spiritual home," a place to meet with like-minded people who understand themselves not only as "mobile journalists," "mojos," or "mobile trainers" but who share the conviction that the neo-journalistic practice of *mojo* is quickly evolving and breaking with existing routines and organizational structures. Journalists working as global "*mojo* trainers" reported that *mojo* practices seem to be more quickly and more consistently adopted in Eastern Europe and some developing countries. In the absence of other resources, journalists tend to embrace mobile technology with more conviction. Developing a *mojo* mindset, in turn, is rooted in their engagement with four interrelated thematic issues: (1) a need for belonging and unity with like-minded colleagues, (2) perceived resistance against mobile journalism in traditional TV news-rooms, (3) a need for orientation, knowledge extension, and support, and (4) sustainable protection of jobs.

The interviewed community members considered themselves experts and yet they referred to a constant need for orientation in the complex and quickly evolving field of smartphone-based content creation in order to maintain their expertise. It appears that learning and knowledge extension become an increasingly competitive advantage in the complex cultural and technological environment of journalism. Thus, several informants see their community activities as an investment to increase their value in the news-room and to preserve their attractiveness as employees. The community is important to them as a social orientation, experimentation, and innovation hub, giving interested people from any country the opportunity not only to make sense of technological advancements but also negotiate different cultural approaches in the field.

However, it is important to emphasize that the sample of surveyed community members in this study is not representative of the entire community and does not necessarily reflect the whole spectrum of reasons why people engage in the community, especially not for those members who are not associated with or interested in journalistic practices but still have an interest in the activities of the community. It is also argued here that interrogating the phenomenon of mobile journalism beyond conventional sites of investigation, like traditional newsrooms, or by exploring the work practices of individual journalists offers a valuable and timely perspective on the issue.

Mobile technology is at the core of the digital media ecosystem, with profound consequences for the ongoing structural and cultural transformation processes of journalism (Goggin 2014; Hjorth, Burgess, and Richardson 2012; Westlund 2013). This study has zoomed in on a phenomenon identified by Stalder (2018) as a fundamental part of digital culture and the networked society. He identifies "the space of networks, communities, and informal cooperation—the space of sharing and exchange that has since been enabled by the emergence of ubiquitous digital communication" as a "new interstitial space" (22) that develops in the "offshoots of networked life" (83), which is referred to by Mancini (2014, 93) as a set of "social micro niches." Stalder argues that these interstitial spaces are especially important to look at because they are "the actual subjects [in a

networked society], who create the shared meaning that we all call culture" (2018, 81). He points out that "[c]ommunal formations are especially powerful when they generate the material and organizational resources that are necessary for their members to implement their shared worldview through actions" (91).

All informants in this study, and most of the members of the community's core group, label themselves as *mojo* trainers, pioneers, and experts in the field. They are active worldwide as mediators, educators, and consultants, and thus are deeply involved in the diffusion of the community's negotiated meanings, interpretative frameworks, and concepts. Their knowledge and interpretations are not only passed on to traditional media organizations but also to a wide range of other professional sectors that are interested in enhancing their knowledge and skills in areas formerly exclusive to professional journalists.

The study has contributed a rich description of not only the fostered culture that circulates around mobile journalism but of the strategies individual journalists use to handle the organizational reluctance to change in the face of advancements in technology and new cultural practices that might have disruptive effects on their profession.

Focusing on the activities and interactions of a network of global experts and innovators reveals an interstitial space for the field of mobile journalism and mobile content creation in which shared meaning is negotiated, norms are established, and specific routines and practices are introduced. The analysis further provides insight into how and why individual journalists and people from other sectors collaboratively create, share, and preserve a large set of knowledge and resources for applying mobile technology to journalistic production and multimedia content creation. The analysis further sheds light on how a transnational culture of mobile journalism is fostered in a networked social arena. Another topic for exploration in future research is how this arena contributes to blurring the boundaries between journalism practice and content creation as a commercial practice.

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Adopting a mojo mindset: Training newspaper reporters in mobile journalism

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Abstract

Due to the visual turn in journalism and the emergence of mobile journalism, many newspaper journalists have had to change the way they work and learn to use new tools. To face these changes, traditional news organizations apply different strategies to increase staff competencies in using new production tools and creating innovative content in new formats. In this paper, we investigate how a specific training arrangement was experienced by a group of 40 print editors and journalists in a German regional publishing house. The journalists were introduced to audio-visual storytelling and reporting with smartphones in a 2-week training course. The training arrangements were studied using participant observation and in-depth interviews, followed by a thematic analysis of the data. The study indicates that for print journalists and editors, the transition from the print to the *mojo mindset* depends on three dimensions: (i) mastering mojo skills, (ii) adopting visual thinking and (iii) integrating ethical and legal awareness.

Keywords

Digital mindset, journalism training, mobile journalism, mobile technology, print journalism, thematic analysis, video, visual turn

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Introduction

Video is frequently called the language of the 21st century. Short videos are increasingly replacing text-based news as a source of information, and media companies consider video content to be a key area for investment (Gerstner, 2018; Kalogeropoulos et al., 2016; Murschetz and Friedrichsen, 2017; Van der Haak et al., 2012). In particular, users' engagement with the news indicates that visual storytelling is important for attracting younger target groups and securing new revenue sources (Hallgren and Nylund, 2018).

But even if video clips have become a ubiquitous element in news, the format represents a production challenge to many print-based news organizations. According to several studies, the critical success factors for making a transition to audio-visual storytelling and reporting with smartphones are *digital leadership* and the *development of new skillsets among staff* (Borum, 2016; Hallgren and Nylund, 2018; Murschetz and Friedrichsen, 2017; Sidiropoulos et al., 2019; Wenger et al., 2014). For print journalists, developing skills for mobile journalism (mojo) involves transitioning from written to visual storytelling, or, more specifically, from storytelling for print to storytelling through moving images accompanied by sound and adopting the smartphone as an all-round tool for reporting. This view of mobile journalism, as discussed by Westlund and Quinn (2018) and Perreault and Stanfield (2018), is anchored in the understanding of mojo as 'a form of all-round, multimedia solo reporting, in which the smartphone serves as a complete production unit for collecting, editing, and disseminating news' (Salzmann et al., 2020: 1).

In the digital labour market skills in mobile journalism are considered a requirement (Jones, 2017; Perreault and Stanfield, 2018; Wenger et al., 2014). Kumar and Mohamed Haneef (2018), inspired by Bourdieu, have put forward the notion of 'a mojo habitus', suggesting that journalists are expected to meet the market demands for multiskilling. The authors describe a process of both deskilling and 'en-skilling' among reporters; that is, expanding one's individual repertoire while simultaneously unlearning ways of thinking to fully embrace the mojo practice and adapt to the mojo habitus. However, the process of multiskilling (Nygren, 2014; Wallace, 2013) and the transition to multimedia journalism (Perez and Cremedas, 2014) have been more prominent in broadcast newsrooms than in print media (Nygren, 2014).

The demand for compelling video content in the news media is matched by an increasing number of practical handbooks on doing mojo (Borum and Quinn, 2016; Hill and Bradshaw, 2018; Montgomery, 2014; Prasad, 2017; Staschen and Wellinga, 2018). A growing number of how-to webinars and virtual mojo courses are offered to journalists as well as to the general public. In the words of an experienced mojo trainer, 'Mojo is something that you need to do'. Commenting further on mojo training, he stated that one can theorize forever, but 'when you start going out there and doing stuff, that is when the real learning happens' (quoted in Scott, 2016). His advice for news organizations wanting to integrate mobile video production was simply to 'give reporters the tools to practice, integrate mojo into their workflow'. He recommended that news organizations incentivize digital thinking in order to change journalist mindsets.

The implications of changing people's mindsets have been theorized at length by, among others, Castells (2011), who focused on the rise of the network society. Gynnild

(2014) discussed changing mindsets as a premise for journalism innovation. While the ways that mobile technology transform journalism and journalistic practices have been extensively investigated – for example, by Burum (2016), Westlund (2013), Westlund and Quinn (2018), Jokela et al. (2009) and Salzmann et al. (2020) – less is known about the substantive amount of formalized *mojo* training that constantly goes on *within* the newsrooms. Murschetz and Friedrichsen (2017) pointed out that in order to reduce costs, in-company training in producing videos is frequently marketed as the best way to overcome the lack of *mojo* skills in newsrooms. Much of the ongoing training is organized in response to suggestions by internationally recognized *mojo* trainers, who typically travel from country to country, offering their services to news institutions worldwide. These travelling *mojo* consultants, however, can be seen as part of a well-established tradition in the news media, where constant in-house training in applying new technologies has long been accepted as part of the ongoing transition of journalism.

There are a number of studies that focus on newsroom culture (for example, Ryfe, 2009; Steensen, 2018; Willig, 2013). Only a few studies, however, (for example, Porcu, 2020) have focused explicitly on in-house training and learning cultures in legacy news media. While organizations invest large amounts of money in further in-house education for news professionals, little is known about the organizational learning arrangements and how such courses are perceived by the editors and reporters. To the extent that journalism teaching and learning issues have been investigated, data have typically been collected from institutions of higher education (e.g. Frith and Meech, 2007; Goodman and Steyn, 2017; Gynnild, 2017; Jones, 2017; Larrondo Ureta and Peña Fernández, 2018).

Therefore, the aim of this study is to provide new insights into the training and learning situations of professional journalists in organizational settings. We got access to a series of 2-day, in-house training workshops in an European media organization, which at the time was investing heavily in restructuring their organization and reskilling their staff.

The study offers a rich description of how experienced print journalists in an organizational context need to adapt their skills to a changing media landscape with a particular emphasis on mobile and visual media. Our understanding of journalism training is anchored in a sociocultural theory of learning (Säljö, 1999; Weilenmann et al., 2014) where the focus is on learning in practice and the use of conceptual and material artefacts. Thus, we investigate the mastering of *mojo*-skills as a process of learning to use the key tools of *mojo* practice. We consider in what ways print editors and reporters are getting acquainted with mobile journalism and visual storytelling and how they experience this change. What topics are addressed in the training, and in what ways does the training facilitate the transition to a *mojo*-mindset (Salzmann et al., 2020)?

Data and method

The empirical data of this study were collected during the 2 weeks of intensive organizational training in mobile video reporting at a large regional newspaper in Germany. The introductory course was part of a comprehensive strategic reorientation of the newspaper, labelled ‘the digital turn’. For 2 days at a time, 40 editors and print journalists were taught the basics of audio-visual journalism and how to do solo video reporting using

mobile phones. The participants were divided into five groups, and the 2-day workshops were structured as a mix of short lectures, practical exercises and group discussions.

The editorial aim behind the courses was to give the editors and reporters a chance to explore, in practice, how mobile video reporting differs from producing stories for print. The course was run by an experienced and internationally acknowledged mojo trainer with a professional background in broadcast TV who was recruited from a global community of mojo trainers who exchange experience, knowledge and material related to training in mobile journalism.

Studying training in mobile journalism provides an opportunity to unpack what is considered important competencies and skills for mobile journalism as these are made explicit and topicalized as part of this activity.

In order to get as rich data as possible, the case study was carried out in an ethnographic manner that combined several qualitative methods, such as participant observation, in-depth interviews and informal conversations (Ryfe, 2009; Watson, 2012; Willig, 2013). The first author of this article obtained permission from the newspaper's chief editorial group to attend the course as a participatory observer who also assisted the workshop instructor. This hybrid role provided access to the field and helped to gain the trust of the participants.

During all five workshops, observational material was collected by taking field notes and was further supplemented by many informal conversations and 14 in-depth interviews, including an interview with the course instructor. The selection of informants reflected the variety of the group in terms of the gender-ratio balance, hierarchical roles in the news organization, journalistic work experience, age and employment duration at the organization. Five informants were journalists working at the newspaper's cross-regional newsroom, four informants were editors of the paper's local editions, two informants were local chief editors and two informants were mid-level managers from the newspaper's chief editorial team. Less than half of the 40 participants in the training course were reporters, although most of them were professionally educated and trained print journalists. The informants' work experience and affiliation with the newspaper varied from 1 to 38 years.

The semi-structured interviews were conducted on site and recorded and transcribed. The informants were asked about their professional background, current job situation, experiences with audio-visual content production and attitudes toward video journalism, more specifically to smartphone-based video production. Furthermore, they were asked how they perceived their own professional role, the ongoing changes in the news organization, the training course and the expectation of their employer to extend their professional skillset. The course instructor was asked about his experiences in training professional print journalists, the challenges and opportunities of the mojo learning situation and the implications for the news organization in order to engage in audio-visual content production. The chief editors were asked about the ongoing restructuring processes in the news organization and the expectations related to the outcome of the training.

The five 2-day courses followed a tight schedule. On the first day the instructor explained the training objectives and course procedures to the group. The first practical task for the attendees was to film a short video-interview (max. 2 minutes) with a colleague using a smartphone. The video clips were shared and discussed in the group.

Next, the trainer explained basic functionalities, settings and relevant applications. He introduced the ‘one shot method’, which was described as ‘a simplified method for modern online reporting’. The trainer had developed this special reporting technique to minimize the need for complex and time-consuming post-production editing.

The participants then used the method to produce a second short video interview. After filming, the videos were presented and discussed in the group, followed by lectures on visual storytelling. At the end of the day self-assigned teams of two were tasked with preparing a 90 second real life news story including an interview to be produced the second day. The next day started with a lecture focusing on how to film and how to act in the field. After returning from two hours in the field, the videos were presented and discussed with a focus on experiences and challenges encountered. The rest of the day was spent discussing issues like good interview practices, basic sound and recording techniques, and visual framing techniques. Legal and ethical issues, such as licensing, filming restrictions and archiving, were also up for debate. The mojo workshop was wrapped up with course feedback from the attendees.

In order to make sense of the extensive qualitative data, we carried out a thematic analysis (Boyatzis, 1998). The data were coded inductively from the gathered empirical material. First, the material was sorted into themes and topics that were identified when reading the material. Second, these preliminary codes were then structured and sorted into three overlaying thematic categories that characterize the phenomenon of developing a mojo mindset.

Analysis: Three dimensions of developing a mojo mindset

Based on the findings of this study, we propose that in order for print journalists to start producing mobile video content, it is necessary for them to develop what we have called a mojo mindset. A mojo mindset implies that a journalist is able to produce video content as a solo reporter using a smartphone as the only tool. However, developing a mojo mindset has many stages, and doing mojo can be carried out with more or less operative expertise. Having analysed the data of this study, we suggest that, fundamentally, the development of a mojo mindset involves the following three dimensions: (i) mastering mojo skills, (ii) adopting visual thinking and (iii) integrating ethical and legal awareness. The development of a mojo mindset in a news organization depends on the quality of the ongoing interactions between the individual level and the infrastructural, organizational and institutional levels. In the following section, we will delve deeper into the three interdependent dimensions of developing a mojo mindset.

Mastering mojo skills

Becoming a smartphone reporter involves a broad set of practical skills and technical knowledge that the newspaper journalists were introduced to during the 2-day training course. The market for professional equipment to enhance the smartphone multimedia production has exploded in recent years, prompting some mojo practitioners to call mobile reporting ‘a gadgets freak’s heaven’ (Salzmann et al., 2020). The mojo instructor concentrated mainly on what he regarded as the most essential and helpful or useful tools

for smartphone-based reporting. Based on the advice of the instructor, every journalist who attended the training was equipped by the news organization with a new iPhone 7 Plus, a condenser microphone (iRiG Mic), an automated gimbal (DJI Osmo Mobile Phone Stabilizer), a standard photo camera tripod and professional video-editing software developed for editing on mobile devices (LumaFusion).

In order to test the print journalists' knowledge of audio-visual reporting, the journalists had to make a short video using their smartphones without any assistance by the instructor. The results displayed deficiencies and errors that were used by the instructor to focus on the fundamental principles and rules that should guide the novices in producing 'a compelling story' and 'a more professional looking piece [of video reporting]'. The exercise was used for sparking discussions about a broad range of practical and technical aspects when reporting with video (e.g. the conception and preparation of the story, choice of location and perspective, framing, exposure and important audio settings as well as how to speak and narrate a 90-second story that included an interview). According to the trainer, traditional TV editing standards and techniques were difficult to master for 'visual novices' and very challenging to execute on a small mobile screen. Furthermore, young digital users associated 'the whole idea of editing' with 'less authentic content'. He argued that 'digital natives were not used to the quality standards typical for professional TV formats and style'.

The journalists were afterwards asked to prepare their smartphones for shooting. This included tasks like changing basic settings, cleaning camera lenses, checking the recording capacity (memory space and battery), inspecting additional equipment (microphone, tripod) and evaluating conditions at the location, such as background, disturbing elements or effects, exposure and audio-recording necessities. Many of the editors were overwhelmed by the technical details they were confronted with, such as frame rates and image resolution standards, and by the multitude of practical issues to be considered before and during filming. When asked by the journalists about the broad range of topics discussed in the course and the need for multitasking, the course instructor answered as follows:

We are talking here about sound and audio, exposure, image composition, editing and preparation. In normal TV settings, these are specialized expert professions, that of an editor, a cutter, a cameraman, a sound and lighting technician. (Fieldnotes)

In this account, the mojo trainer paints a picture of how the technical and practical aspects in the course traditionally originated in five different fields of expertise within professional TV broadcasting. This view can be considered outdated in light of the evolving practices in multimedia journalism. In this case, however, these challenges were met with scepticism and discomfort by the majority of the print journalists and editors. Some of the editors experienced smartphone reporting as a truly overwhelming practice:

I must admit I am simply bowled over by all that. All the things we need to keep in mind, look out for and be aware of . . . and on top of all that we shall give instructions and also moderate the whole thing when I do not know where my head is . . . I am very skeptical whether I will manage all this on my own. I know that we are still too brainy for this, and, sure, we haven't got the routines yet, but I have my doubts and think it's quite an obstacle. All those things to plan

and coordinate . . . micro and mobile, stability, flight mode, all those settings and so on . . . and mostly you will get only one chance to get it right . . . I probably need to concentrate fully on the tech to get the whole thing to work and won't have much time for the story. (Local editor, male, 45 years)

During all the training sessions, several editors struggled to coordinate the shooting with their smartphone. It was challenging to speak while simultaneously moving, filming and keeping eye contact with an interview partner as well as keeping track of the surroundings and things that may disturb the recording or distract from the story. The majority of the editors was convinced that this new practice would substantially increase the complexity of their everyday work. They felt that there was strong pressure to immediately master all the new skills.

Editors were, for example, introduced to a handheld camera stabilizer (gimbal), which automatically adjusted and stabilized the smartphone when the journalist was moving. The tool was specially developed to support steady and smooth movements of smartphone cameras. While some attendees were eager to test and try 'the robot arm', as it was termed by one of them, others were more reluctant and overwhelmed by the tool. According to the instructor, the stabilizer needed 'quite some experience for its appropriate application'. To use the tool not only depended on good technical skills but changed the perception of the smartphone journalist out in the field (being more visible/looking more professional).

During the second half of the training and after some shooting and recording exercises, the participants were introduced to a professional video-editing program (LumaFusion) developed for video editing on mobile devices. For most of the newspaper journalists, it was their first time working with a professional multi-track editing software. During the course, they were introduced to the basic functions and features of the software application and learned how to create, edit, export, share and administrate their filming projects. Although the program's functionality was especially adjusted for editing on small-screen devices, the journalists found that it was challenging to understand the program's functionality while simultaneously navigating and actually working with the program on the small smartphone screen. The application's multi-track interface combined with the functional depth of a professional editing software posed significant problems for those who lacked skills in video and audio editing and were new to the basic rules for visual consistency in journalistic storytelling.

For the journalists with a background in writing, becoming a smartphone video reporter implied becoming more dependent on technology and the often-unpredictable circumstances on location. This means that the journalist needs to tackle a broad range of possible obstacles or problems and should be able to come up with creative solutions, a process that is described as tinkering (Guribye and Nyre, 2017; Salzmann et al., 2020). An integral part of the training was thus to teach unconventional practices and solutions, referred to by the instructor as 'mojo hacks', in order to solve the technical or practical challenges to do with the equipment used.

These mojo hacks were either developed by the instructor himself based on work experience or could be traced back to the Mojo community, a global network of mobile reporting pioneers and experts (Salzmann et al., 2020). During one of the training sessions, the instructor explained that

when you are out in the field, you always need to be prepared for some challenges, either it's problems with your equipment or something goes wrong at the location. It's part of the job, and I think that's also very fun . . . In my case, I like to come up with creative solutions, and you can, which is a nice side effect, save quite a lot of money with some simple but creative solutions. (Fieldnotes)

The instructor demonstrated how a small, 0.5-L plastic bottle filled with some water and attached to the wrist of the hand holding the smartphone can be turned into an improvised stabilizer, how a wind-shield for an external microphone can easily be made, or how old earplug headphones can be re-used as an additional external microphone. Part of the *mojo* hacks were also practical tips, such as using the 'shell-grip', a way of holding the smartphone to dampen the reporter's voice when not using an external microphone.

Adopting visual thinking

A fundamental objective of the training was to teach print journalists how and why video reporting must be approached differently from writing text. During the in-depth interview, the instructor explained this as follows:

You see, they are all novices in terms of visual language, not to talk about audio. They really need to learn to think in images and in living videos and also need to talk differently. They have to change their mindset completely. That's practically the main challenge of this course and is fundamental for working with video and multimedia storytelling.

For many of the participants, this was a profound challenge. Most of the editors had no or very little experience in multimedia reporting, which not only marked them as 'visual novices' but as 'audio-visual novices'. All the course participants, however, had previously filmed with their smartphones and had done audio recordings, but mostly for fun and on private occasions. A majority had deliberately chosen to become writers. They saw their particular strength in their writing skills and 'thinking in text' rather than 'thinking visually' as an informant explained:

I see myself as a writing journalist. Before and during my academic education, I did practical trainings that were focusing on image production, but that didn't have any appeal to me. I just realized that I am not the visual type. That's what I've found out. It's difficult for me to combine everything—to think the image and then to think the text. I wanted rather to learn to express myself in writing and thought. So, firstly, I wanted to learn to write, and that's why I have only worked with writing. (Female editor, 46, interview)

Even though all informants had been trained in the basics of journalistic photography at the university, their professional identity was strongly anchored in 'being a writer' and 'expressing themselves with words'. Many informants mentioned they had a high affinity toward texts and 'a linguistic thinking' rather than having a talent for 'visual or audio-visual imagination'. Thinking in pictures was associated with the work of their colleagues in broadcasting. It was described by the newspaper journalists as 'a complete different

craft' and bound to a different journalistic culture, as a comment by a local editor-in-chief exemplifies:

When I turn up at an event, the colleagues from the WDR [regional TV network of the German public-service broadcaster] are always there. Somehow, they annoy me every time. They always take so much space in the field. They are running here and running there, back and forth, rigging up all their cables and technical equipment and pushing themselves in front of everywhere. They take the whole scene as if it were theirs. (Male, local chief editor, 35)

Television journalists were considered by the informants as 'more forward-pushing', 'more-active', 'extrovert', 'directive', and 'doing several things at a time' compared to their understanding of a print journalist's habitus, which was in contrast dominated by descriptions such as 'being more reserved', 'being more comfortable to stand and work in the background', 'focused on one thing at a time', and 'having deeper reflections'. The print journalists' perception of their broadcasting colleagues also corresponds with a study by Meltzer (2009), who found that while print journalists were regarded as 'genuine craftsmen' in the internal hierarchies of cultural authority 'TV journalists are still considered the problem partners of the field' (Meltzer, 2009: 61) and at the bottom of the hierarchy.

During the training sessions, the instructor explained what 'audio-visual thinking' meant in practice from his perspective:

You need to go where something happens, not where the press conference is being held . . . you need to think here differently and in pictures. You need to ask yourself, "How can I express this with video?" It doesn't have anything to do with the method but with video. Nothing is more boring than a film where nothing is happening. If there is nothing exciting, then you need to make some action, like "Ok, let's go over here or inside there." . . . The advantage is that it enables you to use a different form of storytelling. You can catch people's emotions, and you get on a personal level with people. (Fieldnotes)

The underlying requirement of 'something needing to happen' or 'showing something exciting' was seen by some journalists as a challenge in the context of their daily work routines as local editors. Another journalist pointed out the following paradox that prompted some discussion: 'To me it is quite strange. On the one hand, you think video gives a greater moment of authenticity, but on the other hand, much of it is very constructed'. Audio-visual reporting and the demand of 'thinking in pictures', or as the instructor formulated it 'always watch with the eyes of your audience', follows completely different premises than writing texts. In addition, the practice of video reporting seems to be bound to a range of soft skills that the journalists are expected to aspire to, as the instructor's following to the journalists exemplifies:

You know, video storytelling is a completely different way of reporting . . . It's always important that it is you who has the last say on it. Treat the microphone as your scepter and never let it out of your hands! You are the boss and the director of the story . . . And always think very carefully about your wording. No announcements but instead targeted calls, like "Ok, let's go over here!" or "Explain that to me, please!" (Fieldnotes)

For several of the print journalists, ‘acting as the director’ and talking in imperatives was an unusual experience. The forward-pushing and extrovert attitude expected of journalists in video reporting was critically viewed as a mismatch that was not in alignment with the participants’ perception of the journalist role and the idea of a balanced and fact-based journalism. As a local editor explained, ‘Normally, when I make story, I write everything down and pick the good things out afterwards’. He continued that he needed ‘time to think thoroughly’ and ‘to consider the whole story’, which meant thinking about the narrative and the persons involved. Another journalist argued that writing texts not only give the journalists better time to think, but, in most cases, the time to rewrite or ‘re-polish’ a text as well. Sources can be contacted afterwards for further clarifications, and the story adapted or changed accordingly. Producing a mobile video, by contrast, was experienced as a ‘fixed one-off method’, putting the journalist under pressure to get everything straight away on the first attempt. Especially the filming was ‘a stressful and overwhelming situation of multitasking’, where the journalist has to simultaneously coordinate and control the equipment, the surroundings of the shooting location, the persons to be interviewed and their own speech.

Integrating ethical and legal awareness

An unexpected, prominent issue that surfaced during the training sessions was legal and ethical issues and institutional arrangements linked to the production and publication of audio-visual media material. Mobile-based video reporting was seen by the newspaper management as an important part of their digital strategy and the journalism training as a step to better integrate smartphones in journalists’ everyday work ‘to overcome their fear of filming’. However, neither the management nor the trained editors appeared to be aware of the broader consequences of producing and distributing videos on digital platforms, which was hinted at by the instructor during the training:

If you are going to publish your video content on a regular basis, then you have to realize that you are becoming by now a TV station. This means you need always to consider the ethical and legal aspects that are related to your work. In some cases, filming itself is considered a criminal act . . . You see, there is a reason why broadcasters always have large legal departments as part of their organization.

The production and distribution of videos on digital platforms, especially in Germany, follows a wide range of ethical standards and a complex regulatory framework based on the German media and press law, the fundamental rights of informational self-determination, data privacy regulations, copyrights and the legal enforcement of the protection of youth and children. To navigate this ‘jungle of rules’ as the instructor put it, he pointed out that developing visual awareness among the journalists is not enough for the institution when transitioning to a *mojo* mindset. He urged the editors to develop better supportive structures and routines within the organization to back up *mojo* journalism and emphasized the importance of indexing web archives, providing copyright agreements, and securing internal judicial assistance and expertise similar to TV-based news institutions.

Even though only the most important regulations were mentioned during the training, exemplified by a few cases and real-life scenarios, the topic of ethical and legal considerations sparked vivid discussions in the group. The fact that in most cases a *prior acquisition of filming rights* is necessary before shooting represented for some another obstacle in the already time-consuming practice of video reporting and suggested the prospect of new hurdles.

Another issue that often came up during the workshops was the legal restrictions on filming children and young adults under the age of 18. The issue was closely related to the daily work routines of some local editors, and many of the editors were surprised by the fact that recording and distributing audio or/and visual content of minors is basically considered a criminal act and regulated by the German Criminal Code (*Strafgesetzbuch*). In other words, filming children and teenagers is not an easy matter for German journalists and is only possible under specific rules and with permissions. For some of the local editors who regularly report on activities of local youth clubs, schools, or kindergartens, this came as a surprise, making the prospects of their new work practices even more complicated:

I report regularly on the activities of the local kindergarten. This has always been part of my work, and actually people in the local communities are very interested what happens there. How shall I deal with that, when I am supposed to deliver from now on videos, but the filming of children is not allowed? (Local editor, female, 32 years)

In order to deal with the complicated regulations, especially in cases as the one mentioned above, the instructor pointed out that it would be necessary to develop ‘a sensitivity and awareness about the juridical and ethical questions’ that smartphone reporting involves. This applies not only to individual journalists but to the whole news organization.

Some of the attending sports journalists were more enthusiastic about the new possibilities that smartphone-based video production could offer for their work. The regional newspaper regularly covered news about the local football club, which is one of the most famous and professional sports clubs in Germany (Borussia Dortmund). One of the journalists working in the sports section explains this as follows:

I think if we could deliver some short clips to our texts that would be really great . . . for example, when I make an interview with one of the players during a training session. This would definitely have added value. Especially for us in the sports department. The fans are eager to get news about the club. So, I think smartphone reporting is very interesting for us. (Sports journalist, male, 39 years)

However, the positive expectations of the sports journalists were dampened after they became aware of the sports clubs’ complex and strict filming licence–management.

Discussion

This study has explored a training situation where professional editors and newspaper journalists at a regional German publisher were trained in smartphone-based video

reporting and audio-visual storytelling. The training course was part of a larger strategic re-orientation of the news organization. The main objective of the training was to introduce the print journalists to smartphone-based video reporting and to stimulate a new way of thinking by getting rid of what the managers referred to as ‘outdated newspaper-thinking’.

In our analysis, we focused on three broad themes that were central to training print journalists in mojo and smartphone video reporting. Below, we summarize each of these themes and identify possible implications of our findings concerning how journalists need to be multi-skilled, to be prepared to readjust their professional identities, and how they will face new ethical challenges when embracing mobile journalism.

Mastering mojo skills

The first theme is the most discussed and documented one by previous research. When adopting new workflows and tools into journalistic work, learning how to operate and use these tools is fundamental (Borum, 2016; Kumar and Mohamed Haneef, 2018; Wenger et al., 2014). In line with previous research in the field, we emphasized how learning these skills is tightly interconnected with the tools of the trade (Weilenmann et al., 2014) and how the journalists need to take on the role of a multiskilled all-rounder (Bock, 2012; Deuze, 2004; Martyn, 2009; Perez and Cremedas, 2014; Phillips et al., 2009). The examples given in our rich description of the training and the topics addressed further corroborate how the journalists need a combination of the traditional journalistic skills, technical skills and digital competences (see, e.g. Borum, 2016; Borum and Quinn, 2016). In some cases, this also involves using their own body as a tool (Bock, 2011), working with how they move their body around to establish a presence in the field to get the right shots, and even ‘zooming with your feet’. Moreover, these multimedia journalism skills enable the journalist to work across platforms, shoot video, record audio, write, edit and publish stories. The mojo reporter needs to relate to an infrastructure and an ecology of tools (Guribye and Nyre, 2017; Salzmann et al., 2020), such as social media platforms and in-house publishing systems.

Further, working as a smartphone reporter means not only learning skills and basic principles of traditional broadcasting but adapting workflows and engaging in practices fostered by smartphone solo reporting, including new forms of storytelling and following new trends in digital culture (see Kumar and Mohamed Haneef, 2018). Smartphone reporting also involves more meta-level skills, such as tinkering (Adams, 2019; Guribye and Nyre, 2017; Salzmann et al., 2020) which was described in the training as learning how to do ‘mojo hacks’.

Adopting visual thinking

Learning how to operate a smartphone camera and edit video on your smartphone or computer with expertise and creativity are key parts of developing mojo skills. In our analysis, however, we saw examples of how mastering audio-visual media goes beyond just learning how to use new tools and new ways of storytelling. The transition also involves thinking differently – that is, adopting visual thinking. In our case, this way of

thinking was perceived to be counter to the professional identity of the editors and print journalists. Their identity was strongly anchored in ‘being a writer’ and ‘expressing themselves with words’. They had an affinity toward texts and a linguistic thinking rather than visual thinking or audiovisual imagination. Some of our informants also stated that one of the reasons for choosing to become a journalist was motivated by their particular strength in expressing themselves with words. Audiovisual reporting, by contrast, was experienced as a completely different craft, which was linked to a natural ability for visual dexterity and also to certain sets of personal traits or interests that differ from how the print journalists perceived themselves. Broadcasting was seen as a different craft that relied on different behaviour, such as being more extrovert, pushing forward, taking space and being in the middle of the scene. A particular challenge that illustrates this dilemma is the need to know how to construct authenticity with pictures. In the field there is little time to think and reflect, but the mojo reporter should find the right scenes, interview the right people and take a more directive role. This challenge also relates to how smartphone reporters should use social media spaces to publish and disseminate the story, for instance via live streaming. Adopting visual thinking is closely connected to the professional identity of journalists and challenges an established mindset (see also Bock, 2011; McGuire and Murray, 2013; Robinson, 2011). The new media spaces thus challenge the core of what it means to be a journalist (Deuze, 2004; Hermida, 2019; Wallace, 2009).

Integrating ethical and legal awareness

A dimension of mojo practice that has been emphasized by researchers is how the introduction of new technologies challenges the ethical considerations that are part of the journalistic practice (Borum, 2016; Guribye and Nyre, 2017; Hill and Bradshaw, 2018; Quinn, 2012; Salzmann et al., 2020). The awareness of codes of conduct in audio-visual reporting as well as other ethical and legal aspects related to mobile technology, often in relation to social media, prompted new potential dangers and ethical dilemmas to be discussed. ‘Working as a mojo often involves high-speed reporting’ (Quinn, 2012: 58) as being in the field with a smartphone provides new opportunities for capturing footage and livestreaming events at the moment when something happens. Journalists might get very close to actions and events in an unobtrusive manner (Borum and Quinn, 2016; Karhunen, 2017).

In our analysis, we found that it is key for reporters to have and be aware of the supportive structures in the organization that could guide them in their audio-visual work as there are new ethical challenges and legal frameworks that pertain to this work. The ethical challenges are related not only to each journalist being aware of the legal framework and the pertinent ethical concerns but to the institutional level. A news organization, when transitioning to a mojo culture, needs to have institutional preparedness, meaning that they need new routines and ethical guidelines as well as legal resources for handling matters of privacy, visual copyright, licensing and media archiving. The training itself is a step in providing the journalists and editors with more insight into these topics, thus, preparing the organization for the transition to integrating mojo practice into their ways of working.

Concluding remarks

The increasing prominence of visual content prompts the news media to embrace audio-visual journalism in new ways. At first sight, training print journalists in smartphone video reporting seems to be, for some publishers, an affordable and easy way to turn writers into audio-visual storytellers. Such adaptation speaks to what Sennett (2019) has called ‘the primacy of the visual in societal communication’, which, according to Martin and Von Pape (2013), is especially linked to mobile technology. However, turning print journalists into multitasking, fast-thinking and fast-acting smartphone video reporters is a highly challenging and ambitious goal that often conflicts with the reporters’ established professional identities (Borum, 2016; McGuire and Murray, 2013) and their notion of what they are talented in.

Even though news organizations make huge investments in continuous in-house training in new technological skills, the research literature on the effects and implications of such training is still scarce. This article has identified three broad themes that are relevant when training print journalists in audio-visual storytelling and smartphone-based reporting. The first theme was concerned with how the journalists have to learn new skills, adapt and become multi-skilled. In our analysis, we emphasized how acquiring new skills is tied to an infrastructure and ecology of tools. The second theme addressed how adopting visual thinking is not only a matter of storytelling but a dimension that is tightly connected to the journalists’ professional identity. The final theme dealt with how it is key for journalists to become aware of the ethical challenges and legal frameworks that are tied to smartphone-based reporting. Such awareness and challenges are closely related to organizational and institutional arrangements and require an institutional preparedness on behalf of the news organization. Moreover, we argued that these three dimensions are key to understanding what it means to adopt a *mojo* mindset in a news-room context.

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Article

Mobile Journalists as Traceable Data Objects: Surveillance Capitalism and Responsible Innovation in Mobile Journalism

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Abstract

This article discusses how Shosana Zuboff’s critical theory of surveillance capitalism may help to understand and underpin responsible practice and innovation in mobile journalism. Zuboff conceptualizes surveillance capitalism as a new economic logic made possible by ICT and its architecture for extracting and trading data products of user behavior and preferences. Surveillance is, through these new technologies, built into the fabric of our economic system and, according to Zuboff, appears as deeply anti-democratic and a threat to human sovereignty, dignity, and autonomy. In Europe, the framework of responsible research and innovation is promoted as an approach and a meta-concept that should inform practice and policy for research and innovation to align with societal values and democratic principles. Within this approach, ICT is framed as a risk technology. As innovation in mobile journalism is inextricably tied to the technologies and infrastructure of smartphones and social media platforms, the apparent question would be how we can envision responsible innovation in this area. Zuboff provides a critical perspective to study how this architecture of surveillance impedes the practice of mobile journalism. While the wide adoption of smartphones as a key tool for both producing and consuming news has great potential for innovation, it can also feed behavioral data into the supply chain of surveillance capitalism. We discuss how potentially harmful implications can be met on an individual and organizational level to contribute to a more responsible adoption of mobile technologies in journalism.

Keywords

innovation; journalism; mobile journalism; mobile technology; responsible innovation; responsible research; risk technology; surveillance capitalism; Zuboff

Issue

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1. Introduction

Mojo is agile, it is affordable, it keeps a low profile, it is inspiring journalists around the globe to think outside the box. As such, it is the right tool to defend journalism in a world that finds itself in a prolonged state of emergency and will need to invent itself newly.

With these words, the German Konrad Adenauer Foundation (2020) introduced what they labeled the

world’s first virtual conference on mobile journalism. The aim of this foundation is to “promote and preserve free democracy and a social market economy” by engaging in the training of journalists toward “a free, ethical and responsible press” (Konrad Adenauer Foundation, 2020). The smartphone is promoted as an all-in-one device allowing journalists to create and edit photos, videos, audio, and graphics, which can then be directly uploaded to newsroom servers or disseminated to social media platforms.

Mobile journalism is a fast-growing field (Burum & Quinn, 2016; Duffy, 2011; Goggin, 2010; Perreault & Stanfield, 2018; Salzmann, Guribye, & Gynnild, 2020; Westlund & Quinn, 2018), and smartphone-based reporting is an emerging playground for media innovations (Palacios, Barbosa, da Silva, & da Cunha, 2016) that supposedly holds the potential to further democratize journalism (Burum, 2016; Duffy, 2011).

While low-cost, widespread mobile technologies have empowered journalists in their daily work (Belair-Gagnon, Agur, & Frisch, 2016; Molyneux, 2018; Westlund & Quinn, 2018), the same technologies can enable surveillance, control, and censorship (Pavlik, 2019). Smartphones are equipped with capabilities to collect comprehensive data traces from users that can be aggregated and triangulated into complex individual profiles (Christl, Kopp, & Riechert, 2017a; Christl & Spiekermann, 2016). From the perspective of Zuboff's surveillance capitalism, mobile technologies can be perceived as a centerpiece of a surveillance architecture that has been developed as part of a new arising economic logic (Zuboff, 2019). One of the key challenges in understanding the implications of surveillance capitalism for mobile journalism is that surveillance practices do not target journalists specifically, but are equally applied to all citizens that rely on new digital platforms and tools. Therefore, many of the consequences and the potential harm will not be exclusive to journalists. Journalists, however, are a risk group, and the risks are potentially higher for this group.

Zuboff's theory can serve as a lens through which one can understand the societal implications of an emerging economic logic based on advanced algorithms and the extensive exploitation of behavioral data. Nonetheless, it does not address, in a systematic manner, how these challenges can be resolved. Thus, the question arises: How can mobile journalism and innovation in this field be practiced responsibly in the context of convergent technologies and pervasive surveillance structures? In this article, we discuss whether the European policy strategy Responsible Research and Innovation (RRI) might be a suitable approach to address key issues related to the responsible adoption of mobile technology in journalism and to guide innovation in the field of mobile journalism.

The aim of this article is twofold. First, we reflect critically on how the theory of surveillance capitalism impedes the field of mobile journalism and how this architecture of surveillance might threaten media freedom, which might ultimately undermine fundamental democratic values. Second, we outline the European RRI approach as a framework for societal action and a way to evoke social engagement on challenges arising through the adoption and development of risk technologies. We first introduce Zuboff's theory on surveillance capitalism, followed by a discussion on mobile journalism from the perspective of Zuboff's theory, where we identify challenges of surveillance capitalism for journalistic practice and innovation. Next, we introduce the RRI approach, followed by outlining major implications for

mobile journalism on an individual and organizational level and how they might be responsibly approached.

2. Zuboff's Theory of Surveillance Capitalism

In her seminal book *In the Age of the Smart Machine: The Future of Work and Power*, Shoshana Zuboff (1988) investigated computer-mediated work in organizational work processes and identified what she outlined as the fundamental duality of information technology. Information technology, according to Zuboff, not only has the capacity to automate but also 'informate' by producing and generating new information and giving insights about processes and activities that were previously invisible or unavailable.

In Zuboff's (2019) recent book, she traced the development, strategies, and research ambitions of American technology companies like Google, Facebook, and Microsoft, which in her view served as 'petri dishes' to examine 'the DNA' of this new arising economic logic that she terms 'surveillance capitalism' (p. 24). Zuboff's (2019) theory is based on an extensive collection of empirical material and combines qualitative social science methods with historical and philosophical approaches.

To grasp the new surveillance paradigm, she developed a conceptual framework to describe this new economic logic and its broader societal consequences. In particular, Zuboff (2016, 2019) considers Google a pioneer of surveillance capitalism. Google discovered very early that they could capitalize on so-called data byproducts. These data byproducts generated traces and logs of users' interactions with Google's products, and services could be aggregated and analyzed not only to help the company provide better services, but also to, for example, offer tools for data analytics, as well as deliver targeted ads and what Zuboff terms 'behavioral products.' Thus, this raw data was seen as an important asset of great economic value. Zuboff calls these data byproducts 'behavioral surplus' (Zuboff, 2019, p. 8). These new data products can be applied for a multitude of purposes. In Zuboff's terminology, they are 'surveillance assets' (p. 81), based on the idea of human experience as free raw material that can be translated into behavioral data (p. 179) and used "to predict and modify human behavior to produce revenue and market control" (Zuboff, 2015, p. 75). The discovery of these new prediction products triggered the rise and institutionalization of a new economic logic that translates into a new widespread business model, leading to a more radical "parasitic and self-referential form" of capitalism (Zuboff, 2019, p. 9) that centers on this large-scale data collection and the commodification of personal data (Zuboff, 2016, 2019).

While the commodification of personal data and the prediction of human behavior were at first a means for targeted advertising, they later became a means for what Zuboff (2019) sees as the next level of a new 'prediction imperative' (Zuboff, 2019, p. 197) and referred

to as ‘economies of action’ (Zuboff, 2019, p. 293–299). The real-time data of human behavior could be analyzed instantly and used for “ubiquitous intervention, action, and control” (p. 293), subsequently leading to what she calls new means of ‘behavior modification’ (Zuboff, 2019, p. 293). Zuboff claims that people are unaware of the commodification of their data, and processes and established infrastructures are mostly invisible, difficult to trace, willingly obscured by surveillance capitalists themselves, and thriving on the public’s ignorance.

According to Zuboff, another characteristic that marks surveillance capitalism is what she calls ‘radical indifference’ (Zuboff, 2019, p. 376–377), where “content is judged by its volume, range, and depth of surplus as measured by the ‘anonymous’ equivalence of clicks, likes, and dwell times, despite the obvious fact that its profoundly dissimilar meanings originate in distinct human situations” (p. 505). In other words, the algorithmic logic of surveillance capitalism is indifferent about what users of services and products say, think, or do. What matters the most is that human interactions can be converted into data (Zuboff, 2015, p. 211–212), and the ultimate goal of the actors is to maximize traffic on their platforms so they can collect as much data as possible. The data representations of user behavior are, in a certain sense, indifferent whether they accurately mirror the objects represented. The representations and algorithmic analysis of the data, rather, take on a value and a life of their own, depending more on utility in this new economic logic (see also Nassehi, 2019).

Zuboff (2019) also points out how big corporations such as Google and Facebook have inserted themselves as intermediaries between media publishers and their audiences. Their algorithmically steered processes are, according to Zuboff, marked by a radical indifference of equivalence-steered and self-referential data algorithms, which she also calls “a new way of knowing” (p. 376) and describes as a form of “observation without witnesses” (p. 377). According to Zuboff (2019), this new logic can be observed in social media feeds and efforts of content standardization, ranking fake news stoically as proven scientifically or journalistically produced facts and figures. Journalism, in contrast, represents for Zuboff “the precise opposite of this logic” (p. 507), claiming that journalism is based on ‘organic reciprocity’ (p. 507) in its interactions with audiences. In other words, journalism is not a one-sided affair like the extraction of data that commodifies people’s behavior.

For Zuboff, the institutionalization of this new economic logic represents a fundamental change in basic assumptions from the 20th century industrial society, organized around the division of labor and work as a central force of production to a division of learning in the digital age of the 21st century (Zuboff, 2015, 2019). Surveillance capitalism, Zuboff argues, establishes a new and unprecedented ‘instrumentarian power’ (Zuboff, 2019, pp. 67, 376–379), reflected by emerging asymmetries and the concentration of knowledge

and rights. Companies like Google, Facebook, Amazon, and Microsoft have become what Zuboff calls “surveillance empires that exercise total control over the world’s information” (Zuboff, 2020), as they own the algorithms, research, and knowledge that form the backbone of their digital infrastructures and services.

Most prominently, Zuboff’s theory has been criticized by Morozov (2019), who regards her theory as a limited conception of digital economy blind to systemic power relationships and what he identifies as the most central challenge of capitalism. It obscures the fact the financial motives that drive companies’ data strategy and their hunt for behavioral surplus are long-term profits and competitiveness. In other words, capitalism is the root of the problem, and the collection of behavioral data is only a means to an end. Furthermore, he points out that:

The concept of surveillance capitalism shifts the locus of the inquiry, and the struggles it informs, from the justice of relations of production and distribution inside the digitized social factory to the ethics of exchange between companies and their users. (Morozov, 2019, p. 37)

According to Morozov (2019), Zuboff gives an incomplete picture of how value is created in the digital economy by only focusing on “consumer-facing operations rather than on how organizations interact within their business and government facing operations” (p. 28). Nevertheless, Morozov acknowledges Zuboff’s theory as “a strong analytical model that will inform all subsequent interpretations of the digital economy” (p. 24).

3. Journalism through the Lens of Surveillance Capitalism

In the perspective of Zuboff’s surveillance capitalism, mobile journalism might be perceived, along with any other human experiences and activities, as traceable and tradeable data objects and, as such, raw material for surveillance capitalism. First, journalists and their behavior can be traced and represented as data objects along with information such as name and social networks—easily extracted from, for example, a social media profile. This includes their interactions with sources and other people, movements, and activities (Callegaro & Yang, 2018; Swan, 2013). Furthermore, these sources can be used to triangulate metadata and algorithmic analyses for developing complex profiles of individuals and their behavioral patterns (Schermer, 2011).

A recent story from the German public broadcaster NDR exemplifies the potential of using such data for identifying individual profiles and options for buying such data to target groups of people, including journalists. In an undercover action, a group of investigative journalists acquired a comprehensive data packet about the online activities of three million German citizens

over one month. The data was provided for free by a data broker, and with this information, the journalists identified and reconstructed complete work profiles of other journalists, including their movements, e-mail communication, travel schedules, and browsing activities. The data package also contained sensitive information about several German media houses, such as business strategies, sales figures, and profiles of mid-level management employees (ARD Zapp, 2016; Norddeutscher Rundfunk, 2016).

Data traded in this way is usually claimed to be anonymous, but by triangulating, for example, geo-location data with publicly available data such as addresses, the data can be de-anonymized and used to create profiles of specific people or groups of people. This also was illustrated in a case from the Norwegian public broadcaster NRK ("My phone was spying on me," 2020), where reporters investigated the dataflows and tracking activities of several Norwegian citizens based on their uses of mobile apps. The data was bought openly, and the investigation revealed a complex and invisible network of actors involved in the data analytics and data brokerage market.

While targeted surveillance, intimidation, and harassment of journalists as reprisals of their work has been occurring for many years, research on digital safety and security for journalists indicates that journalists are increasingly becoming vulnerable to attacks from state as well as non-state actors (Belair-Gagnon et al., 2016; Council of Europe, 2020; Crete-Nishihata et al., 2020; Marczak, Scott-Railton, Al-Jizawi, Anstis, & Deobert, 2020). In the last 10 years, at least 937 journalists were killed at work, according to Reporters Without Borders (2020). Many were deliberately murdered because they investigated topics such as corruption and organized crime. In the same period, an increasing number of cases demonstrate targeted uses of digital surveillance on journalists and newsrooms that put source protection and journalist safety at risk (Crete-Nishihata et al., 2020; Perloth, 2013; Scott-Railton, Marczak, AbdulRazzak, Crete-Nishihata, & Deibert, 2017; Timberg, 2013; Wagstaff, 2014).

To understand the implications of surveillance capitalism for mobile journalism, the concept of dataveillance (Clarke, 1988; Van Dijck, 2014) can be useful. 'Dataveillance' is a form of surveillance based on mass data collection with "unstated preset purposes" (Van Dijck, 2014, p. 205) and is on the increase in many areas of society (Christl, 2014; Christl et al., 2017a; Crete-Nishihata et al., 2020; Degli Esposti, 2014; Zuboff, 2019). Dataveillance not only allows us to build profiles of individuals and their behavior, but also predicts future behavior (Schermer, 2011) and interferes in individual decision making, for example, through microtargeting (Christl, 2019).

Furthermore, trading these profiles as a commercial good gives access to sensitive information about individuals, groups of people, and organizations to a broad

range of third-party actors with diverging agendas and allows its utilization for malicious purposes (Christl et al., 2017a). Christl et al. (2017a) examined and documented the massive scale and scope of unrestrained commercial exploitation of personal data that this new economic logic of behavioral data exploits. Christl et al. (2017a, p. 5) concluded in their report:

Individuals can see only the tip of the data and profiling iceberg. Most of it occurs in the background and remains opaque; as a result, most consumers, as well as civil society, journalists, and policymakers, barely grasp the full extent and forms of corporate digital tracking and profiling.

4. Mobile Journalism as a Risk for Journalists and as a Supplier for Surveillance Capitalism

Forms of commercially motivated surveillance affect individuals and civil society (Christl, 2014; Christl et al., 2017a; Van Dijck, 2014; Zuboff, 2019). However, the risks and societal consequences related to trading behavioral data (Zuboff, 2016) are especially high for some groups. In democratic countries, journalistic institutions have invested heavily in further developing codes of ethics as responsible systems for self-regulation. Such codes of ethics complement the media regulations in various countries and are highly valued by practitioners. However, with technologies like the smartphone, journalists increasingly find themselves in a double bind of transparency; by using the smartphone as a work tool, journalists are often exposed to dataveillance themselves while contributing to the tracking of others. Christl and Spiekermann (2016, p. 47) point out that smartphones entail several specific risks regarding the privacy of users:

The information stored on such devices, including calls, text messages, contact lists, calendars, photos, videos, visited websites, the phone's location, and motion behavior, provides detailed insights into the user's personality and everyday life. It is not only information about friends and family that is stored on such a device, but also work, finance, and health contacts. Most of the time, mobile devices are connected to the Internet. Potentially, the integrated sensors can always be activated. Many users also store passwords on their smartphone, which provide access to personal user accounts such as email, social networks, and e-commerce.

Thus, we argue that the whole process of mobile journalism can be construed as a human activity to provide raw materials and behavioral surplus for data aggregation, analysis, and algorithmic profiling and therewith open up the possibilities of behaviorally modifying journalists, such as chilling effects (Büchi et al., 2020; Eide, 2019), digital nudging (Helbing, 2019; Huang, Chen, Hong, & Wu, 2018), search engine manipulation effects (Epstein,

Robertson, Lazer, & Wilson, 2017; Helbing, 2019), doxing (Crete-Nishihata et al., 2020), and micro-targeting (Christl, 2019).

Anyone relying on technologies and infrastructures optimized for data extraction and profiling can become radically transparent for a range of actors (Christl & Spiekermann, 2016). As discussed above, journalists have always been a risk group and a main target for surveillance (Crete-Nishihata et al., 2020; Thorsen, 2019; Waters, 2018). It is well known that a range of actors in different parts of the world, such as secret services, police authorities, and other players, seek to monitor journalists' interactions and to access data stored on their computers (Henrichsen, Betz, & Lisosky, 2015). After the Snowden revelations in 2013, the mass surveillance initiated by state actors and its implications for journalism have been broadly discussed (Bradshaw, 2017; Lashmar, 2018; Mills, 2019; Waters, 2018).

While Zuboff points to the need for social action to solve the challenges arising in the wake of surveillance capitalism, she does not go to any lengths to propose how this can be addressed in practice. In our critical discussion on how mobile journalism and innovation in this field can be practiced responsibly, we will therefore take a closer look at the research and innovation policy framework RRI as a potentially complementary approach.

5. RRI as a Framework for Societal Action

To address how innovation and practice in mobile journalism can be envisioned in a responsible manner, we find the European framework of RRI to be a promising approach. The RRI approach is a normative policy strategy that acknowledges the uncertainties linked to scientific progress and socio-technological innovations and outlines ICT as a field with transformational potential for society. The RRI aims to achieve ethically acceptable, societally desirable, and sustainable outcomes of research and innovation activities (Von Schomberg, 2013). To meet these goals, RRI emphasizes the importance of public engagement and the inclusion of all relevant stakeholders throughout all stages of the innovation and research process. In this way, all stakeholders ideally become mutually responsive during the process.

From a theoretical perspective, RRI is broadly understood as a form of 'meta-responsibility' or 'higher-level responsibility' (Stahl, 2013). Owen et al. (2013) suggest that RRI is "a collective commitment to take care of the future through collective stewardship of science and innovation at present" (p. 36). RRI is conceptualized through a procedural (implemented tools and methods) and a substantial dimension (addressed values and norms). Stilgoe, Owen, and Macnaghten (2013), Owen, Macnaghten, and Stilgoe (2012) and Owen et al. (2013) suggested integrating and combining elements of reflexivity, anticipation, deliberation, and responsibility. In recent years, the concept has been expanded by the dimensions of sustainability and care (Burget, Bardone,

& Pedaste, 2017). Other researchers have suggested integrating the dimensions of openness and transparency (Owen, Ladikas, & Forsberg, 2017) to ensure free and open access to relevant information. The RRI approach aims not only to inform academic research contexts but also innovation, technological development, and the adoption of technology in the private sector.

Critics of the RRI approach posit RRI is too firmly anchored in academic discussions and that it is unclear how to translate the ideas and normative principles of RRI into social realities and implement RRI tools and methods into day-to-day practices (Schuijff & Dijkstra, 2020). Other authors highlight the challenges and key problems related to governing especially ICT by pointing out that practical tools and methods of RRI often run into the fundamental uncertainty and the complex ethical challenges that are automatically linked to ICT development (Jirotko, Grimpe, Stahl, Eden, & Hartswood, 2017; Stahl, Eden, & Jirotko, 2013; Stahl, Timmermans, & Flick, 2017). Furthermore, there is little awareness about the RRI approach in the industry that manages the vast majority of innovation activities in society (Gurzawska, Mäkinen, & Brey, 2017).

6. Envisioning Responsible Practice and Innovation in Mobile Journalism

Among many journalism professionals, smartphones tend to be considered just another tool in the journalistic toolbox (Borum, 2016; Umair, 2016). Smartphones are equipped with risk technologies and include application areas such as sensor technologies, cameras, biometric sensing, ambient intelligence, and artificial intelligence. These risk technologies are specifically outlined and discussed by proponents of the RRI framework (Stahl et al., 2013, 2017). According to Zuboff (2019), the infrastructures for comprehensive data exploitation have secretly evolved based on keeping the public in the dark and the exclusion of relevant stakeholders, with little democratic legitimation. Consequently, the key technologies and the infrastructure of mobile journalism are building on what Von Schomberg (2013) called an 'irresponsible innovation' (p. 60) paving the way for what arguably can be seen in the context of mobile journalism as an *irresponsible adoption of irresponsible technology*. Although mobile technology has not been developed exclusively for journalism, journalists all over the world have adopted smartphones, exploring the boundaries of mobile technology for journalistic purposes (Salzmann et al., 2020).

Even though current surveillance infrastructures seem to present complex challenges that suggest rethinking journalistic practices thoroughly (not only for mobile journalists), a radical abandonment of smartphones in journalism appears to be an unlikely scenario, or as Christl et al. (2017a) put it: "To resist the power of this data ecosystem, opting out of pervasive tracking and profiling has essentially become synonymous with opting out of much of modern life" (p. 85). In that sense,

it is urgent for journalists, media organizations, and governments to scout sustainable and responsible solutions that might have the capacity to counterbalance these challenges.

In the following section, we outline possible implications for mobile journalism over two structural dimensions and suggest approaches that may contribute to a more responsible adoption of mobile technologies in journalism and mitigate the potential harm for journalists who use these technologies.

6.1. Implications for Mobile Journalism on an Individual Level

On an individual level, journalists can meet these challenges by taking precautionary steps to minimize involuntary, uncontrolled data extraction when using smartphones. Such steps and simple precautions are constantly taught and discussed at most journalistic conferences and gatherings. A simple first step of concern to most specialists in the field is the principle of dataflow minimization, termed *datengeiz* (data stinginess) by German-speaking privacy activists, urging journalists to develop a more conscious, critical, and cautious mindset toward their digital data routines. For example, journalists could limit the number of installed apps to a minimum and only use applications from trusted sources. It would also include trying to consciously bypass as far as possible their reliance on services, products, and infrastructures known for advanced tracking and profiling capabilities. The German journalist, activist, and scholar Moßbrucker (2019) emphasizes encrypted communication and the right to anonymity as a central task of 'journalists' digital self-defense.' He suggests that journalistic practice and technological innovations should encompass features of the 'darknet,' a collection of networks and technologies for sharing content (Biddle, England, Peinado, & Willman, 2003) attuned to privacy and anonymity that counters traceability and surveillance.

Moßbrucker (2019) argues that darknet features should become basic components of journalistic tools and could be transformed, with political and economic support, into a standard infrastructure for current communication tools. Such efforts could make the Internet in journalists' pockets safer. A growing number of journalistic websites offer adapted tools for the cyber security and digital safety of their sources. Encrypted platforms for sending files through Tor, the anonymous web browser, are widespread, as are encrypted messaging apps such as Signal or WIRE. An example is a popular platform like SecureDrop that allows secure communication between journalists and sources. It was developed by the Freedom of the Press Foundation. However, many digital defense strategies might turn out to be ad-hoc solutions. Digital tools applied by journalists to avoid surveillance do not necessarily fit well with the processes of journalism and needs of journalists (McGregor, Charters, Holliday, & Roesner, 2015). In the years ahead,

even closer cooperation with journalistic support organizations, such as foundations, labs, or professional associations, might be the way to go.

Following the RRI approach, an important contribution of individual journalists to mitigate the potential harms of mobile technology and exposure to behavioral data collection would be to raise the professional and public awareness of these issues.

Nevertheless, avoiding the use of these tools can be a burden for journalists and could be seen as a chilling effect. Furthermore, there are limits to what can be done on an individual level, as journalists are largely dependent on institutional support.

6.2. Implications for Mobile Journalism on an Organizational Level

Many media organizations are competing with surveillance capitalists such as Google and Facebook. They compete for the attention of their audiences and in the market of selling ads. They are also reliant on the services of these platforms to reach their audiences, and there are complex relationships between these actors (Fanta & Dachwitz, 2020; Lindén, 2020).

Furthermore, media organizations have a long tradition when it comes to collecting and trading audience information with their advertisers. They apply a range of surveillance tools for 'editorial analytics' to optimize newsroom workflows, increase audience engagement, and attract more audiences (Carroll, 2020; Cherubini & Nielsen, 2016). According to Christl et al. (2017b, p. 17), especially big media conglomerates "are deeply embedded in today's tracking and profiling ecosystems; moreover, they have often developed or acquired data and tracking capabilities themselves" (see also Adams, 2020; Carroll, 2020; Soe, Nordberg, Guribye, & Slavkovik, 2020). Zuboff's theory can serve as an eye opener that challenges media organizations to critically reflect on the long-term implications of the digital economy, their complex entanglement with competitors like Google, and their application of data harvesting technologies such as smartphones. To approach these challenges and counteract the data exploitation of journalists, the action steps of the RRI framework could be translated into activities with a critical focus on controversial aspects of privacy, autonomy, and security issues to foster a security culture in the organization (Crete-Nishihata et al., 2020).

Legacy media could, for instance, invest more resources into regular in-house training and programs for digital self-defense to bypass infrastructures optimized for behavioral data extraction or work more closely with foundations for journalism that often have more capacity and resources to focus on developing new routines or resources for protecting journalists from data exploitation and various forms of surveillance.

Ideally, to ensure the responsible adoption of mobile technologies, media organizations could apply the RRI concept of AREA (anticipate, reflect, engage, and act)

as guidelines for action. They could work to anticipate the outcome of organizational activities and investments in mobile journalism. They could collaboratively reflect on motivations, work practices, and results of organizations' mobile engagement. They also could engage with relevant stakeholders (for example, mobile journalists, cyber security experts, media lawyers and economists, privacy and data activists, mobile technology developers, data engineers, and audience representatives) to find responsible solutions that might serve society in the best way possible. In addition, they could act according to the insights of this deliberative and multi-perspective approach. While the RRI approach probably would imply high investments in the form of time, money, and social coordination, it seems to be appropriate for understanding and bypassing extensive surveillance structures related to mobile technology in the ecosystem in which it operates.

Nonetheless, such measures would be costly. As long as media organizations operate in a highly competitive market, they might not be in a position to give such measures priority. There might also be other organizational constraints, such as a lack of managerial understanding and inflexible IT policies that can counteract a security culture (Crete-Nishihata et al., 2020).

7. Conclusion

In this article, we have reflected critically on the field of mobile journalism in light of Zuboff's theory of surveillance capitalism. For Zuboff (2019), the technological capacities for surveillance and data exploitation have metamorphosed digital infrastructures into the backbone of an emerging new and more radical form for capitalism based on the exploitation of human behavior as an unlimited raw material. Zuboff warns that this new emerging economic logic leads to the concentration of knowledge in the hands of a few, giving them an unprecedented instrumental power that not only threatens individual autonomy, sovereignty, and dignity but also the very foundations of democracy. We argue that, from this perspective, mobile journalism surfaces as a traceable data object where mobile journalists represent only one defined risk group that has become radically transparent to third parties. The watchdogs are not only being watched; their actions are translated into analyzable data that can be sold on markets for behavioral prediction. These issues are surfacing as increasingly complex due to the vast systems of audience surveillance conducted by media organizations themselves.

By applying the RRI framework, we outlined possible implications for mobile journalism of this double bind on an individual and organizational level. RRI guidelines would suggest engaging relevant stakeholders in deliberative discussions and critical thinking on the role of journalism in society and for democracy in light of increasing surveillance and forms of dataveillance. In the case of mobile journalism, the relevant

stakeholders include journalists, media organizations, policy makers, journalism education, media researchers, and relevant foundations. A key goal would be to raise awareness of these issues between and across those stakeholders. Furthermore, regulatory frameworks that address surveillance and protect privacy of citizens is another path. In the European Union, regulatory work on e-privacy is already in the making. This work can pave the way for long-term support, both politically and financially, for the ethical design of platforms and tools for both citizens and mobile journalists. Nonetheless, this problem is not easily solved on a national level, as surveillance capitalists are multi-national corporations. In addition, as Morozov points out, the root of the problem might have to be addressed in relation to the economic system of capitalism itself.

Many of the potential harms, as pointed out in the introduction, will not be exclusive to mobile journalism, but will be the same for all citizens. As we have discussed in this article, journalists are a risk group, and the risks for society are potentially high.

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Conflict of Interests

The authors declare no conflict of interests.

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Appendices

Appendix I: Informants

The following tables provide an overview and some additional information about the informants used in the empirical studies.

Informants: Article I

Table A provides information about the 17 in-depth interviews conducted during the first empirical study, published under the following reference:

Salzmann, A., Guribye, F., & Gynnild, A. (2021). “We in the Mojo Community” – Exploring a global network of mobile journalists. *Journalism Practice*, 15(5), 620–637.

The interviews were conducted between February 2017 and September 2019 with active mojo trainers and identified members of the examined community.

Informant	Gender	Education Background	Occupation	Employment Status	Country of Origin	Community Engagement *	Date of Interview
1	male	marketing, business administration	mojo trainer/mojo content creator	freelancer	South Africa	high	14.02.2017
2	male	journalism education	broadcast journalist/mojo trainer	employed	Germany	moderate	14.03.2017
3	male	journalism education	mojo trainer/mojo consultant	freelancer	Norway	passive	05.05.2017
4	male	journalism education	TV journalist/mojo content creator	freelancer	Finland	moderate	05.05.2017
5	male	journalism education	investigative TV journalist/mojo trainer	employed	Germany	passive	05.06.2017
6	male	journalism education	broadcast journalist/mojo trainer	employed	Sweden	passive	06.05.2017
7	female	journalism education	radio and TV journalist/mojo content creator, mojo trainer	freelancer	Germany	passive	06.05.2017
8	female	journalism education	broadcast journalist/mojo trainer	employed	Germany	passive	06.05.2017/ 04.01.2018
9	male	journalism education	radio and TV journalist/mojo trainer, mojo content creator	freelancer	Germany	moderate	13.12.2017
10	male	TV producer, journalist by training	mojo trainer/mojo consultant	freelancer	US	moderate	09.01.2018
11	male	journalism education	TV journalist/mojo trainer	employed	Norway	moderate	17.01.2018
12	male	journalist by training	mojo trainer, mojo content creator	freelancer	Italy	moderate	06.02.2018

13	female	journalism education	scholar in academic journalism education/mojo trainer	employed	Australia	high	06.08.2018
14	male	broadcast engineer	broadcast engineer/mojo trainer	freelance	Ireland	high	11.09.2019
15	female	journalism education	video journalist, mojo trainer	freelancer	Germany	high	13.09.2019
16	male	journalism education	broadcast journalist/mojo trainer	employed	Netherlands	high	18.09.2019
17	male	journalism education	broadcast journalist/mojo trainer	employed	UK	high	20.09.2019

Table A: Overview of Study I's informants (Global Community of Mobile Journalists)

* Engagement in the practice of the investigated community was divided into three different levels: high; moderate; and passive. A high degree of engagement relates to those who are mostly members of the community's core group and are very active in the community's practices and interactions on different channels and platforms. Members with moderate engagement participate on a regular basis in community activities, but less frequently than core members. Passive community members, also called "silent members" (Lave and Wenger, 1991), follow community activity, but were not very active in social interactions during the time of observation related to the study.

Informants: Article II

Table B provides an overview of all 14 informants who participated in interviews during the second empirical study, published under the following reference: Salzman, A., Guribye, F., & Gynnild, A. (2021). Adopting a mojo mindset: Training newspaper reporters in mobile journalism. *Journalism*. February 2021. doi:10.1177/1464884921996284

The 14 journalists interviewed were training to be journalists at the time, including the course's mojo trainer.

Informant Number	Gender	Professional Role	Age	Work Experience as a Journalist (in years)	Employment Duration (in years)	Date of Interview
1	male	chief editor	35	14	1	19.10.2017
2	female	local / chief editor	47	28	28	14.10.2017
3	female	editor	52	33	30	18.10.2017
4	male	reporter	36	17	6	19.10.2017
5	male	chief editor	34	17	14	13.10.2017
6	female	reporter	43	19	10	17.10.2017
7	female	trainee	25	5	1	12.10.2017
8	male	local chief /editor	37	19	12	09.10.2017
9	male	reporter	59	40	40	16.10.2017

10	female	reporter	29	8	4	13.10.2017
11	female	reporter	53	31	28	10.10.2017
12	male	editor	36	16	5	11.10.2017
13	female	editor	27	6	4	16.10.2017
14	male	mojo trainer	56	24	0	15.10.2017

Table B: Overview of Study II's informants (Training Newspaper Journalists in Smartphone Reporting)

Appendix II. Applied interview guides

The following two interview guides were designed for conducting in-depth interviews for the two empirical studies. *Interview Guide I* was based on the following published article:

Salzmann, A., Guribye, F., & Gynnild, A. (2021). “We in the Mojo Community” – Exploring a global network of mobile journalists. *Journalism Practice*, 15(5), 620–637.

Interview Guide I

Semi-structured open interview; length: 45–60 minutes

Introduction

Warm-up:

- Information about the research project (purpose, research strategy, and aim)
- Data handling/storage (confidentiality and anonymity)
- Consent to record the interview

PART A: Professional background, first encounter with mobile journalism, and mojo experiences

1. Can you briefly describe your educational and professional background?
2. How did you discover the practice of mobile journalism? Was there an initial point at which you engaged in the practice of mojo?
3. How long have you used smartphones as part of professional reporting?

PART B: Understanding mobile journalism, professional role, and applied mojo technologies

4. What do you understand more concretely under the term *mobile journalism*?
5. As a mobile reporter, how does it differ from other journalistic practices or approaches?
6. Do you produce content exclusively on your smartphone, or do you also employ other filming devices and equipment?
7. What does your “mojo kit” look like?
8. How would you describe your current occupation, i.e., what you actually do (as a journalist, content creator, trainer, consultant, or maybe a mixture of everything)?
9. Where do you draw the line between mobile journalism and mobile content creation?

PART C: Exploring the role of the community/perception of activities and functions/reasons for participation and engagement/addressing risks related to the practice of mojo

10. How did you become aware of the mojo community?
11. Why did you initially begin following this particular community's activities?
12. Are you actively engaged in these activities? Why or why not?
13. What do you think motivates people in general to participate and engage more actively in this community?
14. What are the personal benefits of engaging in this particular community?
15. The community comprises many people from all over the world engaging in debates – all of whom with their own cultural understanding of and approach to journalism and mojo. Which role does the community play in shaping this perspective?
16. What role does the community play in terms of mojo innovation?
17. Examining the community now after some years of its existence, how has it evolved over time? How do you follow the community's activities (e.g., on Facebook, at conferences, etc.)?
18. The practice of mojo mainly is based on powerful devices that are used not only for visual storytelling, but also for surveillance and data mining. Is this an issue that the mojo community has addressed? Please explain.

OUTLOOK AND CONCLUSION

19. What is your outlook on the future of journalism, particularly that of mojo?
20. How do you think mojo is evolving/or not evolving worldwide?
21. What are the biggest challenges ahead?
22. Is there anything you would like to add?

Thanks for taking the time to share your thoughts with me.

Interview Guide II

Interview Guide II applies to the 14 in-depth interviews with journalists who were trained in mobile video reporting at a regional publishing house in Germany, based on the following article:

Salzmann, A., Guribye, F., & Gynnild, A. (2021). Adopting a mojo mindset: Training newspaper reporters in mobile journalism. *Journalism*. February 2021.

doi: 10.1177/1464884921996284

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The interviews all were conducted 9–19 October 2017 in German.

Semi-structured open interview; length: 45–60 minutes

Introduction

Warm-up

- Information about the research project (purpose, research strategy, and aim)
- Data handling (confidentiality and anonymity)
- Consent to record the interview/take notes

Education and professional background, journalistic work experiences

1. Briefly, what is your educational and professional background? Are you a journalist by training or a formally educated journalist?
2. How long have you worked for RN?
3. Have you worked in different positions or roles at news organizations over time?
4. Can you briefly describe your current tasks and responsibilities at RN?

Experiences in audiovisual reporting and smartphones' role in journalistic practice

5. Did you have any experience with audiovisual reporting, e.g., video/photography/audio, before the training course?
 - What type of content did you produce and in what context?
 - If so, can you mention some specific technologies or applications that you have worked with (e.g., applied camera types, video-editing systems, etc.)?
6. Do you have any experience using your smartphone for multimedia content creation and/or reporting, e.g., producing videos or audio?
 - If so, can you explain what you have produced and in which context?

- Where and how did you learn about these techniques?

7. How do you use your smartphone currently in your daily reporting practices?

Perception of organizational transformation processes

8. What do you think about the ongoing transformation processes within the organization?
9. What role do you think journalism training plays in this context?
10. Have you formed an opinion about management's decision to enhance staff skills by training them in mobile video reporting?
11. Why should editors and reporters be trained in smartphone reporting, and why should mobile video reporting be facilitated within the news organization?
- Were similar approaches taken before?
 - If so, can you explain them?
 - What were these approaches' outcomes and your takeaway?

Perception of the training course

12. What are your initial thoughts about the training course and its approach?
13. How has the course enabled you (or not) to work as a smartphone reporter?
14. Which aspect of the course has been very useful to you?
15. Which aspect of the course has not been useful to you?
16. What is the most important learning outcome from the course?

The practice of smartphone reporting and perception of the professional's role

17. What is the most challenging aspect of smartphone reporting?
18. How is this reporting practice different from your work as a writer?
19. How has smartphone reporting changed your daily work practices?
20. What does working as a smartphone reporter mean to you in addition to being a print journalist?

Outlook

21. Will mobile video reporting become an essential part of your future work practice?
22. What challenges lie ahead for smartphone reporting?
23. Is there something you would like to add or mention?

Thank you for your time and for sharing your thoughts.



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