

The Construction of Norms. Examinations of Norms for Visual Data Practices in Mediated Public Discourses

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Abstract

Social norms as concepts of legitimate and appropriate action are basic elements of social coordination and essentially “communication phenomena” (Rimal & Lapinski, 2015, Lapinski & Rimal, 2005). They are negotiated, shaped, understood, learned, and maintained through communication, with mediated public discourses as central forums for the communication and negotiation of norms. Despite this importance, studies on the construction of norms in mediated public discourses remained a research desideratum. This lack of research is even more pronounced for how actors envision and construct norms for the use of digital technologies and visual data practices in our connective and highly mediatized, visualized, and datafied world.

The cumulative dissertation addresses this gap and extends research on norms on the conceptual, empirical, and methodological level. It examines the construction of norms in mediated public discourses for a highly topical area of application – visual data practices – in three individual articles. The studies examine how actors evaluate, legitimize, or contest visual data practices, how they discuss their social and political implications, and how they thereby envision and construct norms for visual data practices. Study 1 provides qualitative in-depth insights into event-related discourses on norms for visual data practices in a specific national context. Based on a qualitative content analysis of newspaper articles, tweets, experts’ reports, minutes of parliamentary debates, and committee hearings, the study examines legitimizations and contestations of visual data practices after the 2017 G20 summit in Hamburg. Study 2 analyzes the construction of norms in a quantitative comparative research design. The study examines frames and the construction of norms in news media discourse on facial recognition tools in Germany, Ireland, Italy, Switzerland, and the UK and is based on a quantitative content analysis of 2195 print and online news articles published in 15 high-circulation newspapers between 2013-2019. Whilst study 1 and study 2 particularly help with the examination of the construction of norms on the verbal level; study 3 further expands on the role of visuals and the multimodal interplay in the construction of norms in mediated public discourses. The methodological article presents an analytical framework for a qualitative content

analysis of norms that allows for the identification of mode-specific contributions, as well as interplays of images and verbal text.

Overall, the dissertation (1) provides a novel and interdisciplinary perspective on norms that focuses on the hitherto understudied discursive dimension of norms as communication phenomena; (2) advances qualitative and quantitative methods to analyze norms; (3) examines the construction of norms in mediated public discourses for a highly topical area of application; i.e. visual data practices; and (4) shows empirically how actors publicly envision and construct norms for visual data practices and what practices actors deem appropriate or inappropriate, and for which reasons. As such, the dissertation shows how norms for urgent social concerns in nowadays societies, such as balancing privacy and security, are discussed and constructed in mediated public discourses. Results show that privacy, data sovereignty, and security or efficiency are mainly characterized as antagonistic and incompatible goals and principles.

Keywords: norms; mediated public discourses; visual data practices; privacy; security; surveillance; visibility

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The rest of the acknowledgements are written in German in order to be able to include a few more personal words.

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Overview

The present cumulative dissertation includes the following three individual articles published in or submitted to peer-reviewed academic journals. All three articles focus on the construction of norms for visual data practices in mediated public discourses. My further publications and academic contributions on the topics of norms, ethics, and visual practices that are not included in this dissertation are listed under “Additional Academic Contributions”.

Venema, R. (2020). How to govern visibility?: Legitimizations and contestations of visual data practices after the 2017 G20 summit in Hamburg. *Surveillance & Society* 18(4), 522-539. <https://doi.org/10.24908/ss.v18i4.13535>. (study 1, chapter 6)

The article was shortlisted for the bi-annual *Surveillance Studies prize* for excellent publications. The nomination and shortlisted papers are listed here: <https://www.surveillance-studies.org/2021/06/shortlist-der-surveillance-studies-preise/>.

An earlier version of this paper was accepted and presented as full paper at the 69th Annual ICA Conference in Washington, D.C. and was awarded with the *Top Student Paper Award* of the Visual Communication Studies Division:

Venema, R. (2019, May 24-28). *Visuals and visibility in networked public spheres. The 2017 G20-protests, new avenues of policing and implications for visual communication research* [Full paper presentation]. 69th Annual Conference of the International Communication Association (ICA) “Communication Beyond Boundaries”, Washington, D.C., USA.

Selected findings were also presented at the following international peer-reviewed conferences:

Venema R., Lobinger K. (2019, October 2-5). *A new standard of proof? Discourses on visual data after the 2017 G20-protests* [Paper presentation]. 20th Annual Conference of the Association of Internet Researchers (AoIR) “Trust in the System”. Brisbane, Australia.

Venema R. (2018, November 29 - December 1). *Vernetzte Bilder zwischen Mobilisierung, Strafverfolgung und Überwachung. Eine Untersuchung zu Bildern und Debatten über sie anlässlich der G20-Protteste 2017* [Paper presentation].

Annual Conference of the Division Visual Communication of the German Communication Association (DGPK) “Vernetzte Bilder. Visuelle Kommunikation in Sozialen Medien”. Vienna, Austria.

Venema, R., & Di Salvo, P. (2021, submitted manuscript). ‘Straight out of 1984’? Frames and the construction of norms in news media discourse on facial recognition tools in Germany, Ireland, Italy, Switzerland, and the UK. *Information, Communication & Society*. (study 2, chapter 7)

First qualitative results of this study were presented at the Annual Conference of the German Communication Association’s Division “Digital Communication” in 2019.

Venema R., & Di Salvo P. (2019, November 6-8). *Automating surveillance? Analyzing patterns in news media coverage of facial recognition tools in Germany, Ireland, Italy, Switzerland and the UK* [Paper presentation]. Annual Conference of the German Communication Association’s Division “Digital Communication”. Berlin, Germany.

An extended abstract of this paper was accepted for the 9th biennial Surveillance & Society conference of the Surveillance Studies Network that was planned to be held from June 8-10, 2020 in Rotterdam, The Netherlands. The conference was postponed to June 7-9, 2021, but then cancelled due to the pandemic Covid-19.

Venema, R., & Di Salvo, P. (2020). ‘Straight out of 1984’? *Patterns in news media coverage of facial recognition tools in Germany, Ireland, Italy, Switzerland and the UK* [accepted, but cancelled paper presentation]. 9th biennial Surveillance & Society Conference of the Surveillance Studies Network. Rotterdam, The Netherlands.

Venema, R. (2021, submitted manuscript). Analyzing norms in multimodal news media discourses – An analytical framework. *Forum Qualitative Sozialforschung/ Forum: Qualitative Social Research*. (study 3, chapter 8)

Table of Contents

1 Introduction.....	15
1.1 Structural Overview	18
2 Norms in Mediated Public Discourses	21
2.1 Norms: The Rules We Live by	21
2.2 Norms as Social Constructs	26
2.3 Communicating and Negotiating Norms: The Role of Mediated Public Discourses ...	29
2.3.1 Mediated Public Discourses.....	32
2.3.2 The Regulatory and Ordering Force of Mediated Public Discourses	35
2.3.3 ‘Traditions’ of Discourses on Media, Digital Technologies, and Their Use	38
3 Visual Data Practices, Visual Technologies, and Visibility Management: Developments and Challenges.....	41
3.1 Visual Data Practices, Visual Technologies, and Visibility Management	42
3.2 Developments in Visual Data Practices, Visual Technologies, and Visibility Management.....	45
3.2.1 Ubiquitous Visual Data Practices and Visual Technologies.....	45
3.2.2 Networked Visual Data Practices and Visual Technologies.....	46
3.2.3 Distribution and Potential Uses Across Contexts and Platforms.....	47
3.2.4 Machine Readable Data: Machine Vision and Facial Recognition	48
3.3 Challenges Related to Visual Data Practices, Visual Technologies, and Visibility Management.....	50
3.3.1 Challenge 1: Privacy, Responsibility, and Data Sovereignty	50
3.3.2 Challenge 2: Efficiency, Security, Control, and Commodification	54
3.3.3 Challenge 3: Truth Claims and Trust in Visual Data and Visual Technologies....	56
3.3.4 Interim Conclusion and Research Implications	58
4 Overarching Research Goals and Research Questions	61
4.1 Discussing the Gap: The Case for the Study of Norms in Mediated Public Discourses	61
4.2 Addressing the Gap: Research Goals and Research Questions	67
4.3 Filling the Gap: Introduction of the Three Studies	68
4.3.1 Introduction to Study 1	70
4.3.2 Introduction to Study 2	71
4.3.3 Introduction to Study 3	72
5 How to Study Norms Empirically.....	75

5.1 Existing Approaches	76
5.2 Analyzing Norms in Mediated Public Discourses: A Framework	81
5.2.1 Elements of Normative Statements	82
5.2.2 Identifying Evaluations.....	84
5.2.3 Legitimacy, Legitimization, and Contestation	86
6 Study 1: How to Govern Visibility?: Legitimizations and Contestations of Visual Data Practices after the 2017 G20 Summit in Hamburg	90
Abstract.....	91
Introduction	91
Visuals, Visibility, and Shifts in Surveillance Practices	94
Visibility and Visibility Management	94
Changing Visual Practices and Shifts in Surveillance Constellations.....	95
Public Debates on Surveillance Practices.....	97
Methods and Empirical Data	98
Visual Data Practices in the G20 Investigations in Hamburg	101
Origin and Collection: Mixing Heterogeneous Sources.....	101
Analysis of Visual Data: Face Prints.....	102
Publication of Images: Public Search and Media Coverage.....	102
Legitimizations and Contestations of Visual Data Practices.....	104
Origin and Collection of Visual Data	105
Facial Recognition: An Indispensable Tool, “A New Standard of Proof,” or “Steps Towards Ultimate Control”	105
Facial Recognition: A Call for Rules	107
The Role and Responsibility of The Press?.....	107
Public Search: Ultima Ratio or “Public Pillory”	108
Discussion.....	109
Collective Responsibilities in Visibility Management	112
Trust in Visual Data and (Third-Party) Facial Recognition Technologies.....	113
Social Consequences of Visual Data Collection and the Implications of Having Left a Digital Faceprint	114
Limitations and Outlook.....	115
References	117
7 Study 2: ‘Straight out of 1984?’ Frames and the Construction of Norms in News Media Discourse on Facial Recognition Tools in Germany, Ireland, Italy, Switzerland, and the UK.....	125

Abstract.....	126
Introduction.....	126
Facial Recognition: Verification, Ordering, and Identification.....	128
Social Norms and News Media Discourse.....	129
Media Discourse on FRTs, AI, and Surveillance	130
Data and Method.....	132
Materials	132
Procedure and Coding.....	133
Findings	137
Overall Frames and Constructions of Norms in Media Discourse on FRTs	137
Differences Between Countries	140
Discussion.....	141
Limitations and Outlook	144
References.....	145
8 Study 3: Analyzing Norms in Multimodal News Media Discourses: An Analytical Framework.....	150
Abstract.....	151
Introduction.....	151
Norms.....	152
Visuals and Evaluations.....	154
Expressing and Suggesting Evaluations Visually.....	155
Contexts and Multimodality	156
Developing an Analytical Framework for a Multimodal Analysis of Normative Statements	159
Step 1: Familiarization With Recurring Representations and Visualization Patterns ..	162
Step 2: Analysis of the Intra-Media Context and Context of Use	163
Step 3: Monomodal Visual Analysis	165
Step 4: Monomodal Verbal Analysis.....	168
Step 5: Characterizing Image-Text Relations and Multimodal	169
Step 6: Summary and Overall Interpretation	172
Conclusion and Outlook	173
References.....	175
9 Conclusions	183
9.1 Main Empirical Results	184

9.1.1 What Do We Want? Appropriate and Desirable Visual Data Practices	184
9.1.2 What Do We Reject? Inappropriate and Undesirable Visual Data Practices	185
9.1.3 Why Should We (Not) Do This? Legitimizations and Contestations of Visual Data Practices	187
9.1.4 Who is Visible and Who Should Act? Actors in the Construction of Norms for Visual Data Practices	191
9.1.5 Synthesis: Constructions of Norms for Visual Data Practices – What Kind of Society Do We Want To Live In?	192
9.1.6 Additional Remarks: Blind Spots in the Construction of Norms for Visual Data Practices	194
9.2 Empirical Contributions	196
9.3 Theoretical, Conceptual, and Methodological Contributions	199
9.4 Research Limitations and Outlook	202
References.....	207
Additional Academic Contributions	237
Journal Articles	237
Book Chapters	237
Conference Presentations	238
Appendices	I
Codebook Study 2	II
Supplemental Material Study 2	XXXVI

List of Tables

Table 1: Study set-up	70
Table 2: Overview: Individual studies and their contributions.....	74
Table 3: Elements of normative statements	83
Table 4: Types of legitimizations and contestations.....	111
Table 5: Operationalization of frame elements and categories included in the cluster analysis.....	136
Table 6: Overview of analytical steps for the multimodal analysis of normative statements.....	161
Table 7: Heuristic codes and guiding questions to characterize the formal context.....	163
Table 8: Heuristic codes and guiding questions for the analysis of normative statements on the visual level	166
Table 9: Heuristic codes and guiding questions for the analysis of normative statements on the verbal level.....	168
Table 10: Guiding questions for characterizing image-text relations and multimodal interplay	170

List of Figures

Figure 1: Stand-up displays with images of suspected delinquents.....	103
Figure 2: Screenshot of the official call published on the police's website.....	104
Figure 3: Bild's cover page and page two of the issue published on December 19, 2017	104
Figure 4: National cluster analysis and frequency of frames in the different countries	141
Figure 5: Screenshot 1: Formal context of image 1	164
Figure 6: Screenshot 2: Formal context of image 2	165

1 Introduction

“The digital is about what kind of life we want to live in the future, how we make the most of technology while ensuring that our fundamental values are preserved”. With these words, Margrethe Vestager, Executive Vice President of the European Commission for A Europe Fit for the Digital Age and European Commissioner for Competition, cautioned against the unregulated use of automated facial recognition (P. Müller, 2020). Her statement, published in 2020, vividly stresses that new digital technologies, which include new digital devices, software applications and algorithmic tools such as facial recognition tools (FRTs), and their uses come with both opportunities and risks. Moreover, Vestager’s statement also stresses that both the opportunities and risks of digital technologies generate normative questions that touch upon the very foundation of society: (A) What kind of society do we want to live in?; (B) What are the values we deem worth protecting?; and (C) How do we translate such values into more concrete social norms for the use of digital technologies that we, as a society, deem desirable and that can cater to the kind of life we want to live in the future? In other words, which practices do we thus want, which practices do we reject?

Vestager argues from a specific political and strategic point of view. However, her statement echoes recent academic pleas to discuss public values that are currently at stake in our connective and highly mediatized and datafied world (Couldry & Hepp, 2017), where social interactions, social structures and institutions, as well as economic transactions, are more and more inextricably linked with digital technologies and “largely channeled by a global online platform ecosystem that is fueled by data and organized through algorithms” (van Dijck et al., 2018, p. 4). Furthermore, for media and communication research, her argument echoes an important link and mechanism. The advent of new media and new online platforms that change media environments (i.e. the entire body of available media at any given time in society, Livingstone, 2001, p. 307; Hasebrink & Hölig, 2014, p. 16), new digital technologies, as well as the changing ways by which people use and integrate certain media and technologies in their practices, *challenge* established norms. Moreover, sometimes they may even necessitate the

negotiation of new norms, in order to keep up with the modifications to social life and social interactions they bring about (Balbi, 2013; Briggs et al., 2020; Drushel & German, 2011; Gitelman & Pingree, 2003; Jurgenson, 2020; van Dijck et al., 2018).

Norms are contextual, contested, and dynamic concepts of ‘legitimate’ and ‘appropriate’ action, famously characterized as “the grammar of our society” (Bicchieri, 2006). As will be discussed in detail in chapter 2 of this dissertation, they are basic elements of social coordination that specify expectations on how to behave and provide codes of conduct on what (not) to do in a given context. Most of the time, norms remain rather implicit and intuitive. However, they come to the fore when they are challenged; for example, when different ideas of appropriate practices clash in everyday encounters, or when new (digital) technologies and their uses provoke heated public debates on their potentials, risks, assumed social and political implications, and their social acceptability.

The study of norms is a key topic across various fields in the social sciences (Hechter & Opp, 2001; Bicchieri, 2006, 2017) and “of particular importance to communication scholarship because, by definition, norms are social phenomena, and they are propagated among group members through communication” (Lapinski & Rimal, 2005, p. 127; for a further detailed explanation, see chapter 2 of this dissertation). Norms have been characterized as reasoning and mobilization devices that shape public discourses and their dynamics (Gamson & Modigliani, 1989; van Leeuwen, 2007). Moreover, norms and the use of media and digital technologies are closely linked. In fact, the ways in which people use media technologies or are willing to accept them, are highly normative issues (see, e.g., Alasuutari, 1992; Bengtsson, 2012; Gershon, 2008; Mahrt, 2010; Venkatesh & Davis, 2000).

As a result, changing media environments take on a fascinating double role, with double the relevance; they are both a forum for and objects of discourses and negotiations concerning norms. Media history has shown that the emergence and uses of media such as newspapers or television, new devices such as mobile phones, or the internet as new infrastructure for networked communication, have frequently caused both anxious public concerns and utopian visions (see, e.g., Balbi, 2013; Briggs et al., 2020; Gitelman &

Pingree, 2003; Lasén, 2005; Sturken & Thomas, 2004; Thurlow, 2006 and section 2.3.3).

Such discourses on emerging technologies and media use are

one of the primary sites through which we can chart the desires and concerns of a given social context and the preoccupations of particular moments in history. The meanings that are attributed to new technologies are some of the most important evidence we can find of the visions, both optimistic and anxious, through which modern societies cohere (Sturken & Thomas, 2004, p. 1).

Thus, for the study of norms, such discourses are particularly relevant; they enable us to study how norms are renegotiated or evolve (Katzenbach, 2018, pp. 322–323; Rimal & Lapinski, 2015, p. 403; Drotner, 1999). More specifically, they show us which norms are challenged, which practices are deemed appropriate or inappropriate by different actors, and how different actors envision desirable codes of conduct.

Hitherto, research on the negotiation and construction of norms for the use of digital technologies in mediated public discourses has rarely been conducted. As a result, it remains unclear how actors publicly envision and construct norms, as well as what practices actors deem appropriate or inappropriate, and for which reasons. As will be discussed in-depth in chapter 4, this is an important gap in light of the ever-growing importance of digital technologies in mediatized and datafied societies. In addition, it is an important gap in light of the apparent importance of norms and their prevalence in mediated public discourses, as well as in light of the intriguing double role of changing media environments as forums for, and objects of, discourses on norms. This doctoral dissertation thus aims to fill this important gap in media and communication research. The studies included in this dissertation address this gap on the conceptual, empirical, and methodological level. On the empirical level, the studies focus on a highly topical area of application of norms; i.e. visual data practices. Following Wessler's (1999) process-orientated conceptualization of publics and mediated public discourses, the term *mediated public discourse* will be used to designate the interplay between mediated public speech acts (i.e. statements and counterstatements, or interpretations and counterinterpretations, which refer to a common political or social issue, see section 2.3.1). Throughout this dissertation, the term *visual data practices* will be used as an umbrella term to designate practices of producing, collecting, managing, analyzing, editing, and sharing visual data,

as well as practices of using visual technologies by different types of actors, be it private individual actors, or corporate, institutional, and state actors (see section 3.1). Importantly, as chapter 3 outlines, visual data practices are an important culmination point for the question of how to translate general values such as privacy, responsibility, or security in more concrete codes of conduct in nowadays societies.

In sum, this cumulative dissertation presents two empirical studies (study 1 and 2, presented in chapter 6 and 7) and an methodological article (study 3, presented in chapter 8) on the construction of norms for visual data practices in mediated public discourses. The gaps in the literature, the guiding research questions, and the set-up of the studies will be discussed at length in chapter 4, following the necessary in-depth discussions on the key concepts of *norms* and *mediated public discourses* (see chapter 2) and the area of application of *visual data practices* (see chapter 3). In the following section 1.1, a brief structural overview is provided of the dissertation's contents per chapter.

1.1 Structural Overview

In the following chapters, I will detail the general theoretical, conceptual and methodological grounds on which the individual articles included in the present dissertation are built.

Chapter 2 unfolds the heterogenous concept of social norms, as well as the interrelation of norms with communication and media. This chapter, thus, provides the theoretical basis on which the present dissertation is built. In short, I synthesize definitions of social norms (section 2.1), elaborate on a social-constructivist perspective on norms (section 2.2), and explicate the role of mediated public discourses for communicating and negotiating norms (section 2.3).

In chapter 3, I specify the area of application, as well as the scope of application, for the studies of norms presented in this dissertation. In addition, I will further detail the relevance of studying norms in the specific area of application of visual data practices. To this end, I first define the central concepts, (1) visual data practices, (2) visual technologies, and (3) visibility management in section 3.1. I then illustrate developments

with respect to visual data practices, visual technologies, and conditions of visibility management (section 3.2) and discuss opportunities and challenges these developments imply and how they challenge existing norms (section 3.3).

In chapter 4, the general research aim presented in the introduction to this dissertation (chapter 1) will be further explained in light of the theoretical frameworks presented in chapter 2 (on norms and mediated public discourses) and chapter 3 (on visual data practices). In order to do so, the relevant research gap will be discussed in-depth (section 4.1). Although the three studies included in the dissertation are guided by their own specific research aims and guiding research questions, section 4.2 will present and discuss the overarching research questions and research goals that bind the studies together. Finally, in section 4.3, the three individual articles that are included in this cumulative dissertation are introduced. In addition to their introduction, section 4.3 explains how the studies help achieve the overall research goals presented in chapter 4.

Chapter 5 discusses how norms and their construction in mediated public discourses can be examined empirically. Section 5.1 first details existing approaches in media and communication research for the analysis of norms. Section 5.2 then illustrates the general methodological framework for operationalizing norms. Furthermore, this section illustrates how this general methodological framework was developed based on approaches from framing research, political claim analysis, and discourse studies. Overall, chapter 5 thus complements the study-specific methods and reflections in the single studies of this dissertation; while each study has its distinct qualitative or quantitative research design, chapter 5 illustrates the general genesis and general methodological reflections of the approach taken in this dissertation.

Chapter 6, chapter 7, and chapter 8 present the individual articles. The studies included in these chapters qualitatively and quantitatively examine current discourses on and constructions of norms for visual data practices. Chapter 6 presents study 1 entitled *How to govern visibility?: Legitimizations and contestations of visual data practices after the 2017 G20 summit in Hamburg*. Based on a qualitative content analysis of newspaper articles, tweets, experts' reports and minutes of parliamentary debates and committee

hearings, the study examines how visual data were collected, analyzed, and published. In addition, the study explores and systematizes how different actors legitimated and contested these practices in the context of police investigations after the 2017 G20 summit. Chapter 7 presents study 2 with the title *'Straight out of 1984?' Frames and the construction of norms in news media discourse on facial recognition tools in Germany, Ireland, Italy, Switzerland, and the UK*. Based on a quantitative content analysis of 2195 articles in 15 high-circulation newspapers and cluster analyses, this study comparatively examines how facial recognition tools (FRTs) and desirable norms for their usage are framed in news media discourse in five European countries between 2013 and 2019. Chapter 8 presents study 3 entitled *Analyzing norms in multimodal news media discourses: An analytical framework*. This article develops an analytical framework for the examination of mode-specific contributions on the visual and the verbal level, as well as multimodal interplays in the construction of norms in news media discourses. The theoretical and methodological considerations and the proposed analytical steps are illustrated by means of selected examples from German and Swiss news media discourse on practices of taking and sharing photographs.

Chapter 9 presents the conclusions of this dissertation. This chapter synthesizes and connects the findings of the individual articles in terms of the construction of norms for visual data practices in mediated public discourses. Here, I first briefly summarize the main findings from the empirical analyses and the methodological article (section 9.1). Furthermore, section 9.1 highlights what the studies imply with regard to the construction of norms for visual data practices. I then discuss how these findings add to media and communication research in general (section 9.2). Moreover, I detail the theoretical, conceptual, as well as the methodological contributions of this dissertation (section 9.3). Finally, I address the limitations of this dissertation and conclude with an outlook and suggestions for future research (section 9.4).

2 Norms in Mediated Public Discourses

Chapter 2 unravels (1) the heterogenous concept of norms and (2) the interrelationship between norms, communication, and media. Section 2.1 synthesizes common definitions of social norms. Based on a social-constructivist perspective and a definition that characterizes norms as “communication phenomena” (Rimal & Lapinski, 2015; Rimal & Real, 2003), in section 2.2, I discuss how norms are negotiated and established. In addition, I discuss the outlines of their central role in coordinating social interaction and social expectations. Section 2.3 discusses contexts in which norms are learned and negotiated. Specifically, I stress the coordinative, ordering, and regulative force of mediated public discourses as resources for information, as well as forums for public sense-making, social coordination, and the negotiation of norms. Furthermore, I emphasize the discursive construction of media and technologies, as well as governance through interpretative patterns and systems of thought and knowledge, which, as I argue, stress the importance of studying the construction of norms in mediated public discourses.

2.1 Norms: The Rules We Live by

Norms have been defined in many different ways. They have been characterized as “the rules we live by” (Bicchieri, 2006) or “the grammar of society” (Bicchieri, 2006). In addition, they have been described as the basic elements of socialization and social actions, as well as the fundament of social order (Popitz, 2006), due to the decisive role they play in people’s behavioral decisions. They are, as outlined by Scott (2014), one of the pillars of institutions that, as social structures, provide stability and meaning to social life. Furthermore, they have been explained to be key in the regulation and coordination of social behavior (Hechter & Opp, 2001), whereby “the power of norms, in the area of sociality, is much more influential than the power of law and order” (van Dijck, 2013, p. 174). These examples of norm characterizations emphasize the central role norms have in society and social interactions. Thus, it comes as no surprise that norms are a cross-disciplinary core concept in the social sciences, which encompasses numerous disciplines including, inter alia, sociology, philosophy, social psychology, political sciences, law,

gender studies, anthropology, and communication sciences (see for an overview Legros & Cislighi, 2020; Chung & Rimal, 2016; Elsenbroich & Gilbert, 2014). As such, the study of norms is characterized by a broad range of conceptual and operational definitions (see, e.g., Chung & Rimal, 2016; Elsenbroich & Gilbert, 2014; Horne, 2001; Mackie et al., 2015; Shulman et al., 2017). The goal of this chapter is to briefly synthesize the core aspects of the plethora of literature on social norms (for extensive reviews see, e.g., Berkowitz, 2004; Elsenbroich & Gilbert, 2014; Legros & Cislighi, 2020; Mackie et al., 2015).

A first important step for a systematization of norms, is the conceptual distinction between different types of norms. Most importantly, researchers distinguish between *descriptive norms* and *injunctive norms* (Cialdini et al., 1991), as well as *collective norms* and *perceived norms* (Lapinski & Rimal, 2005; Rimal & Lapinski, 2015). Descriptive norms are conceptualized as people's perceptions regarding the *prevalence* of a behavior and behavioral regularities or patterns of action. They, thus, refer to what people perceive *is commonly done* within a reference group. Injunctive norms, instead, refer to ideas of *acceptance* and what *ought to be done* to regulate behavior and social interactions (Cialdini et al., 1991; Rimal & Lapinski, 2008). Descriptive and injunctive norms are interrelated and complement each other. Modelling the influence of descriptive norms on individuals' behavior, the influential theory of normative behavior (Lapinski & Rimal, 2005; Real & Rimal, 2007) posits that the influence of a descriptive norm on an individual's behavior is moderated by injunctive norms (as well as interpersonal communication, outcome expectations and group identity).¹ Research has further shown

¹ The theory of normative behavior (TNSB) is based on the idea that descriptive norms affect individuals' behaviors through interactions with three factors: (1) injunctive norms, (2) outcome expectations, which is the belief that engaging in a behavior will have positive outcomes (Bandura, 1986), and (3) group identity, which is the strength of affiliation with the reference group (Tajfel, 1982). These normative factors are primarily understood as moderators that enhance the influence of descriptive norms on behaviors (Rimal & Real, 2005, p. 391). Real and Rimal (2007) integrated peer communication in the model as a further moderator of the relationship between descriptive norms and behavior.

that descriptive and injunctive norms may interact (see, e.g., Cialdini et al., 1991; Kallgren et al., 2000; Reno et al., 1993; Rimal & Real, 2003). Strano (2006) underlines that both types of norms have the potential to influence individual or collective behavior, albeit through different mechanisms:

When relying on injunctive norms, individuals perceive social sanctions associated with certain actions and behave in order to achieve approval or avoid punishment. In contrast, individuals adhere to descriptive norms by observing others and matching their behavior in order to fit in or to simplify decisions about how to act. (p. 31)

Although this interaction between the types of norms is important indeed, in this dissertation we are particularly concerned with the injunctive conceptualization of norms. As will I will further detail in chapter 4, I am specifically interested in actors' ideas of desirable practices and how actors envision desirable codes of conduct. In this injunctive conceptualization of norms, norms are recurrently characterized as codes of conduct that prescribe, proscribe, guide, and regulate behaviors and actions in specific contexts. These codes of conduct are maintained by social approval or disapproval and sanctions (e.g., Aarts & Dijksterhuis, 2003; Bicchieri, 2006, 2017; Chung & Rimal, 2016; Cialdini et al., 1991; Fine, 2001; Hechter & Opp, 2001; Horne, 2001; Lapinski & Rimal, 2005; Mackie et al., 2015; Nissenbaum, 2004, 2011; Parsons, 1968; Popitz, 1980; Reckwitz, 1997; Rimal & Lapinski, 2015). As Homans (1974) put it: "A norm is a statement specifying how a person is, or persons of a particular sort are, expected to behave in given circumstances" (p. 96). Norms, thus, describe what people believe to be a 'normal', 'typical' and/or 'appropriate' action. Norms serve as frameworks by which people determine and judge which kind of behavior is socially desired, warranted, and acceptable or unacceptable in a given context (Aarts & Dijksterhuis, 2003; Mackie et al., 2015; McLaughlin & Vitak, 2012; Nissenbaum, 2004, 2011). Consequently, norms are also a specific *form of evaluation of practices* (Detel, 2007, p. 63). In addition, they can be seen as *expectations* (Homans, 1974) regarding whether or not something should or should not be done (Esser, 2000, p. 75; Stemmer, 2008).

Besides descriptive and injunctive norms, researchers also distinguish between *collective norms* and *individual norms* (or *perceived norms*), by which they tend to the different levels at which norms operate. Collective norms operate on the social or institutional level, whereas perceived norms are located on the individual level (Lapinski & Rimal, 2005; Rimal & Lapinski, 2015). As stressed by Rimal and Lapinski (2008, p. 4707), from a sociological perspective, collective norms are closely related to Durkheim's notion of social control, which refers to the mechanisms that societies use to maintain the social order. These mechanisms can be either formal, through for example laws and regulations, or informal, through traditions and customs. Overall, they serve to prevent chaos or anomie in society. In contrast, perceived norms are individuals' understandings of the prevailing collective norm, whereby these norms operate at the individual, psychological level.

This overarching general distinction of norm types helps to systematize different conceptualizations and approaches. Social norms is an umbrella term for codes of conduct for practices in different situations and areas of application. As Nicolini (2017) argues, practices always have an ascribed normative dimension, as "there is a right and wrong way of doing things" (p. 22). In general, practices related to media and digital technologies constitute such an area of application where norms play an important role on various levels (see, Alasuutari, 1992; Bengtsson, 2012; Gershon, 2008; Grimm, 2013; Mahrt, 2010; Venkatesh & Davis, 2000). The same applies to visual data practices, which constitute a relevant area of application as well. To better grasp the different – but of course interrelated – levels in which norms come into play, we can distinguish, for example, overarching *informational and communicative norms*, such as the protection of privacy or rules of netiquette (i.e. codes of conduct for social interactions between users on social media platforms). Moreover, norms can, for example, also refer to concrete *contents*, or their *dissemination* and *distribution* in different publics. Such norms then can specify what information or images to make available for others, and in which ways, for example on different social media platforms with different technological features (e.g., McLaughlin & Vitak, 2012). Moreover, norms may concern the *material use* of digital devices as objects and the particular *situations* in which it is 'adequate' to use them (e.g.

when and where it is deemed appropriate to use a smartphone and when or where it is deemed appropriate to take a picture).

An additional step for the synthetization of the core aspects of norms is differentiating them from other, related concepts. The concept of norms is closely related to those of *values*, *morals* and *ethics*. *Values* are culturally and socio-historically variable basic guiding beliefs and principles that refer to desirable goals that transcend specific actions and situations (Abels, 2009, p. 15; Bergmann & Luckmann, 1999, p. 19; Grimm, 2013, p. 387; Lautmann, 1969, p. 105; Schäfers, 2010, p. 3). Examples such as freedom, justice, equality, loyalty or honesty come to mind when thinking about values. These abstract guiding principles are specified by social norms, which are the concrete codes of conduct in a given context (Abels, 2009, p. 50; Bellebaum, 1983; Schäfers, 2010, p. 37). Funiok (2011, p. 47) claims that values *justify* moral action, whereas norms *limit* and *sanction* it. Values can, thus, serve as goals or principles in terms of which specific norms are considered desirable (Blake & Davis, 1964, p. 456). The concept of *morality* is considered an overarching construct for the concepts of norms and values. Morality describes the entirety of values and norms in a particular group or community (see Höffe, 2008, p. 211; Luckmann, 2002, p. 19). The terms *morality* and *ethics* are often used interchangeably (see Gordon et al., 2011, p. 547; Silverstone, 2007). However, in the present dissertation, ethics is defined as the reflection on morality; i.e. what constitutes and justifies ‘right’ or ‘wrong’ behavior (Luhmann, 1989; Ward, 2011). As Besio and Pronzini (2014, p. 290) stress, instead of making direct moral judgments, ethics reflect on values or on the correctness of specific moral approaches. Thus, ethics is a process of critiquing and legitimizing normative principles and claims (Ward, 2011; Rath, 2014).

Overall, there are three ways in which we can describe norms in terms of *sociality* (Bellebaum, 1983, p. 34). First, norms apply to several individuals in a social entity. Second, they are indispensable for social coordination and social order. Finally, norms owe their existence to a given social context. In section 2.2 below, I will further define norms as social constructs and elaborate on this by arguing that expected and proscribed behavior is neither fixed nor metaphysical, but socially determined.

2.2 Norms as Social Constructs

The project draws on a social-constructivist perspective (Berger & Luckmann, 1966) that understands reality and knowledge as products of social and communicative construction², which has become more and more mediated and mediatized over the last years (Couldry & Hepp, 2017). In this view, norms are not absolute standards, but continuously in flux. More specifically, “social norms are not static phenomena, lurking in the background, ready to pounce on individuals contemplating action; they both affect and are affected by human action” (Rimal & Lapinski, 2015, p. 393).³ Consequently, whether practices are considered ‘appropriate’ or ‘legitimate’ is defined in social interaction.⁴ In addition, appropriateness and legitimacy are dependent on the social arrangements within a given social context (Bellebaum, 1983; Bergmann, 1998; Gershon, 2008; Goffman, 1971; Krotz, 2001; Luckmann, 1995, 2002; Nissenbaum, 2004, 2011; Postmes et al., 2000; Rimal & Real, 2003). Thus, against this background, in the present dissertation, norms are understood as *contextual, contested, and dynamic concepts of appropriate action, which are continuously negotiated or reconfirmed in social interaction. As such, norms are evaluations of practices as acceptable or unacceptable, as well as codes of conduct that*

² Several authors have elaborated on an approach for “communicative constructivism” (see, e.g., Luckmann, 2006; Keller et al., 2013). In addition, more recently, Couldry and Hepp (2017) further elaborated on the mediated construction of reality in times of “deep mediatization”. In the context of communicative constructivism, *communicative action* is understood as the basic practice for generating the world and the self (Reichert, 2013, p. 59), as well as the basic process in the social construction of reality (Knoblauch, 2013, p. 297).

³ More radically, following Nietzsche’s nihilistic position, Bergmann and Luckmann (1999) claim that there are no moral phenomena, but only moral communication about phenomena (Bergmann & Luckmann, 1999, p. 22).

⁴ This idea is also articulated by Durkheim (1977). Durkheim describes morals a practice of social negotiation about accepted norms in a given historic setting. Based on this understanding, Bergmann and Luckmann (1999) conceptualize morality as being essentially a lived morality that exists in people’s actions and decisions, in their communicative acts (see Bergmann & Luckmann, 1999, p. 18).

specify expectations about whether something should or should not be done in given contexts.

As Nissenbaum (2004, p. 137) stresses, in our everyday lives, we all move through a plurality of different realms, each of which involve a distinct set of norms, roles, and expectations. Nissenbaum, thus, underlines the contextual character of norms. Norms depend on what Krotz (2001, pp. 60–61) calls *frames for action* [Handlungsrahmen], which shape perceptions, interpretations, and evaluations and by which social actors assume specific conditions, rules, and expectations in a given context. With the concept of “media ideologies” Gershon (2008, 2010) has stressed that the choice of which media to use for certain communication purposes and practices plays a central role for shaping these frames for action. Media ideologies, as defined by Gershon, are a set of beliefs, attitudes, and strategies about media and digital technologies, which translate into assumptions and expectations regarding their appropriate social uses. These ideas of appropriate uses also include expectations concerning what media and what digital technologies should be used, with whom it should be used, and for what communication purposes, as Gershon illustrates with the example of college students’ reasoning on what media are appropriate to use when ending romantic relationships and friendships (Gershon, 2008, 2010).

Contestations of appropriateness are shaped by power relations and segmentation (see Reichertz, 2008, p. 66). Norms differ amongst social groups, genders, generations, relationships, and cultures (see, e.g., Axelsson, 2010; Hall et al., 2014). Most of the time, these codes of conduct are implicit and intuitive, but they come to the fore in conflicts and moments in which the routines of social coordination get irritated. For example, in situations where actors refer to the expectations that were met or not met; when actors present supposedly shared, but apparently controversial, interpretations and desirable rules; or when new situations and technology necessitate the establishment of new rules (e.g., Diaz-Bone, 2011; Ecker-Ehrhardt, 2002; Garfinkel, 1967; Rimal & Lapinski, 2015). Katzenbach (2018, pp. 322–323) stresses that this is also the moment in which governance begins. As history has shown, changing media environments, the advent of new devices,

platforms and tools, and new ways in which people use them, challenge established norms for the use of technologies and for the symbolic communication with them, which may even necessitate the establishment of new norms altogether (e.g., Briggs et al., 2020; Drushel & German, 2011; Gitelman & Pingree, 2003; Balbi, 2013). When digital technologies are new, norms change rapidly, making disparity in expectations increasingly likely (Ling, 2004; McLaughlin & Vitak, 2012). Research on online communication, mobile communication, human-computer interaction, and visual communication has shown emergent norms on, for example, taking calls, texting in public, behavioral rules when using of mobile technologies (see, e.g., Hall et al., 2014), as well as sharing-practices and self-disclosure on social media (e.g., Hiniker et al., 2016; McLaughlin & Vitak, 2012; K. F. Müller & Zillich, 2018; Wagner, 2018; Zillich & Müller, 2019). Such emergent norms also include conflicts and negotiations with respect to (desirable) rules for the publication of pictures (e.g., Autenrieth, 2014; Hiniker et al., 2016; Lampinen et al., 2011; Miguel, 2016; Uski & Lampinen, 2016; Venema & Lobinger, 2017). As Crofts and colleagues (2015) put it: “ethics, procedures and practices are always playing catch-up” (p. 12). Importantly, Rimal and Lapinski (2015, p. 403) stress that conflicts or situations of social upheaval, when people have to formulate new norms out of necessity, provide important opportunities for the study of the construction of norms. The present dissertation examines such constructions of norms, specifically, constructions of *norms for visual data practices*.

Different from laws, whose proscriptions and sanctions are explicitly codified; norms are negotiated, shaped, understood, learned, and maintained *through communication* (Carciooppolo & Jensen, 2012; Chung & Rimal, 2016; Lapinski & Rimal, 2005; Rimal & Lapinski, 2015; Rimal & Real, 2003; Yanovitzky & Rimal, 2006). Norms are thus *inherently communication phenomena*. This can be explained by the fact that communication is the primary vehicle through which people seek information and learn about social reality (Yanovitzky & Rimal, 2006). As Rimal and Lapinski (2015) stress: “it is through communication that members of a social group understand, negotiate, and accept (or reject) these prescriptions, proscriptions, and social sanctions” (p. 404). In line with this notion, Fine (2001) stresses the idea of a “narration of norms” (p. 157) or norms

as “things that can be narrated” (p. 157). As Fine (2001) further explicates, “just as norms can be performed, so too they can be told” (p. 157). This communication, as well as the learning and the negotiation of and engagement with (sometimes contrasting or diverging) norms takes place in different, yet interrelated contexts of socialization⁵ (Bellebaum, 1983, p. 36; Paus-Hasebrink et al., 2019). Norms are communicated and learned among family members, in schools, and in interpersonal communication among peers (see, e.g., Chung & Rimal, 2016; Geber et al., 2019; Hogg & Reid, 2006). In addition, norms are learned through media exposure and mediated public discourses (Geber & Hefner, 2019; Gunther et al., 2006; Mabry & Mackert, 2014; Tankard & Paluck, 2016). As mediated public discourse is at the center of this dissertation, in section 2.3 further attention will be paid to the specific role of mediated public discourses in the communication and construction of norms.

2.3 Communicating and Negotiating Norms: The Role of Mediated Public Discourses

Social norms entail learned expectations of behavior or practices that are deemed desirable or acceptable by a social group in a given situation. Research on norms has often focused on interpersonal influences and interactions as the sources for social norms in an individual’s environment. However, research recurrently stresses the importance of the media’s role in shaping people’s perceptions about social reality and the prevalence of behaviors, rituals, and customs of norms. To get an impression of what others do and what

⁵ Initial functionalist sociological theories on socialization considered how an individual may successfully internalize social values and norms for integration into a social order (Abels, 2009; Mühler, 2008, pp. 136–142; see for a discussion Paus-Hasebrink et al., 2019, pp. 48–49). Paus-Hasebrink and colleagues offer an approach to socialization in media-saturated everyday life that integrates sociological and psychological perspectives. They define it as “a contextual, interwoven process, in which children and adolescents construct their approach to life against the background of the specific social place, in which they grow up, and of their psycho-social development as individuals” (Paus-Hasebrink et al., 2019, p. 46). They specifically stress that today all contexts of socialization are saturated with media and mediated communication (Paus-Hasebrink et al., 2019, p. 51).

is socially acceptable or unacceptable, individuals need to observe their environment. One way to get such impressions is through media exposure and mediated public discourses, be it in news media, films or advertisements, which can provide role models of ‘normal’, ‘appropriate’ or ‘desirable’ attitudes and practices (Chia & Gunther, 2006; Duong & Liu, 2019; Elmore et al., 2017; Gunther et al., 2006; Liu et al., 2019; Mabry & Mackert, 2014; Mead et al., 2014; Shah & Rojas, 2008; Tankard & Paluck, 2016; Yanovitzky & Stryker, 2001). Especially in advertisements such ideas of ‘desirability’ are often communicated by presenting idealized ideas of what individuals are supposed to look like, which includes stereotypical portraits of categories of people and their practices. Such idealizations and stereotypes are thought to facilitate understanding by audiences as they reduce complexity in the marketing message. However, idealizations and stereotypes also (co)determine and reconfirm social norms (Berger, 2015; Zurstiege, 2005).

To model the influence of media and media exposure on norm perceptions, studies often refer to, for example, agenda-setting theory (McCombs & Shaw, 1972; McCombs, 2014) and its focus on the relative importance of social problems inferred from the media attention the problems receive. In addition, they refer to cultivation theory (Gerbner et al., 2002), which is guided by the assumption that people’s conceptions of social reality are influenced according to their exposure to media. Finally, studies also refer to social learning theory and social cognitive theory, which argue that individuals learn about the consequences of practices by observing the actions of others (Bandura, 1986). As such, studies model how individuals internalize normative information from exposure to messages in the media. With a more comprehensive view on mediated communication, Geber and Hefner (2019) developed a “communication perspective on the theory of normative social behavior” (p. 8). Building on the theory of normative social behavior (Real & Rimal, 2007; Rimal & Real, 2005), Geber and Hefner proposed a model that explains how descriptive and injunctive norms are formed and moderated through online and offline communication. Their model includes communication with others, observation of referent other, and media exposure. In their view, media exposure and (the observation of) online and offline communication serve as a norm-building process that then

influences behavioral intentions and actors' subsequent behaviors (Geber & Hefner, 2019, pp. 18–19).

Media contents and mediated public discourses, thus, can shape perceptions of both the prevalence of practices and their acceptability (e.g., Chung & Rimal, 2016; Geber & Hefner, 2019; Lapinski & Rimal, 2005; Nathanson, 2008), which can affect peoples' practices (Chung & Rimal, 2016). This also holds true for mediated public discourses on emerging media and digital technologies. In fact, these discourses also play a central role in shaping public perception and attitudes towards emerging media, (digital) technologies, and their use (e.g., Chuan et al., 2019; Neuberger, 2005; D. A. Scheufele & Lewenstein, 2005). The present dissertation has a different focus from previous studies, as the three individual articles included (see chapter 6-8) do not examine the actual influences of particular discourses on individuals and possible changes of attitudes. Instead, I provide in-depth insights into the construction of norms for visual data practices in mediated public discourses; into what practices actors deem appropriate or inappropriate, and for which reasons. Although the studies presented here take a different approach, the above-cited prior studies provide this dissertation with a relevant main argument for the importance of the studies included in the dissertation. In short, they provide us with solid motivation for the pursuit of research on the construction of norms in mediated public discourses.

Importantly, the research outlined so far focused on individual-level norm perceptions. In this line of research on norms media has been conceptualized as tool for behavioral change or agents of change that affect the social acceptability of a behavior (Rimal et al., 2015). This research thus mostly relies on what Carey (1975) defines as a 'transmission view' of communication that emphasizes communication processes, "whereby messages are transmitted and distributed in space for the control of distance and people" (Strano, 2006, p. 33; see also Shah & Rojas, 2008, p. 323). These perspectives conceptualize media coverage and media contents as particular messages or stimuli, but seldom analyze norm messages in news media coverage in greater detail (for exceptions see Liu et al., 2019; Gibson et al., 2019). Consequently, studies seldom address the contested character of norms outlined in section 2.2 as well as the dynamics and actor constellations (who speaks,

who is object or addressed) in mediated public discourses on norms. However, in a socio-political climate that is increasingly polarized on contentious issues (e.g., Lee et al., 2014; Melzer, 2016), such as climate change, the integration of refugees, abortion or sexual minority rights, it is particularly relevant to focus on the contestations and dynamics in mediated public discourses. Polarization can be understood as a strong divergence of extreme, opposing, and mutually incompatible opinions on a political issue (Wojcieszak, 2011), which can lead to a division of society (Melzer, 2016). Gutmann and Thompson (1998) even state that such polarizations, and the conflicts on fundamental values and norms they imply, are among the most fundamental challenges to liberal democracies. Against this background it is vital to further study how norms are contested and constructed. More specifically, it is essential to develop research instruments that allow us to examine the dynamic construction of norms in mediated public discourses, as it is done in the present dissertation.

In the following section 2.3.1, I further elaborate on the role of mediated public discourses for communicating and negotiating norms. For this elaboration, I borrow from, for example, theoretical approaches from media sociology, discourse studies, and research on media governance. In this regard, I will particularly highlight the coordinative, regulatory, and ordering force of mediated public discourses (Foucault, 1972), which, as I argue, stress the importance of studying norms in mediated public discourses.

2.3.1 Mediated Public Discourses

I use the term ‘*mediated public discourses*’ to designate the interplay between mediated public speech acts – i.e. (counter) statements or (counter) interpretations that concern a common political or social issue, such as abortion laws (Ferree et al., 2002), drugs (Wessler, 1999) or migration (van Leeuwen & Wodak, 1999). *Mediated* includes discourses in and across various interrelated forums of public communication, including, for example, journalistic news media coverage in newspapers, radio or television, as well as the various social media platforms (Chadwick, 2013; Benkler, 2006; van Dijck, 2013). *Public* refers to the characteristic that statements and counter statements are accessible,

and, thus, observable for actors and potentially unrestricted audiences (Gerhards & Neidhardt, 1991; Gerhards & Schäfer, 2010). The concept of mediated public discourse, and discourse in general, is a contested and multidimensional concept in the social sciences (see for an overview Jørgensen & Phillips, 2014; B. Scheufele, 2008; Copley, 2008). Importantly, the definition of mediated public discourses that is used here does not refer to the normative understanding of discursiveness and procedures for discursive and deliberative quality, as described by Habermas (see, e.g., Habermas, 1996).⁶ Rather, I build on Wessler's (1999) process-orientated conceptualization of mediated public discourses and propose the characterization of discourses as the interplay between the following three dimensions: (1) interpretative patterns or *frames* as *the subject dimension*, (2) *actors* as *the social dimension*, and (3) *phases in which there are specific degrees of intensity regarding public attention for a specific topic or frames* as *the temporal dimension of mediated public discourses* (Wessler, 1999; B. Scheufele, 2008). More specifically, this conceptualization means that mediated public discourses are characterized, first, by the interplay between different framings of an issue. Following Entman's (1993) seminal definition *framing* means that aspects of an issue are made particularly salient and that a particular problem definition, causal and moral interpretation and/or treatment recommendation are promoted. Secondly, on the social level, mediated public discourses are characterized by different types of actors that are visible by means of their statements and points of view within the discourse. Thirdly, it is important to note that mediated public discourses can develop over time in particular ways. This can include phases with varying degrees of intensity when it comes to the public attention for the topic, as well as varying thematic priorities and changes regarding dominant frames.

There is a long tradition of asserting the importance of the media and mediated public discourses as a base for societal debate and political decision-making (e.g., Ferree et al., 2002; Maia, 2012; Wessler et al., 2008). Mediated public discourses, particularly news

⁶ This normative understanding includes which includes guiding principles, such as the equal access of actors, consensus-orientation, the quality of the argument and uncoerced communication (see, e.g., Habermas, 1996).

media coverage, are widely understood as a central resource and forum for agenda-setting (McCombs, 2014), societal self-observation, public social coordination, the formation of public opinion, and decision-making (Beck, 2013; Brosda & Schicha, 2010; Dahlgren, 2005; Ferree et al., 2002; Silverstone, 2007). Furthermore, they have important functions for democratic political processes. Mediated public discourses are mechanisms that can be used to control political decision makers, and allow for information, orientation, participation, socialization, and integration of citizens (Beck, 2013, pp. 98–105; Brosda & Schicha, 2010, p. 12; Peters et al., 2008). Such expectations are also codified in program mandates of, for example, German and Swiss public service media or the constitutional journalistic tasks of the press (the so-called “öffentliche Aufgabe”, the public duty of the press) and public broadcasting services. As specified in these program mandates, media should aim to serve citizens’ need for information, by covering current issues, by providing a forum for diverse standpoints, and by providing guidance through journalistic commentary. In line with this view, mediated public discourses are an important source of information about current social issues. They serve to facilitate communicative links between stakeholders, citizen, and political decision-makers. Furthermore, mediated public discourses facilitate interpretations of current issues (Dahlgren, 2005; Gerhards & Schäfer, 2010; Kriesi, 2001; van Dijck, 2013; Wessler, 2008) and the negotiation and circulation of collectively shared meanings and ideas of desirable action (Cobley, 2008). Accordingly, mediated public discourses are often characterized as the central forum in which social norms and values repertoires are represented and negotiated (Brosda & Schicha, 2010; Ferree et al., 2002; Reichertz, 2008; Silverstone, 2007; van Dijck, 2013). Mediated public discourses as processes for the collective construction of reality (Burr, 2015; Gergen, 1985) are – as are norms – always a process of contesting interpretations of issues. As Benford (1997) explains:

meanings are derived (and transformed) via social interaction and are subject to differential interpretations. Hence meaning [...] does not spring from the object of attention into the actor’s head, because objects have no intrinsic meaning. Rather, meaning is negotiated, contested, modified, articulated, and rearticulated. (p. 410)

Thus, mediated public discourses are always ongoing competitions for the (re)establishment of dominant frames, interpretations, and meanings in which social hierarchies and power relations come into play (Matthes, 2007; Wessler, 1999). Media institutions and journalists thereby have a double role; they are both active participants in discourses, as well as providers of a forum for other discourse participants and their viewpoints (Ferree et al., 2002; Gamson, 1992; Koopmans & Statham, 2010; Statham, 2007). It is important to note that norms have a double role as well. Specifically, norms are important reasoning and mobilization devices (Gamson & Modigliani, 1989) that are used to justify political claims, to problematize an issue, to construct the need for political action, or to legitimize political institutions, procedures, and outputs (van den Daele & Neidhardt, 1996; van Leeuwen, 2007). At the same time, norms themselves are continuously negotiated and reconfirmed in discourses and through discourses.

2.3.2 The Regulatory and Ordering Force of Mediated Public Discourses

We have seen that mediated public discourses have the important functions of providing information, public sense-making, socialization, and social coordination. We can translate these functions to the important functions of the role that mediated public discourses take on for the public sense-making of media and digital technologies. Researchers highlight the neat connection between discourses on media and digital technologies and the implementation, uses, and interpretations of media and digital technologies (Möller, 2017; Neuberger, 2005; Pentzold & Fischer, 2017; Bijker, 2009), for example, through sociotechnical imaginaries that envision desirable future social life and order and the role of technology therein (Jasanoff, 2015; Mager & Katzenbach, 2021). Technological artifacts and their affordances are a contingent product of social forces and a political economy. Consequently, they are never neutral tools that emerge and exist outside of social processes (Beer, 2017; Mackay & Gillespie, 1992; MacKenzie & Wajcman, 1999). Affordances, i.e. the features of media and digital technologies, allow and constrain certain practices (Bucher & Helmond, 2018) and thus define and prescribe norms for possible and ‘desirable’ uses of a device, platform, or app. Mediated public discourses have a vital role in this social construction of technologies (Bijker, 2009) as well as in the creation and

maintenance of the public perception of, and individual attitudes towards, emerging media and technologies. This also includes what is envisioned as possible or desirable uses (see, e.g., Cacciatore et al., 2012; Chuan et al., 2019; Lee et al., 2005; Neuberger, 2005). Mediated public discourses might provide guidance on how to make sense of new digital technologies, their features, and their constraints. Thus, the ways in which media and digital technologies, their features, and their possible implications for citizens' everyday life and rights, security policies, or surveillance scenarios are discussed, are constitutive for their establishment, acceptance, and regulation. Fisher (2010) claims that technology discourse is a "cognitive map [...], a body of knowledge that is inextricably intertwined with technological reality, social structures and everyday practices" (p. 235). Practices are always embedded in collectively shared orders of knowledge, systems of symbols, and cultural codes (Reckwitz, 2002, 2003, p. 288). The negotiation of rules, legitimate practices, and their realizations in everyday life are thus always shaped by and embedded in knowledge orders that enable and limit action. In this view, mediated public discourses, as processes of negotiation and circulation of collectively shared meanings and ideas of desirable action, have a regulatory, ordering, and orienting force as Foucault (1972) famously stressed.

Katzenbach stresses that argument from a media governance perspective. He claims that mediated public discourses are not merely explanatory factors for political decision making; they have to be taken into consideration as a level and force of governance in their own right (Katzenbach, 2018, pp. 298–299).⁷ The ways in which actors frame certain practices and technologies as legitimate or illegitimate, how they imagine the use of data and the implications of practices, as well as which metaphors or images they use (Pentzold et al., 2019; Pentzold & Fischer, 2017), is an important element in the negotiation processes for rules and regulation, which contributes to the institutionalization of

⁷ Katzenbach (2018) proposes a conceptualization of research on media governance that does not focus on collectively binding rules, but on the negotiation processes on rules for media and mediated communication.

expectations and acceptance – regardless of the establishment or adoption of formal and legal rules (Katzenbach, 2018, pp. 293–303).

In this regard, Sinnreich's (2013) work on film and music file sharing and the discursive aspect of its regulation or Marwick's (2008) study on internet content legislation and panics over cyberporn and online predators, have particularly stressed the power of risk-related negative interpretative patterns for defining illegitimate practices and the shaping of governance. Marwick (2008), for example, argues that internet content legislation is directly linked to media-fueled panics that concern uses of technology that are deemed harmful to children. She based her argument on an analysis of congressional testimony and national and local news media coverage on the cyberporn panic of 1996, as well as the panic over online predators on MySpace. She specifically stresses the regulatory and ordering force of mediated public discourses, stating that the cultural anxiety in so-called media panics, or *technopanics*, manifests itself as an attempt at modifying or regulating young people's behavior, by controlling either young people or the creators and producers of media products.

With her concept of technopanics as problem- and fear-discourses about the negative effects of new media-related practices and technology, Marwick builds on research on *media panics*⁸ (Critcher, 2008; Drotner, 1999). Media panics and technopanics are

⁸ The concept of media panics draws on McLuhan's (1964), Cohen's (1972) or Goode and Ben-Yahuda's (1994) concept of 'moral panics' (see also Lindgren, 2013; Nicholas & O'Malley, 2013; Thurlow, 2006; Critcher, 2013; Young, 2009; Hunt, 1997). All these approaches focus on the discursive construction of deviance, social problems and normative regulation. However, the way they address the media and their role in these processes differs. Cohen (1972) predominantly describes the role of mass media as that of central actors in the discursive construction of problems and 'enemies', as well as prime movers in the formation of disproportionate and irrational panics (see also S. Cohen, 2002). He, thus, frames moral panics as an essentially media-driven phenomenon, considering how 'the media' – i.e. mass media such as television, newspapers, and radio – were essential in generating and adding fuel to the fires of moral panics, specifically moral panics over the conduct of 'folk devils' and other marginalized subcultures. The term 'moral panic' is mostly linked to Cohen's "*Folk devils and moral panics*" (1972), but was introduced by McLuhan (1964), who had focused on the public's recurrent

emotionally charged and morally polarized reactions on the appearance of new media (Marwick, 2008; Drotner, 1999; see also O'Malley, 2013). Characteristically, negative evaluations that pathologize practices, media, or technologies prevail in most cases. Furthermore, media coverage functions as both instigator and purveyor of the discussion. So-called moral panics and media panics are extreme forms of risk discourses (Critcher, 2008, p. 1140), as well as constructions and contestations of social problems in the public arena (Loseke, 2010). Decisive for research on the constructions of norms, research in this field again stresses the role of mediated public discourses as tacit or explicit means for social and moral regulation (Critcher, 2008, p. 1140, 2013, p. 25; Drotner, 1992, p. 57; Hunt, 1997). There have been many discussions on the limitations of moral panic theory; the epistemological difficulties that it raises, and critique against the all too extensive and unreflected use of the concept beyond its original meaning (Buckingham & Strandgaard Jensen, 2012; S. Cohen, 2002; Critcher, 2008; Lindgren, 2013; McRobbie & Thornton, 1995; see Critcher, 2015 for an overview of critique and counter arguments). However, what remains uncontested is the assumption of discourse's regulatory and ordering force (Critcher, 2008, p. 1140, 2013, p. 25; Drotner, 1992, p. 57).

2.3.3 'Traditions' of Discourses on Media, Digital Technologies, and Their Use

New media, digital technologies, and the way they are appropriated, always fascinate and at the same time frighten people (Balbi, 2013; Briggs et al., 2020; Critcher, 2013; Drushel & German, 2011; Gitelman & Pingree, 2003; Kümmel et al., 2004; Lasén, 2005; Neverla, 1998; Rath, 2014). Emotionally charged and risk-focused interpretations, concerns about declining standards of morality and the unwinding of the social fabric are a rather 'classic' recurring mechanism that complement enthusiastic or even utopian visions and

anxieties over new technologies. McLuhan, thus, referred to mechanisms that, later on, have been described as media panics or technopanics. Ingraham and Reeves (2016) explain that "When Marshall McLuhan deployed the term in 1964, he charged that much of Western philosophy was based on a 'moral panic' about the influence media have over our everyday lives and the patterns of our culture (1964/1994, p. 82)" (p. 457).

imaginaries of ‘revolutionary’ media and digital technologies (see, e.g., Bory, 2019). A further recurring mechanism are “media moral regulations” (Cricher, 2013, p. 25), i.e. practices by which some social actors contest some aspect of a new medium or genre on moral grounds and seek to impose moral regulations on it. The ‘tradition’ reaches back to Greek antiquity, with Plato lamenting in his dialogue *Phaidros*, where he warns of the consequences of writing in the so-called *Saga of Theut*. For further examples, what comes to mind are debates on newspapers in the 16th and 17th centuries; the criticism of reading novels, especially by female readers in the 18th century; the criticism of television and comics in the 1950s; “video nasties” in the 1980s computer games; the discourse on “cyberporn”; or the debates on the decline of social relationships due to the omnipresence of smartphones (Rath, 2014). As Balbi (2013) stresses, these discourses recurrently reproduce similar concerns:

This capacity to scare has characterized the advent of all media and also (and above all) the so-called new media. The mobile phone, the internet, and social networks have all given rise to concerns which are surprisingly similar to those which emerged with the advent of the cinema, radio and television. In particular the mobile phone, which to many appeared to be a radically new medium, generated a series of stereotypes and fears which were remarkably similar to those of 100 years earlier when the fixed telephone was invented: from the physical safety of the users, to the privacy of communications, through to the ‘etiquette of use and answering’ which a mobile medium inevitably had to review. (p. 71)

In the same vein, Drotner (1999) notes that “every new panic develops as if it was the first time such issues were debated in public, and yet the debates are strikingly similar” (p. 610). Characteristically, those discourses assume strong media effects on social action, supposing immediate ill-effects of media exposure and technology usage on social culture and the development of the character and personality of children and adolescents (Buckingham & Strandgaard Jensen, 2012; Drotner, 1999; Marwick, 2008; Thurlow, 2006; Wartella & Jennings, 2000). Moreover, discourses recurrently refer to a perceived universal norm of ‘quality’ culture and education that are threatened (Drotner, 1999). Drotner (1999, p. 615) claims that on the linguistic level, media panics are characterized by a “panic language,” often referring metaphorically to fields of food, hygiene/health, and sexuality, by using terms such as “poison,” “disease,” “seduction,” or “promiscuity.”

Similar aspects and metaphors can be found in the long history of discourses on images and image-related practices, which discuss the cultural value of photographs and problematic uses or quantities of images (Lobinger, 2012, pp. 26–28). As Hand (2012, p. 5) points out, the late 2000s was not the first moment in history when photography had been considered ubiquitous. Hand (2012) mentions a news article by the New York Times published in 1884 which describes an “epidemic of cameras” or people as “camera lunatics” (p. 5). Hand (2012) states “[...] familiar responses emerged: concerns about the acceptable boundaries between public and private, the suitability of previously unseen objects or actions, the breakdown of societal boundaries of decency and ‘good taste’, as placed were ‘besieged’ with amateur photographers, and so on” (p. 5).

Keeping these recurrent topics and characteristics in mind allows us to take into account the history of possible recurring topics and concerns (Balbi, 2013, p. 71; Sturken & Thomas, 2004, p. 5). Most importantly for the present dissertation: this retrospective view provides us with important insights into the ways in which particular media, digital technologies, and usage practices are characterized as desirable or undesirable. These characteristics of discourses on media and digital technologies are, thus, relevant for the operationalization of norms. Therefore, they inform the development of the general methodological framework and serve as indicators that help us identify normative statements (see chapter 5; section 5.2.2).

Chapter 3 will detail the application of the study of norms in mediated public discourses, by elucidating and explicating visual data practices, visual technologies, and visibility management.

3 Visual Data Practices, Visual Technologies, and Visibility Management: Developments and Challenges

The focus on visual data practices and visual technologies is paramount, since nowadays everyday life, social interactions, and public and private spaces are highly visualized, i.e. saturated with images and visual technologies (Krotz, 2015; Lobinger & Geise, 2015). Jurgenson (2020) even argues that “to understand our social world today means understanding the ubiquity of digital communications and social media, and this media is deeply constituted by the images we make and share” (p. 10).

However, what exactly are ‘visual data practices’ and ‘visual technologies’? For the sake of clarity, I will define three central concepts of the dissertation, (1) *visual data practices*, (2) *visual technologies*, and (3) *visibility management* in the following section 3.1. Subsequently, in section 3.2 I will illustrate some developments with respect to visual data practices and uses of visual technologies. It is important to note that this overview of developments is not meant to cover all important developments related to visual data practices and the respective academic research in detail. Rather, it highlights selected aspects in order to illustrate that the conditions of visibility and visibility management have transformed in the past decades. This, I argue, comes with both opportunities and challenges that make the case of visual data practices particularly relevant for the examination of norms and their construction in mediated public discourses. Referring to research in the fields of visual and online communication, human-computer interaction, political and protest communication, surveillance and security studies, critical data studies, and machine vision, I will argue in section 3.3 that new or changing visual data practices allow for new ways of interacting and bonding with others. In addition, the developments open up new possibilities for the enhancement of efficiency in everyday life, as well as for fighting crimes. However, I also note that new or changing visual data practices and visual technologies, entail, for example, risks for privacy and data sovereignty. As I discuss, these opportunities and risks necessitate negotiations on responsibilities in sharing processes, as well as on how to use analytical tools that might imply biases. These ambivalences, I

argue, challenge existing norms and stress the necessity to further examine how actors define norms and contest or legitimize specific practices.

3.1 Visual Data Practices, Visual Technologies, and Visibility Management

With the focus on visual data practices, I follow recent conceptualizations of media practices or *media-oriented practices* (for an overview, see Pentzold & Menke, 2020; Pentzold, 2020). Such conceptualizations often refer to Schatzki's (1996) prominent definition of a practice as a "nexus of doings and sayings" (p. 89). Couldry (2004) defines media-oriented practices as what "people are doing in relation to media across a whole range of situations and contexts" (p. 119). His definition includes practices that directly relate to the production and reception of media content as well as a wide array of activities in media-saturated everyday life, "whose possibility is conditioned by the prior existence, presence or functioning of media" (Couldry, 2012, p. 36; see also Pentzold & Menke, 2020, p. 2793). Hepp (2020) additionally stresses that digital media turn all "media practices (all practices entangled with media) into data practices (practices of producing and processing digital data)" (p. 5). Against this background, the term *visual data practices* is used as an umbrella term to designate practices of creating, collecting, managing, analyzing, editing, and sharing visual data, as well as practices of visual technology usage by different types of actors, be it private individuals, or corporate, institutional, and state actors. The sharing of visual data includes practices of showing, sending, publishing, and distributing visual data. The term *visual data* refers to both the content of a given image or video and the combination of images or videos with specific descriptive and administrative metadata. This metadata includes information about the creator of the photograph or video, Global Positioning System (GPS) coordinates, date and time stamps that indicate when a picture or video was taken, as well as the identification of the device that was used (for more on meta data, see McCosker & Wilken, 2020, pp. 27–28). Thus, visual data can detail, for example, a specific scenery, individuals' physical and facial traits, how people interact with each other, as well as a person's whereabouts at a given time. The term *visual technologies*, in turn, for the purpose of this dissertation, is used as a shorthand to refer to technologies, including devices, software applications and

algorithmic tools, that allow the capture, documentation, storing, and even the analysis of images. This includes practices in which capture and documentation is not solely or even primarily experienced as a ‘visual’ phenomenon by the user of such technologies. Altogether, the term visual data practices used in this dissertation is meant to grasp a broad range of what actors do with and in relation to visual data. It includes, for example, taking images with smartphones, what people do to store and manage visual data on their devices, how they share images by showing or sending them to others or by publishing them on social media platforms. The term also includes the ways in which tech companies annotate or use visual data and practices by police authorities, when they, for example, film public spaces with dash cams or body cams or use facial recognition tools to identify suspects. As such, with the concept of visual data practices this dissertation offers a concept that is deliberately broad as it is meant to (a) grasp a diversity of practices of different actors in different fields and to (b) underline their entanglements. This is important as for example study 1 (see chapter 6) vividly illustrates the interrelation and assemblage of sharing practices on social media platforms, commercial third-party analytical tools, and policing practices. This interrelation implies that private selfies shared online or face filters can be at the same time funny elements in everyday communication, training data for commercial facial recognition tools, and data for surveillance measures by police authorities in which face templates are used to track and trace individuals across data sets. Therefore, I argue, also our ideas of ‘what is done with visual data’ and normative discussions related to visual data practices and what they might imply for privacy or surveillance need to be attentive to these entanglements of practices of private citizens, cooperate, institutional, and state actors.

Overall, this dissertation takes a *texto-material perspective* (Siles & Boczkowski, 2012) on digital technologies and data practices. As such, it also takes a *texto-material perspective* on visual technologies and visual data practices. This perspective combines a focus on users’ content creation and interpretation practices with a consideration of how they appropriate and shape artifacts. In this view, as Lobinger (2016, p. 478) argues, visuals, including photographs, can be understood as both material objects, situated within particular temporal and spatial contexts, and visual texts that carry symbolic meaning. For

the studies in the present dissertation, this perspective implies that I am interested in norms with respect to *both* the symbolic and the material uses of visual data and visual technologies. As such, when studying norms, I am interested in norms that refer to (a) particular contents of visual data and ways to communicate visually, as well as (b) the preferred use of visual data in their material form (i.e. as images) and visual technologies (i.e. as ‘things’ and material objects).

Possibilities to produce, collect, manage, analyze, edit, and share visual data have seen profound developments within the last two decades as visual data practices and visual technologies became ubiquitous, networked, and machine readable (see section 3.3). These developments are particularly relevant because they have transformed the conditions of *visibility* and *visibility management*.

Following Stohl and colleagues, the multifaceted concept of *visibility* (see, e.g., Brighenti, 2007, 2010; Brantner & Stehle, 2021; Thompson, 2005) can be generally described as the combination of three attributes and dimensions: *availability* of information, approval to *disseminate* information, and *accessibility* of information to third parties (Stohl et al., 2016). The *visibility management* of actors then comprises all decisions on how to disclose information, how to establish or maintain secrecy, how to seek ways to monitor and surveil others, as well as how private, corporate, institutional, and state actors can use and make sense of information, including visual data (Flyverbom, 2019; Flyverbom et al., 2016). Managing visibility is an urgent concern in nowadays (Western) mediatized and datafied societies (Flyverbom, 2019). Managing visibility is tied to “visibility affordances” (Flyverbom et al., 2016). *Visibility affordances* concern the features and constraints of technologies used by actors to manage information and make them visible to others. Importantly, with this conceptualization, visibility is not a stable attribute of data itself, but a process and the result of decisions and specific technical, political, and social arrangements (see also Neumayer et al., 2021). Such decisions and arrangements are tied to norms and normative assumptions that guide decisions on how to shape and govern availability of information, as well as the dissemination and accessibility of information. Examples of this are choices of which images to take, and whom you disclose these image

to; which images to share, and on which social media platforms; and how to use certain technological tools that are used to store, share or analyze visual data. Yet, conditions of such decisions have changed. As Jurgenson (2020) states: “[...] the entire set of ways people make themselves visible to the world, and make the world visible to them, has undergone a substantial reorientation with respect to new devices that capture and share” (p. 2).

3.2 Developments in Visual Data Practices, Visual Technologies, and Visibility Management

In the following subsections 3.2.1-3.2.4, the most relevant developments to the studies in this dissertation will be outlined. First, visual data practices and visual technologies have become ubiquitous; various contexts of everyday life and everyday practices have become more and more saturated with visual data practices and visual technologies. Second, visual data visual data practices and visual technologies have become networked. This second aspect implies new practices and changing functions of photography and photo sharing. It also implies that visual data are part of networked data flows and can be shared and used across different platforms, publics, and contexts. This means that they can potentially have a wide reach, even without knowledge of the initial image sharer. Third, visual data have become machine readable. This allows for the identification of, for example, objects and scenes, but also for the identification of individuals through the analysis of facial features (i.e. their biometric data). The outline of these developments will form the foundation for the discussions on specific challenges that will be presented in section 3.3 in which I will argue that these developments come with both opportunities and risks.

3.2.1 Ubiquitous Visual Data Practices and Visual Technologies

Everyday life and media environments are saturated with images and visual technologies (see, e.g., Sturken & Cartwright, 2018). The early 2000s and 2010s saw the spread of pocket-sized compact camera, smartphones, front-facing cameras and image-sharing apps, such as Instagram (launched in 2010) or Snapchat (launched in 2011). Especially the increased affordability and proliferation of compact and smartphone cameras has often

been characterized as a ‘democratization’ of photography (Hand, 2012). Hand (2012) also stresses: “Taken as a whole, from the use of images in reporting, advertising and institutional practices of record keeping to the vast numbers of digital snapshots taken in daily life, contemporary Western cultures involve unprecedented levels of *visual mediation*” (p. 3, emphasis in original). Moreover, urban spaces are increasingly visualized, not only due to the proliferation of smartphone cameras, but also due to the expansion of video cameras and Closed Circuit Television (CCTV) in, for example, shops, public transportation, parks, sights, public buildings, and education facilities (see, e.g., Norris, 2012; Metelmann & Hempel, 2005; Ullrich & Wollinger, 2011). In addition, we now see dash cams in cars and body cams worn by protesters or police officers (see, e.g., Bock, 2016). Therefore, McCosker & Wilken (2020) also note an evolving ecology of “seeing machines” (p. 30) and visibility technologies. Social media platforms have become large image banks as a result of the huge numbers of images that are uploaded and shared on these platforms. Popular social media platforms in recent years, Snapchat, Instagram or TikTok, are primarily visual ones because they are based on visual contents that people can react to and share. Consequently, due to the saturation of different social contexts and media environments with visual technologies and images, several authors also speak of an increasing ‘visualization’ of everyday life (Krotz, 2015; Lobinger, 2016; Lobinger & Geise, 2015; Rubinstein & Sluis, 2008; Sarvas & Frohlich, 2011). It is important to note that we have seen developments from the digitalization of photography in the 1990s towards “networked images” (Rubinstein & Sluis, 2008), alongside an increased affordability of visual devices, digital storage, and access to broadband.

3.2.2 Networked Visual Data Practices and Visual Technologies

As early as 2008, Rubinstein and Sluis (2008) noted that “[...] the consumption of personal photography has become intimately linked with the software interfaces which mediate their display on-screen” (p. 17). The terms networked images, social photo, networked photography or, more broadly, networked cameras, all point to the fact that most current cameras and camera phones enable an immediate connection to online web communication. As such, they enable users to share images with different conversational

partners via different platforms and applications (Hand, 2012; Lister, 2013; Lobinger, 2016; Rubinstein & Sluis, 2008; Jurgenson, 2020). As Lobinger (2016) defines:

‘Networked photography’ refers to the practice of sharing photographs immediately after capture in real-time, mobile visual communication, using, for example, instant messaging (IM) tools or social media applications. With the proliferation of networked photography photo sharing has become a pervasive routine communicative act. (p. 475)

As such, it can be said that not only technologies, but also practices change. Research in the fields of visual communication, online communication, or human-computer interaction has reflected on practices and modes of photo sharing (see for an overview Lobinger, 2016; Lobinger & Schreiber, 2019), including changing functions of networked photography and photo sharing (Jänkälä et al., 2019; Lobinger, 2016; Rubinstein & Sluis, 2008; van Dijck, 2008; Van House et al., 2004, 2005; Villi, 2012, 2015), as well as image-related practices on social media platforms (e.g., Autenrieth, 2014; Reißmann, 2015; Kapidzic & Herring, 2015). In their pioneer exploratory study, van House and colleagues (2004, 2005), amongst other things, found four main uses of camera phone-photography and photo sharing: (1) creating and maintaining social relationships, (2) constructing personal and group memory, (3) self-presentation, and (4) self-expression. As a result of these uses, we have seen that networked photography has also brought forth new genres and platform-specific aesthetics of photography that afford new ways of communicating and expressing oneself visually (e.g., Bayer et al., 2016; Kofoed, 2018; Schreiber, 2017), including ephemeral photographs (e.g., Bayer et al., 2016; Bushey, 2014; Kofoed & Larsen, 2016; Niemelä-Nyrhinen & Seppänen, 2021) and the famous ‘selfie’ (e.g., Burns, 2015; Senft & Baym, 2015; Tiidenberg, 2018), which even became Oxford Dictionaries’ Word of the Year in 2013.

3.2.3 Distribution and Potential Uses Across Contexts and Platforms

Networked photography and networked visual technologies imply that visual data can be distributed in and across different platforms that have different affordances (boyd, 2011; Bucher & Helmond, 2018; Nagy & Neff, 2015), as well as in and across interconnected

networked publics (Benkler, 2006). These publics can be, for example, personal publics on social media platforms, as communicative spaces in which information is selected and displayed according to criteria of personal relevance (J.-H. Schmidt, 2014); publics on social media platforms that evolve around hashtags (Rambukkana, 2015; Bruns & Burgess, 2015); or the ‘traditional’ journalistic news media coverage in, for example, print and online newspapers, television, or radio. As a result, the distribution of digital photographs involves their multiplication and potential variation, their simultaneous distribution and storage across a range of media and devices (Hand, 2012), and their potentially wide reach across different publics and diverse audiences, even without control and knowledge of the initial image sharer. This also implies that images can be used beyond their original contexts (boyd, 2011; Marwick & boyd, 2011). This can also mean that unintended invisible audiences (boyd, 2011) might see, re-interpret or re-use them, as will be discussed on the example of visual data practices in the context of the G20 protests and G20 investigations (see study 1, chapter 6).

3.2.4 Machine Readable Data: Machine Vision and Facial Recognition

Developments also include new modes of organizing and storing images, including the possibility to combine sources, or to edit, alter, filter, or annotate visual data (Sarvas & Frohlich, 2011; Rodden & Wood, 2003). Moreover, algorithmic tools for visual analysis have become both powerful and ubiquitous. For a long time, the computational analysis of images had to rely on metadata and tags, and it was rather imprecise (see, e.g., Stommel & Müller, 2011; Geise et al., 2016). In recent years, machine or computer vision – i.e. the algorithmic classification of images and the identification of objects – has advanced, making image contents evermore machine readable (see for an overview and discussion Lobinger et al., 2019, pp. 735–738). This is increasingly used as tool in media and communication research (see, e.g., Araujo et al., 2020; Carah & Angus, 2018; Haim & Jungblut, 2021), but even more so in commercial applications (e.g. Clarifai, Microsoft Azure Computer Vision, Google Cloud Vision or Amazon Rekognition). Such applications stress their efficiency and convenience in identifying objects, people, text,

scenes, and activities in images and videos for their private, commercial and even state customers. Amazon Web Services (n.d.), for example, claim:

Amazon Rekognition makes it easy to add image and video analysis to your applications using proven, highly scalable, deep learning technology that requires no machine learning expertise to use [...] You simply need to supply images of objects or scenes you want to identify, and the service handles the rest.⁹

Of these algorithmic tools, facial recognition in particular, and thus biometric analyses of visual data, has spread (see, e.g., Gates, 2011). Facial recognition tools (FRTs) are pattern-recognition technologies that use algorithms to map and match facial features for authentication, ordering or identification purposes. The tools scan a person's face, create a unique facial template, which allows it to be matched with facial images in existing databases. As study 2 presented in chapter 7 discusses in further detail, tools for object and facial recognition are now used for authentication, border control, and for the identification of people of interest as well as for classifying, sorting, and filtering expanding flows of personal digital images on social media and in personal photo libraries. Facial recognition has even become a normalized and playful aspect of visual technologies, for example with the emergence of selfie lenses on popular applications such as Snapchat and Instagram (see, e.g., Rettberg, 2017; McCosker & Wilken, 2020). Such filters have embedded facial recognition, tracking, and image analysis within the image capture process and can also allow a user to place a digital object in their surroundings. Advances in algorithmic tools and machine vision also include developments in (deep) machine learning and computer vision that allow, for instance, to generate unique images that look deceptively like a photograph of a real person with the help of generative adversarial networks (GANs) (see for example the project and website ThisPersonDoesNotExist.com) or altering facial emotions, hair, gender, age, and skin color of depicted individuals (see e.g., Choi et al., 2018). In addition, using Face Swap

⁹ This claim reminds of the famous advertising claim “you push the button, we do the rest” coined by George Eastman, the founder of Kodak, in 1888. At the same time, the claim also plays into black boxing-mechanisms in which algorithmic architectures and procedures of applications often remain rather obscure (Pasquale, 2015; Schäfer & Wessler, 2020).

features on popular apps, such as Snapchat and Instagram, people are able to switch faces with one another in photos and videos, by substituting the facial features of a person with those of someone else.

Overall, with the developments outlined so far, we have seen that the conditions of visibility and visibility management have changed. Importantly, these developments come with both opportunities and risks, which necessitate negotiations of norms for visual data practices, as I will discuss in the following section 3.3.

3.3 Challenges Related to Visual Data Practices, Visual Technologies, and Visibility Management

As we discussed in the subsections 3.2.1-3.2.4, we see interrelated developments both on the technological level and on the level of practices that challenge existing norms for visual data practices or necessitate the establishment of new ones. Research in the fields of visual communication, online communication, human-computer interaction, protest communication, surveillance studies, security studies, critical data studies, and machine vision, has shown that these developments come with opportunities (e.g. for social interactions or law enforcement) but also entail questions (e.g. how do we protect privacy?). In the following subsections (3.3.1-3.3.3), I explain how the developments discussed in section 3.2 challenge existing norms or even necessitate to establish new ones, for example, with respect to privacy protection and responsibility when sharing and using visual data. To this end, I will briefly outline some of those ambivalences and challenges to norms. Again, covering all challenges to norms would be beyond the scope of this chapter and this dissertation, instead I focus on some to underline the necessity to further examine mediated public discourses on norms for visual data practices.

3.3.1 Challenge 1: Privacy, Responsibility, and Data Sovereignty

The question at the center of this challenge is: *How do we define norms for sharing visual data?* Studies have shown that photo-sharing practices, as one example of visual data practices, can foster interaction and bonding. It, for example, helps people maintain close

interpersonal relationships and emotional bonds by creating a sense of mediated co-presence, emotional proximity and intimacy, even in cases of great geographical distance (see, e.g., Prieto-Blanco, 2016; Villi, 2015; Lobinger et al., 2021; Jänkälä et al., 2019). At the same time, networked visual data practices, decisions on how to share visual data, as well as the management of information accessibility for others, also challenge social relationships. Research has found various debates and conflicts in social relationships, such as conflicts regarding (desirable) rules for the publication of pictures on social media platforms (e.g., Autenrieth, 2014; Hiniker et al., 2016; Lampinen et al., 2011; Miguel, 2016; Uski & Lampinen, 2016). Conflicts were caused by, for example, different concepts of privacy (Hiniker et al., 2016; Lipford et al., 2009), and clashing assumptions regarding the ‘shareability’ of pictures, adequate contents or quantities, of which an excess is often labelled as “digital exhibitionism” or “oversharing” in news media discourse (Vaterlaus et al., 2016; Venema & Lobinger, 2017).

Visuals are particularly efficient for the depiction of places, spaces, and people. Visuals are thus particularly apt for the depiction of specific whereabouts, objects or people, including their specific personal bodily features, facial features, and concrete emotional expressions, in great detail. As such, images should be considered *fundamental personal information* (Marx, 2005), which makes the sharing of visual data such a relevant case for privacy management and visibility management. In addition, the conflicts regarding the ‘shareability’ of pictures, as shown in previous research, further emphasizes this relevance. *Privacy* includes informational, social, physical, psychological privacy (Burgoon, 1982) and is often described as an indispensable structural feature of liberal democratic political systems (see, e.g., J. E. Cohen, 2013; Matzner & Ochs, 2019; McDermott, 2017). Privacy is affirmed as a central issue in the individual and social appropriation of new digital technologies (von Pape et al., 2017, p. 190). Additionally, it comes into play in visual data practices, largely due to the potential wide reach and distribution of visual data when shared in and across networked publics and contexts. This notion also stresses that privacy is a social and relational issue. More specifically, privacy is realized in networked flows of communication through the decisions by multiple actors in terms of what to disclose, what to share, and in which ways to do so (Möller & Nowak,

2018; Matzner et al., 2016). Privacy and visibility management thus require social coordination. In this regard, examples of non-consensual sharing of sexually explicit media content – often referred to as “revenge porn” (Albury & Crawford, 2012; Döring, 2014; Hasinoff, 2015; Hasinoff & Shepherd, 2014; Henry & Powell, 2014) – have drastically stressed the notion that visual data practices also require careful reflections on trustful disclosure, intimacy, privacy, and vulnerability. Most importantly, it has stressed the importance of consent and responsibility when it comes to sharing and re-sharing visual data (Venema & Lobinger, 2017; Lobinger, 2016). Furthermore, ‘tag tools’ can have pronounced effects on privacy. Tag tools allow users to tag themselves and other people in images on social media platforms. Tagging others or being tagged by others can disclose an individual’s identity, as it links visual data to the information available on user profiles. As such, Norval and Prasopoulou (2017, p. 644) stress that tools used to ‘tag’ others in images on social media platforms can lead to further privacy concerns and issues for data sovereignty.

On top of the privacy affects mentioned in the previous paragraphs, the sharing of visual data and decisions of visibility management also challenge other social contexts with a variety of actors. For example, studies have shown the important functions of visual technologies and visual data practices in political protest, as they serve, for example, the mobilization, (live) documentation and ‘eyewitnessing’ of political protest (see, e.g., Chouliaraki, 2015; Doerr et al., 2013; Mattoni & Teune, 2014; M. Mortensen, 2015). Moreover, they may be used to hold police forces accountable for any abuse of power, and to fight social and political oppression (Bock, 2016)¹⁰. Thus, the potential wide reach of the images taken and shared by various actors in and across different platforms, contexts, and publics, can help amplify protesters’ voices and concerns. In addition, visual data and visual technologies also allow for new avenues in law enforcement and policing strategies to safeguard public security, as well as in their fight against terrorism. Visual data and

¹⁰ For example, it was the filming and sharing of the video of the murder of George Floyd by Derek Chauvin that sparked a global movement. The showing of the clip in court as proof can be considered an important tool for holding accountable police forces for the abuse of power.

visual technologies become an ever-growing important factor in law enforcements' use of algorithmic 'big data' analytics (Brayne, 2017, 2021; Egbert & Leese, 2020; Ferguson, 2017), as well as in emerging strategies of crowdsourced, user-led policing (Trottier, 2015), and legal decision-making (Ristovska, 2020). However, as Ristovska (2020) points out, this growing use comes without clear legal norms and social norms for their use.

Besides the important uses for law enforcement and security policies, visual data practices can serve for watching and remotely tracking of ordinary citizens, activists or dissidents (Bolin & Jerslev, 2018; Pearce et al., 2018; Schneider & Trottier, 2012; Trottier, 2012; Uldam, 2018; Ullrich & Knopp, 2018). Therefore, in the contemporary tradition of surveillance studies, there are many accounts which center on concerns regarding new inequalities, all-encompassing surveillance, and the dissolving protection of civil liberties, which includes privacy (Lyon, 2015, 2017, 2018; Möller & Nowak, 2018; Trottier, 2017; von Silva-Tarouca Larsen, 2011). In line with these notions, Lyon (2018) notably stressed a *visibility paradox*. On the one hand, ordinary lives are increasingly made visible to peers, large organizations, and state authorities. On the other hand, how or by whom people are made visible is increasingly obscured. In short, those whose data are being garnered and used in current surveillance cultures become more visible without them knowing who is behind the increased visibility and what is being done with the data (Lyon, 2015, 2017, 2018). What Lyon notes here, again, stresses the necessity for social coordination with regard to desirable rules for sharing visual data in and across different publics and with regard to visual data practices in general.

The importance of rules for sharing visual data is further underlined by the fact that visual data, particularly pictures of faces, are – and have been – important personal identifiers (van der Meulen & Heynen, 2019; Haara & Lehmuskallio, 2020). As outlined above in section 3.2.4, this personal information is now increasingly machine readable, which further complicates privacy and visibility management. This second challenge will be discussed in the following section 3.3.2.

3.3.2 Challenge 2: *Efficiency, Security, Control, and Commodification*

The question at the center of this second challenge is: *How do we define norms for the use of algorithmic tools for analyzing visual data?* The visibility of visual data, and particularly images of faces, in public can be linked to recognition and empowerment, but also to control and inequality (e.g., Ajana, 2013; Brighenti, 2010; Dahlberg, 2018; Gates, 2011; Rettberg, 2017). The development of photography and other visual technologies has been in many ways linked to society's desire to control, analyze, classify, and identify citizens (Finn, 2009; Gates, 2011; Haara & Lehmuskallio, 2020; Hegemann & Kahl, 2015; Regener, 1999; Rettberg, 2017; Valentine & Davis, 2015; van der Meulen & Heynen, 2019). In the 19th century, photography was at the heart of new configurations of evidence, objectivity, and truth. This was particularly evident in criminological practices (van der Meulen & Heynen, 2019). In addition, Rettberg (2017) points to the fact that photographs in identification documents and police mugshots were among the earliest uses of photographic portraits. Today, she states, it is impossible or at least extremely difficult, to cross a border, buy alcohol, vote, or, in some cases, even pick up a parcel, without the ability to visually prove your identity (e.g. with a passport or other forms of personal photographic identification). For many decades, these photographs were used by people to identify other human beings. Rettberg (2017, p. 91; see also Hegemann & Kahl, 2015) argues that new security systems are increasingly skipping the intermediary of such means of identification; instead, they are running facial recognition directly on the image of our face, in order to match the image to a fixed identity and/or biometric information. As Introna and Nissenbaum (2009) note, facial recognition disrupts normalized flows of information "by connecting facial images with identity" (p. 44) and "connecting this with whatever other information is held in a system's database" (p. 44). Similarly, Gates (2011) explains that facial recognition technology "treats the face as an index of identity" (p. 8). Border security and police authorities often argue that this allows for the enhancement of *efficiency*, *public security*, and, for example, the identification of terrorists. Critical voices, in turn, stress their concerns stating that we are moving towards all-encompassing *control* and surveillance states with subsequent privacy infringements, as it becomes increasingly easy for people to be identified, tracked, and traced. Several research institutes studying

the social implications of artificial intelligence even characterized facial recognition as one of the key societal and political challenges, calling for the establishment of rules and regulation (Chiusi et al., 2020; Whittaker et al., 2018). This underlines the necessity to study norms for visual data practices and to discuss norms for the use of algorithmic tools for the analysis of visual data.

Still, normative challenges related to facial recognition tools not only arise in citizen-state-relationships. The convergence of social media, digital photography, and facial recognition in everyday consumer devices and in, or with the help of, social media applications further underline the necessity for discussing norms for (a) the treatment and use of personal visual data; and (b) the analysis of them, including which application to use and in which contexts. The machine readability of faces with facial recognition, including the large number of facial images on social media platforms, makes personal identifiers ‘up-for-grabs’ for various actors. Focusing on this accessibility, McCosker and Wilken (2020) specifically problematize an increasing “commerce of faciality” (p. 41) and a *commodification* of biometric data, alongside a platformization of facial recognition with the involvement of, for example, Amazon (Rekognition) and the other members of the Big Five tech companies (i.e. Google (Alphabet), Facebook, Apple, and Microsoft), as well as heavy investments in face-data collection and data analysis with commercial interests. In fact, FRTs and visual everyday practices are intrinsically linked. Selfies, for instance, present a powerful base layer of personal biometric data to be mined (McCosker & Wilken, 2020, pp. 12, 36). Therefore, as McCosker and Wilken (2020) aptly state, “it’s worth unpacking the involvement or even complicity of mobile app users in setting the scene for the development of face recognition technology” (p. 38), as popular apps and selfies are used as tools and training data sets for the development of facial recognition technology. Recent cases, such as the case of PimEyes – a free search engine for reverse face search – stress this link. By April 2020, the software had stored and analyzed a database of more than 900 million faces, which was based on images published online. As a result, it was capable of matching images of random people to their online images and personal information (Laufer & Meineck, 2020).

Overall, debates about efficiency and security; concerns about control and surveillance; as well as concerns about the increasing use of biometric data for commercial purposes and social media platforms, show that the use of algorithmic tools for the analysis of visual data raises normative questions. Examples of these normative questions are ‘Who should be able to analyze biometric data?’; ‘For which purposes?’; and ‘With which data bases, sources and tools should the analyses be conducted?’.

A third area that moved into the focus of academic discussion on normative challenges are truth claims and trust in visual data and visual technologies. This third important challenge is discussed in section 3.3.3 below.

3.3.3 Challenge 3: Truth Claims and Trust in Visual Data and Visual Technologies

The third challenge is a cross-cutting issue that is relevant for both challenges discussed in the previous subsections 3.3.1 and 3.3.2. On a meta-level, the two questions ‘How do we define norms for sharing visual data?’ and ‘How do we define norms for the use of algorithmic tools for analyzing visual data?’, are also intrinsically linked to the roles and the trust we ascribe to visual data and visual technologies. Thus, the question representative of this third challenge central to norms for visual data practices is: *Which role do we ascribe to visual data and visual technologies when we define norms for visual data practices?* Photography has long been bound with ideas about objective seeing and factual representation (Sturken & Cartwright, 2018, p. 25). Images are traditionally believed to provide a form of knowledge, evidence, or proof (Bock, 2016; Ristovska, 2020; Rubinstein & Sluis, 2008). Historically, they were often designated as authentic and immediate representations, and were described as objective ‘eye witnesses’ (Banks, 2013; see for an overview Lobinger & Brantner, 2015; Lobinger, 2012), with a particular “evidential force” (Barthes, 1981, p. 89). People, thus, tend to believe in the authenticity or truth of photography (Messaris, 1997), which is linked to the idea of authenticity as originality (Krämer & Lobinger, 2019). Authenticity is a multifaceted and contested concept. Here it reflects the idea of a ‘real’ and exact, non-altered representation of people, events, and surroundings, as well as the causal connection between a pre-photographic

reality and the photographic image that gives photographs and videos a particular authority (see Krämer & Lobinger, 2019 for an in-depth discussion). Such ideas are substantially challenged by the digitalization of images (Mitchell, 2001) and the advanced possibilities of machine learning and computer vision, as they allow for the alteration of images and creation of photorealistic computer generated images. Computer generated images are difficult to distinguish from digital photographs, even for professional photographers and photo-editors (Lehmuskallio et al., 2019). Against this background, Lehmuskallio and colleagues (2019) stress the significance of visual literacy, which includes skills on how to verify, fact check, and conduct research for the assessment of online visual information sources. So-called ‘deepfakes’ further complicate this task. Additionally, in the light of people’s tendency to trust images, deepfakes raise questions regarding *norms for producing, editing, and sharing visual data*. *Deepfakes* are AI-altered and manipulated video- and audio clips that show individuals “doing and saying things they never did or said” (Diakopoulos & Johnson, 2020, p. 2). Again, we see opportunities and challenges. For example, deepfakes allow filmmakers to add actors into new movies that have died before the commencement or completion of their film project. However, deepfakes are also increasingly used to generate pornographic content by mapping the faces of celebrities and private citizens onto explicit sexual material; commonly known as deepfake pornography (Popova, 2020; van der Nagel, 2020), which can lead to significant emotional, psychological and reputational harm for the respective subjects. Reputational harm is one of the potential harms of deepfakes that Diakopoulos and Johnson (2020) discuss. Through deepfakes there is a misattribution of words and deeds to individuals or groups. Focusing specifically on the context of political elections, they argue that this misattribution may lead to the deception and intimidation of voters who see the deepfakes. As a result of this deception and intimidation, candidates that are the subjects of deepfakes may suffer reputational harm. Furthermore, Diakopoulos and Johnson (2020) argue that deepfakes constitute threats to the electoral integrity, as they may undermine trust in the political candidates or the trust of the people in politics in general, which further underlines the idea that visual literacy skills are essential. Overall, these issues highlight that both

visual literacy skills and normative coordination with respect to desirable rules for the production, editing, and – again – sharing of visual data are essential.

Furthermore, the question of how to define norms for the use of algorithmic analytical tools discussed in section 3.3.2 is inherently linked to the role and qualities actors ascribe to visual data and visual technologies. In recent years, researchers have shown significant biases regarding class, gender, and ethnicity in algorithmic tools for visual analysis. For example, they have shown that racial prejudices are embedded in FRTs and the politics of machine vision, and they have warned us of possible risks such as misidentification (Buolamwini & Gebru, 2018; Crawford, 2019; Crawford & Paglen, 2019). Due to their prevalence and importance, the existence of these prejudices have even been incorporated in artist interventions and political advocacy. For example, in their exhibition titled “Training Humans” (Fondazione Prada, 2019; Crawford & Paglen, 2019), Crawford and Paglen explored underlying classificatory taxonomies in training data sets for automated visual analysis. Specifically, they problematize how technological systems harvest, label, and use images based on highly biased training data and taxonomies. This important academic assessment challenges common industry characterizations of commercial machine vision applications, such as Clarifai, Microsoft Azure Computer Vision, Google Cloud Vision, or Amazon Rekognition, which are characterized as powerful, objective and neutral tools, as I discussed in section 3.2.4. Most importantly, this academic assessment once more stresses that visual data practices raise normative questions and necessitate social coordination about desirable rules for the use of algorithmic tools such as FRTs in which context. In addition, it emphasizes the importance of questioning with what ascribed ‘evidential’ force such tools ought to be used.

3.3.4 Interim Conclusion and Research Implications

Overall, sections 3.2.1-3.2.4 have illustrated that the conditions of *visibility* and *visibility management* have changed alongside the ubiquitous and networked character of visual data practices and visual technologies. Additionally, we discussed that the machine readability of images implies both potentials and risks. These developments, as discussed

in sections 3.3.1-3.3.3, come with ambivalences and important challenges regarding visibility management. In addition, they raise questions on how to balance different priorities of, for example, privacy and security; as well as questions regarding, for example, norms for the sharing of visual data or the use of algorithmic tools for the analysis of visual data.

It is important to note that the developments with respect to visual data practices and visual technologies have not only been discussed in academic work. They have also provoked various controversies in mediated public discourses. For example, ubiquitous practices of taking and sharing images fueled controversies in news media coverage about, for instance, “digital narcissism” (Chamorro-Premuzic, 2014); “dangers of teen sexting” (Lohmann, 2012), “oversharing” (Drury, 2020) or so-called ‘sharenting’ practices, and the question of how much parents should share about their children’s lives (e.g., Focus, 2020). Moreover, emerging policing strategies that use vast amounts of visual data from smartphone cameras, as well as from social media platforms or CCTV surveillance cameras and FRTs, have been hailed as new avenues for fighting crime. But especially FRTs have caused heated debates: FRTs are often celebrated as convenient ways to ensure speedy, customized and secure ‘hands off’ services, as well as for their potentials to safeguard public security. At the same time, they have also fueled public concerns about privacy infringements and an increasingly toxic social atmosphere; FRTs were called the “arsenic in the water of democracy” (Sample, 2019) and “the end of privacy as we know it” (Hill, 2020). This sense of uneasiness keeps growing as applications are increasingly capable of matching photos of random people to their online data and images, and personal identities (Laufer & Meineck, 2020).

Against this background, I argue, it is particularly important to examine the construction of norms for visual data practices in mediated public discourses to understand (a) how actors publicly make sense of visual data practices, (b) how the implications of visual data practices for privacy, data protection, efficiency, security, and other norms and values are discussed and (c) how actors define appropriate or desirable or inappropriate or undesirable visual data practices in different social contexts. This leads to the overarching

research goals and research questions of this dissertation which will be further explained in the next chapter.

4 Overarching Research Goals and Research Questions

So far, we have discussed the key theoretical concepts of norms and mediated public discourses (chapter 2). Then, in chapter 3, I outlined the area of application for the study of norms in the present dissertation. Whilst explicating the area of application, I highlighted why it is particularly relevant to study norms for visual data practices. To this end, I have described (1) the selected developments with respect to visual data practices, visual technologies, and conditions of visibility management; and (2) the normative challenges these developments imply.

In this chapter (chapter 4), I will discuss the relevant gaps in the literature that this dissertation aims to close (section 4.1). Furthermore, I will explain the dissertation's overarching research goals and research questions, which address these gaps and bind the individual studies of this cumulative dissertation together (section 4.2). Finally, I will introduce the three individual articles and their contributions to the main research aim: the examination of the construction of norms for visual data practices in mediated public discourses (section 4.3).

4.1 Discussing the Gap: The Case for the Study of Norms in Mediated Public Discourses

The exemplary headlines cited in section 3.3.4 show that visual data practices not only prompt academic, but also heated public debates. However, despite the academic relevance and public interest, mediated public discourses on visual data practices and, most importantly, the construction of norms for visual data practices in mediated public discourses, have rarely been examined.

In fact, changing visual data practices or new avenues in automated visual analyses and their social and political implications have been reflected in a growing body of literature in visual communication studies and other fields of media and communication research (see chapter 3). Various researchers have also taken up public discourses on visual data practices of private individuals, especially those on sexting (see, e.g., Crofts et al. 2015; Döring, 2014; Hasinoff, 2015; Hasinoff & Shepherd, 2014) or selfies (see, e.g., Burns,

2015; Senft & Baym, 2015; Tiidenberg, 2018; Tomanić Trivundža, 2015). In doing so, previous research has pointed to specific problem definitions in the discourses – such as the sharing of selfies as narcissistic self-presentation or an excessive quantity of shared images – and a focus of criticism mostly on image practices of female teenagers. Furthermore, Eireiner (2020) has provided first explorative qualitative insights into how FRTs were discussed and linguistically framed in media coverage on a FRT pilot project in Berlin. The study showed polarized interpretations that either stress the tools' intelligence and their role for enhancing security or rather dystopian concerns of totalitarian algorithmic control (see for a detailed discussion study 2 presented in chapter 7). Overall, while previous research findings emphasize that mediated public discourses on visual data practices recurrently refer to normative questions of 'appropriate' or 'inappropriate' visual data practices, norms for visual data practices and their constructions have rarely been in the explicit focus of studies.

Furthermore, as will be discussed in greater detail in the empirical studies included in this dissertation (see study 1 presented in chapter 6 and study 2 presented in chapter 7), research on journalistic coverage and public sense-making has generally shed light on discourses regarding digitalization and the internet (e.g., Zeller et al., 2010; Rössler, 2001); artificial intelligence (Brennen et al., 2018; Fischer & Puschmann, 2021; Chuan et al., 2018); big data (e.g., Pentzold & Fischer, 2017); privacy and data protection on social network sites (e.g., Teutsch & Niemann, 2016); and digital privacy and surveillance after the Snowden-revelations (e.g., Lischka, 2017; Möller & Mollen, 2017; Schulze, 2015; Wahl-Jorgensen, Bennett, & Cable, 2017). Yet, studies did not shed light on public sense-making of recent developments concerning visual data practices and visual technologies.

Moreover, we can see reflections of general questions regarding responsibility in digitally networked public spheres, privacy, artificial intelligence (AI), and the normative acceptability of data practices, in *digital media ethics* and *ethics of AI* (e.g., Eberwein et al., 2019; Ess, 2020; Grimm, 2013; Prinzing et al., 2020, Dubber et al., 2020). Yet, studies that examine the *public ethical and normative reasoning* by different actors are missing. In particular, we find little to no studies that shed light on the more concrete level of 'what

ought to be done' and how actors translate abstract ends and values – e.g., privacy, security, efficiency, trust, or responsibility – into more concrete codes of conduct and ideas of (un)desirable practices. Generally, issues of ethics in media and communication research have long been discussed with a focus on professional ethics within the professional fields of journalism and mass-media production. This also applies to the field of visual communication, which has focused its attentions on the professional ethics of photo journalism (see, e.g., M. Mortensen, 2015; T. Mortensen, 2014), and on questions of visual objectivity and truth in light of digital retouching technologies (Becker & Hagaman, 2003; Gross et al., 2003). As new media technologies have blurred the line between production and consumption, media texts and everyday interactions, I align myself with Couldry (2013, p. 40) who argues for the need to broaden this view and to see media ethics as “a modest but effective tool for asking appropriate normative questions about everyday media practice, whether conducted by professionals or by anyone who acts with and through media, including digital media platforms.”

Overall, when looking at the literature, it becomes clear that the ways in which changing visual data practices, as well as their social and political implications, are discussed and framed in mediated public discourses have seldom been examined. Furthermore, the discursive construction of norms for visual data practices remains understudied in media and communication research. As a result, it is unclear how actors publicly envision and construct norms. This certainly holds true for our area of application: visual data practices. Moreover, it reflects a general double-sided gap in media and communication research on (a) norms and (b) on public discourses, which needs to be addressed.

As shown in chapter 2, media and communication research refer to norms in diverse ways. Media and communication research discusses, for example, ‘normativity’ in general (Karmasin et al., 2013; Rothenberger et al., 2017; Geise et al., 2021), as well as norms within specific contexts and domains. Examples of the latter can be found in the studies of professional journalistic norms (e.g., Standaert et al., 2021) and norms of public deliberation (e.g., Maia, 2012; Friess & Eilders, 2015). In addition, research has explored the role of norms as factors for people’s media preferences (e.g., Mahrt, 2010) and the

acceptance and adoption of technology (Venkatesh & Davis, 2000). In general, studies on norms in media and communication research have primarily focused on social marketing campaigns and policy interventions for health-related issues, including their influences on individuals' attitudes and behavior (see, e.g., Chung & Rimal, 2016; Shulman et al., 2017; Geber et al., 2019; Mollen et al., 2010; Rimal & Yilma, 2020). Most relevant in light of this dissertation, however, is an ever-growing body of literature that has given important insights into how people reflect on and negotiate desirable rules for sharing practices and self-disclosure on social media platforms with their peers or their family members (see, e.g., McLaughlin & Vitak, 2012; K. F. Müller & Zillich, 2018; Zillich & Müller, 2019; Venema & Lobinger, 2017). These studies partly address an important gap that Rimal and Yilma (2020) have pointed out:

In much of the social psychology [...], economics [...], and communication [...] literature, theorizing on social norms has been focused almost exclusively in terms of how individuals – as individuals – perceive others' attitudes and behaviors. [...] Apart from the fact that these perceptions are often inaccurate, this conceptualization of social norms as individual perceptions about others' attitudes and behaviors, alas, only tells one side of the story. *By not explicating larger societal-level issues, extant work on social norms has, in essence, missed out on the social aspects of social norms.* (p. 5, emphasis added by R.V.)

Still, one important social aspect of social norms has seldom been examined; how are they negotiated and constructed in mediated public discourses? (Jecker, 2014; A. Schmidt, 2015). Thus, despite the characterization as communication phenomena, a closer look at the communicative emergences and the construction of social norms remains a research desideratum.

Tackling this gap while focusing on visual data practices is paramount. Visual technologies and visual data practices are everchanging and evolving, which has important implications for various aspects of life. For example, it affects how we communicate; build and maintain relationships; interact in public; can express and voice protest; or how law enforcement can ensure public security. These developments also raise questions regarding norms for the sharing visual data; as well as question regarding the use of

algorithmic tools for analyzing visual data (see chapter 3), which require social coordination. This social coordination is needed on the level of social relations and groups, such as families, friends, acquaintances, and colleagues; but also on a broader collective societal level of mediated public discourses. Such coordination is essential to ensure uses of digital (visual) technologies that we, as society, deem desirable, as they cater to the life we want to live in the future. As such, understanding the understudied communicative process of norm negotiations for visual data practices is essential; not only for policy makers, tech companies and scholars, but also for us as a society, as we all experience these changes in everyday life and (implicitly) play a part in these discourses. We know that mediated public discourses play a vital role in the negotiation and communication of norms. Thus, it is essential to examine these discourses if we are to understand norms for visual data practices.

More specifically, it is vital to examine how different actors publicly make sense of visual data practices; how implications for privacy, data protection, efficiency, security, and other norms and values are discussed; and how practices are justified or countered. In addition, it is important to identify and shed light on aspects that remain blind spots in the discourse. As I have detailed in section 2.3, mediated public discourses are important for socialization, for providing orientation as well as the negotiation and circulation of collectively shared meanings (Cobley, 2008). In addition, mediated public discourses constitute a central forum in which social norms and value repertoires are represented and (re)negotiated (Ferree et al., 2002, p. 10; Brosda & Schicha, 2010; Geber & Hefner, 2019; Reichertz, 2008; Silverstone, 2007; van Dijck, 2013). In short, they are a relevant forum for social (normative) coordination and sense-making. This particularly applies to public understandings of media and (digital) technologies, and the ways in which the potentials, social and political implications, and acceptability of media and (digital) technologies are interpreted (Chuan et al., 2019; Fisher, 2010; Lee et al., 2005; Mager & Katzenbach, 2021; Möller, 2017; Neuberger, 2005; Pentzold & Fischer, 2017; D. A. Scheufele & Lewenstein, 2005; Zeller et al., 2010). As argued in section 2.3.2, mediated public discourses play an important role in contesting sociotechnical imaginaries that envision desirable future social lives and order, as well as the role of technology therein. Furthermore, research on

mediated public discourses has recurrently stressed that norms are a central part of public discourses on social problems and political issues, as they are important reasoning and mobilization devices (Gamson & Modigliani, 1989) that can be used to justify political claims and actions (see, e.g., Ferree et al., 2002; van Leeuwen, 2007; van den Daele & Neidhardt, 1996; Peters et al., 2008). As such, norms are important for understanding mediated public discourses on social and political issues and their dynamics (Gamson & Modigliani, 1989; van Leeuwen, 2007). Although this understanding has always been a core interest of media and communication research, analyses on mediated public discourses have seldom explicitly focused on norms.

Overall, the present cumulative dissertation sets out to address the two interrelated gaps. First, there is a gap on the empirical level; there are little to no empirical studies that look at the construction of norms in mediated public discourses, especially when it comes to the construction of norms for visual data practices (gap 1). Secondly, because studies have seldom explicitly examined the construction of norms in mediated public discourses, there is also a gap on the methodological level (gap 2). As will I will show in detail in section 5.1, there are few approaches for the operationalization of norms in mediated public discourses. Especially, approaches that take into account the dynamic and implicit nature of norms are scarce. Thus, analytical frameworks on which the studies in the present dissertation can build are rare and adequate methods for the analysis of norms and their construction in mediated public discourses are missing.

This dissertation addresses the empirical gap, but it is important to highlight that it also fills the methodological gap. This is done with the overall methodological approach for the analysis of norms and their construction in mediated public discourses developed in chapter 5; the qualitative and quantitative study-specific methods used in studies 1 and 2 (see chapters 6 and 7); as well as the methodological framework proposed in study 3 (see chapter 8), which takes into account the important role of visuals and multimodal interplay.

In the following section (4.2), I present the overarching research goals and research questions that address the two gaps and bind the studies of this cumulative dissertation together.

4.2 Addressing the Gap: Research Goals and Research Questions

The overarching research goal in this dissertation is to examine the construction of norms for visual data practices in mediated public discourses. With this aim in mind, this dissertation sets out to fill the research gaps outlined in section 4.1. In order to address these gaps, on a *conceptual level*, this dissertation connects research on norms to theoretical, conceptual, and empirical approaches from media sociology, discourse studies, and research on media governance (see chapter 2). On the *empirical level*, this dissertation will address the empirical gap (gap 1) by means of studies that examine the construction of norms for visual data practices. In addition, in order to address the gap on the *methodological level*, this dissertation introduces a new methodological approach for the study of norms in mediated public discourses (see the methodological framework in chapter 5). Moreover, the individual articles demonstrate how this approach can be used for qualitative and quantitative analyses on the verbal level (study 1 and 2), as well as how it can be applied to examine the construction of norms on the visual and the multimodal level (study 3).

With visual data practices the present dissertation focuses on a particular area of application of norms (see chapter 3). As such, the studies presented in this dissertation shed light on and partake in the important discussions on norms for visual data practices. Overall, I formulate four overarching research questions that allow for the examination and characterization of the construction of norms for visual data practices in mediated public discourses and that link the individual articles.

- (1) *What visual data practices are considered appropriate or desirable?* In more general terms, and on a more abstract level, this first question focuses on the practices we want.

(2) *What visual data practices are considered inappropriate or undesirable?*

Complementing the first question, this second question focuses on practices we reject.

(3) *How do different actors legitimize or contest certain visual data practices?*

The third question operates on the level of reasoning. By looking at legitimizations and contestations, I explore the reasons actors give for licensing or rejecting practices.

In other words, the question guides the exploration of the reasoning given for why we should (not) pursue certain practices. In doing so, we are also able to study which ideas of priorities worth pursuing and values worth protecting actors express.

(4) *Who are the actors in discourses on norms for visual data practices?*

The fourth question focuses on the actor constellation in the discourse and the construction of norms. In more general terms, it focuses on who speaks, who is visible with their standpoints and views, and who is object or addressed as actor who should act.

To answer these overarching research questions, the three studies included in this dissertation have specific research objectives and guiding research questions of their own. By reaching the studies' individual research objectives, the four research questions are answered and the overarching research goal of examining the construction of norms for visual data practices will be achieved. In the following section 4.3, I will further detail the set-up of the three studies and their contributions to this dissertation.

4.3 Filling the Gap: Introduction of the Three Studies

This dissertation and the included three different studies are informed by interdisciplinary work and literature from the fields of visual communication, online communication, human-computer interaction, sociology, social psychology, ethics, criminology, security studies, critical data studies, machine vision, and surveillance studies. With this interdisciplinary perspective, this dissertation integrates different perspectives and conceptual angles with which visual data practices, their implications for visibility management and desirable norms for visual data practices can be approached. For

example, in political and protest communication, the concept of visibility is often closely related to struggles for recognition and attention (Brighenti, 2010). Surveillance studies, in turn, for example, lead the attention to issues of power relations and the possibility to monitor and watch (see, e.g., Monahan & Wood Murakami, 2018; Lyon, 2018, 2015).

While each article pursues a distinct analytical objective and focuses on different issues related to norms for visual data practices, they are all based on a social-constructivist perspective and, thus, conceptualize norms as constructed and contextual. Therefore, I contend that the way in which society makes sense of visual data practices and their possible implications for citizens' everyday life, security policies, surveillance scenarios, and personal rights, is discursively contested and shaped. Moreover, while each study has its study-specific distinct research design and methods, all studies build on the same general methodological considerations for the operationalization of norms that allows us to capture this dynamic contestation and construction (see chapter 5). Furthermore, the qualitative and quantitative approaches for the examination of norms in mediated public discourses complement each other and altogether advance the methods for studying norms in mediated public discourses.

In the following subsections 4.3.1-4.3.3, the three studies included in this cumulative dissertation will be introduced in more detail. Table 1 below provides a first overview of the study set-up; a more detailed overview of the studies is displayed in Table 2 at the end of subsection 4.3.3. In section 4.3.1, study 1 is introduced. Study 1, presented in chapter 6, is a qualitative study on legitimizations and contestations of visual data practices after the 2017 G20 summit in Hamburg. In subsection 4.3.2, study 2 is introduced. This second study, presented in chapter 7 of this dissertation, is a comparative quantitative study on frames and the construction of norms in news media discourse on facial recognition tools. Finally, in subsection 4.3.3, study 3 is introduced. This third study, included in chapter 8, presents an analytical framework for the visual and multimodal analysis of norms in news media discourses.

Study 1: Qualitative study on legitimizations and contestations of visual data practices after the 2017 G20 summit in Hamburg	Study 2: Comparative quantitative study on frames and the construction of norms in news media discourse on facial recognition tools
<div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p>Examining the construction of norms for visual data practices in mediated public discourses:</p> <ul style="list-style-type: none"> - What visual data practices are considered appropriate or desirable? - What visual data practices are considered inappropriate or undesirable? - How do different actors legitimize or contest certain visual data practices? - Who are the actors in discourses on norm for visual data practices? </div> <p>Study 3: Methodological study developing a framework for a qualitative multimodal content analysis of normative statements in news media discourses</p>	

Table 1: Study set-up

4.3.1 Introduction to Study 1

Study 1 (chapter 6), entitled *How to govern visibility?: Legitimizations and contestations of visual data practices after the 2017 G20 summit in Hamburg*, addresses the overarching research questions by means of a qualitative case study on a highly controversial event in Germany. Conceptually, the paper focuses on how visual data practices shift surveillance constellations. Empirically, the study is based on a qualitative content analysis of a diverse data corpus, which includes newspaper articles, tweets, experts' reports, minutes of parliamentary debates, and committee hearings. In terms of the overall research aims, the study provides relevant qualitative insights. Firstly, the study provides insights into the ways in which visual data was collected, managed, analyzed, and shared by various actors in the context of the 2017 G20 summit. Secondly, the study explores and systematizes how different actors legitimized and contested visual data practices.

Thus, overall, the study provides in-depth insights into event-related discourses on norms for visual data practices in a specific national context where actors and discourses are known to be particularly concerned about privacy issues (see, e.g., Möller & Mollen, 2017; Teutsch & Niemann, 2016). With these insights, study 1 offers an important basis for

further studies on the construction of norms for visual data practices. It is a baseline against which practices that are considered appropriate and desirable, or inappropriate and undesirable, can be compared. In addition, it sets a baseline against which legitimizations and contestations of practices, as well as actor constellations (i.e. who speaks, who is the object, or who is addressed), in other cases can be compared. On the level of methods, study 1 demonstrates how the construction of norms in mediated public discourses can be examined within a qualitative in-depth analysis. Furthermore, study 1's qualitative findings and in-depth descriptions of legitimizations and contestations of visual data practices provide an important basis for the development of the quantitative coding scheme in study 2 of the present dissertation (see chapter 7 and see the codebook for study 2 in the appendix of this dissertation).

4.3.2 Introduction to Study 2

Study 2 (chapter 7), entitled '*Straight out of 1984? Frames and the construction of norms in news media discourse on facial recognition tools in Germany, Ireland, Italy, Switzerland, and the UK*', simultaneously focalizes and broadens the research on constructions of norm for visual data practices presented in study 1. It focalizes the perspective by specifically following up on the topic of facial recognition. Facial recognition was not only a key issue in mediated public debates on visual data practices in the context of the G20-police investigations; recently it has also emerged as an important international 'hot topic' in discussions on artificial intelligence, algorithmic data collection and decision-making processes, ethics, and norms (see chapter 3). At the same time, the study broadens the research on constructions of norms by employing a cross-national quantitative comparative design. Study 2 explores national as well as overarching transnational patterns in the discourse on FRTs and the construction of norms. The study examines how the use of facial recognition is described and framed, and how different actors legitimize and contest its use in news media coverage on facial recognition tools in five European countries with different security and surveillance traditions, as well as different attitudes towards surveillance, privacy, and the use of biometric data. Furthermore, with a sample that encompasses different political perspectives and

readerships, study 2 provides insights into general patterns in the discourse on FRTs. In addition, it can also show which aspects are prioritized depending on newspapers' political orientation.

Overall, the study is based on a quantitative content analysis of print and online news articles from 15 high circulation newspapers in the time frame from 2013-2019. The analysis of norms for visual data practices and their construction in this study specifically relates to research from critical data and algorithm studies. It contextualizes discourses on FRTs within the broader body of research on news media coverage on CCTV, surveillance and digital privacy, and AI. On the level of methods, study 2 shows how norms can be operationalized within a quantitative comparative research design that is based on a quantitative content analysis and cluster analyses. As such, study 2 further advances methods for studying norms in mediated public discourses and also shows how elements of normative statements can be functionally integrated in the analysis of frames.

4.3.3 Introduction to Study 3

Study 3 (chapter 8), entitled *Analyzing norms in multimodal news media discourses: An analytical framework*, stresses that, hitherto, research on the role of visuals and the multimodal interplay in the construction of norms in mediated public discourses is particularly scarce. Study 3 addresses this gap in the literature and presents an analytical framework that provides guidance for (1) the examination of normative statements on the verbal and the visual level individually, and (2) for discerning particular image-text relations in the construction of norms. By doing so, the approach allows for the identification of mode-specific contributions, as well as multimodal interplays. In this regard, the article demonstrates how the expertise of visual communication research and visual theory can make an important contribution to the study of norms and their construction in mediated public discourses. The analytical framework builds on previous knowledge regarding the visual expressions of evaluations and normative ideas, as well as on multimodal argumentation studies. The suggested procedure and specific image-text relations in the multimodal interplay in the construction of norms are illustrated with the

help of two exemplary articles from German and Swiss-German news media discourse on everyday practices of taking and sharing photographs. Thus, study 3 presents a special take on visuals and their use; images are examined in a double-role. More specifically, in study 3 they are discussed as elements in multimodal construction of norms and as objects of discourse.

Overall, the framework presented in study 3 can guide the necessary future research on the multimodal construction of norms in mediated public discourses. As such, within the overall set-up of this cumulative dissertation, study 3 further adds on the methodological considerations and the qualitative and quantitative methods presented in study 1 and 2. Whilst study 1 and study 2 helped with the examination of the construction of norms on the verbal level; study 3 presents additional ways to empirically analyze the visual and multimodal construction of norms. In doing so, study 3 also demonstrates how we can address one of the limitations of study 2; i.e. the focus on frames and the construction of norms on the verbal level, without including the role of visuals and multimodal interplay.

Summarizing this study overview, Table 2 provides an overview of the studies, their research questions, the different data sources, and their main contribution for this cumulative dissertation and the study of norms for visual data practices.

Study	Research questions of the individual study	Data sources & methods	Contribution within the dissertation
Study 1: How to govern visibility?: Legitimizations and contestations of visual data practices after the 2017 G20 summit in Hamburg	<p>(1) What information about how visual data are collected, analyzed, and distributed in the G20 investigations is publicly available?</p> <p>(2) How did different actors in media and political debates legitimize or contest visual data practices?</p>	<p>Diverse data set including regional and national news media coverage in Germany, tweets, expert reports, minutes of parliamentary debates & committee hearings</p> <p>Qualitative content analysis</p>	<p>Qualitative case study with a focus on discourses on visual data practices in the context of a specific national event</p> <p>In-depth insights into and systematization of legitimizations and contestations of various interrelated visual data practices</p>
Study 2: 'Straight out of 1984?' Frames and the construction of norms in news media discourse on facial recognition tools in Germany, Ireland, Italy, Switzerland, and the UK	<p>(1) Which particular frames can be identified in news media discourse on FRTs, and which desirable norms for FRT usage are constructed within these frames?</p> <p>(2) Are there differences with respect to the framing and the construction of norms in the different countries?</p>	<p>Print and online articles on FRTs in 15 high circulation newspapers in 5 European countries in the timeframe from 2013-2019</p> <p>Quantitative content analysis</p>	<p>Quantitative, comparative study on the construction of norms and developments over time</p> <p>Focus on FRTs as a core topic when it comes to normative challenges related to visual data practices</p> <p>National as well as overarching transnational patterns in the discourse on FRTs and the construction of norms</p>
Study 3: Analyzing norms in multimodal news media discourses: An analytical framework	<p>Guiding methodological question:</p> <p>How can we analyze the multimodal construction of norms in news media discourses?</p>	<p>Two exemplary articles stemming from German and Swiss-German news media discourse on visual data practices</p> <p>Qualitative content analysis on the visual & verbal level</p>	<p>Synthesizes previous knowledge regarding the visual expressions of evaluations and normative ideas</p> <p>Suggests an analytical framework for a qualitative multimodal content analysis of normative statements in news media discourses that provides guidance for (1) examining normative statements on the verbal and the visual level individually and (2) for discerning particular image-text relations in the construction of norms</p>

Table 2: Overview: Individual studies and their contributions

5 How to Study Norms Empirically

This dissertation aims to fill the gaps discussed in section 4.1 by studying the construction of norms for visual data practices by means of empirical research. In addition, the studies in this dissertation introduce new qualitative and quantitative methods for the study of norms in mediated public discourses. In this chapter, I detail how the general methodological approach for analyzing norms and their construction in mediated public discourses, as used in the present dissertation, was developed. Furthermore, this chapter provides the basis for the distinct qualitative and quantitative methodological designs of the three studies presented in chapters 6-8.

The chapter is structured as follows: in section 5.1, I will first discuss the existing methodological approaches to the study of norms from a media and communication perspective. Here, I highlight the strengths of these approaches and how they can be adopted or adapted for the studies presented in this dissertation, as well as their problems and how the studies presented in this dissertation aim to address these problems. In section 5.2, a framework for the analysis of norms in mediated public discourses is presented and discussed. To that end, subsection 5.2.1 discusses how elements of normative statements may be identified; subsection 5.2.2 presents how we can identify evaluations of practices in discourses; and subsection 5.2.3 discusses the identification of acts of legitimization and contestation.

At this point, a couple of things should be clarified. Firstly, it should be noted that empirical analysis of norms is very heterogenic (Hechter & Opp, 2001; Horne, 2001; Riesmeyer et al., 2016; A. Schmidt, 2015; Shulman et al., 2017; Zillich et al., 2016). Therefore, the aim of the chapter is twofold. First, it details existing empirical approaches in media and communication research for the analysis of norms or the related concepts of values and morality in mediated public discourses. Second, it explains how the framework for operationalizing and analyzing norms in this dissertation was designed based on the interdisciplinary research literature from framing research, critical discourse studies and political claim analysis. Finally, it is important to note, from the outset, that the overall framework presented in this chapter focuses on the analysis of norms and normative claims

on the verbal level. Study 3 presented in chapter 8 will then further elaborate on a visual and multimodal analysis of norms in mediated public discourses.

5.1 Existing Approaches

Studies on norms in media and communication research often stem from health communication and social marketing (see, e.g., Schultz et al., 2007). These studies generally focus on health-related issues or risk behavior (Mollen et al., 2010), including alcohol use (Real & Rimal, 2007; Yanovitzky & Stryker, 2001), smoking and diet behaviors (see for an overview Shulman et al., 2017)¹¹. They mainly explore the impact of social norms on thoughts and behaviors and rely on social behavioral theories, such as the theory of reasoned action and the theory of planned behavior (Ajzen, 1991; for an overview see Montaña & Kasprzyk, 2015); or, more prominently, the theory of normative social behavior (Real & Rimal, 2007; Rimal & Real, 2005; Geber et al., 2019; Geber & Hefner, 2019). Based on their meta-analysis of quantitative research on norms in the field of communication research, Shulman and colleagues (Shulman et al., 2017, p. 1204) state that this stream of research on social norms research is unequivocally dominated by cross-sectional surveys and questionnaires (see also Mollen et al., 2010 for similar results on norms published in the journal *Health Communication*). The measurement of both descriptive and injunctive norms is thus generally based on self-reported practices and perceptions by participants of studies. Specifically, respondents are asked about the perceived prevalence of the behavior among a reference group in order to measure descriptive norms, as well as the perceived reference group's attitudes and the respondents' perceptions of the social acceptability of certain practices, whereby injunctive norms are measured (see, e.g., Elmore et al., 2017; Geber et al., 2019; Real &

¹¹ Shulman et al. (2017) provide a meta-analysis of 821 quantitative, anglophone studies. They include studies that (1) employ social norms as a primary construct and (2) focus on the individual level of analysis and a measured outcome (dependent variable), such as participant attitude, belief, behavioral intention, or behavior. The analysis conducted by Shulman and colleagues focused on topics, theories, types of norms, outcomes associated with social norms, and samples of the studies.

Rimal, 2007; Rimal & Real, 2005). Studies that test the effects of media exposure on norm perceptions either do so with questionnaires or in an experimental setting (e.g., Romer et al., 2017). As a result, generally, these studies and their methodological designs focus on individual-level perceived norms and a measured outcome, such as a respondent's attitude, belief, behavioral intention or behavior as dependent variable.

In addition to these, often quantitative, survey studies, a growing body of studies has explored norms concerning sharing practices and self-disclosure on social media platforms by means of qualitative group discussions (e.g., McLaughlin & Vitak, 2012; K. F. Müller & Zillich, 2018; Zillich & Müller, 2019); qualitative focus-groups; and single- or pair interviews (e.g., Uski & Lampinen, 2016; Venema & Lobinger, 2017). Often, participants in such studies are asked to describe their own typical use of social media platforms and which images or other contents they typically share on these platforms. Additionally, they are asked to describe the typical use and practices of referent others; to compare their own use with the use of these referent others; and to describe practices they think are deemed appropriate by others. Subsequent qualitative content analyses then serve to unpack norms by examining, for example, how interviewees commented on their own practices and the practices of others, as well as the expressed expectations of how one should behave (K. F. Müller & Zillich, 2018; Uski & Lampinen, 2016; Venema & Lobinger, 2017; Zillich & Müller, 2019).

Overall, both these quantitative and qualitative approaches examine norms by referring to (perceived) prevalence of a practice, evaluations and ascribed legitimacy by respondents. The approaches thereby provide valuable insights into what people perceive as normal and prevalent behavior in a reference group (descriptive norms); what they evaluate and expect to be appropriate; and whether actions are perceived as socially accepted in a reference group (injunctive norms). For the research aim of examining the construction of norms in mediated public discourses, these approaches are particularly instructive; they show a way to identify injunctive norms (i.e. by focusing on evaluations of practices). This aspect will also be used to address the existing methodological gap. Yet, overall, there are few approaches and instruments for the empirical analysis of norms in mediated public

discourses (A. Schmidt, 2015); thus analytical frameworks on which the studies in the present dissertation can build are scarce. This is a relevant methodological gap (see section 4.1). Gibson and colleagues (Gibson et al., 2019) took mediated public discourses into account and analyzed tobacco and e-cigarette related population- and individual norm-mentions in news media coverage and on social media. Yet, they solely focused on descriptive norm information. As such, their study provides valuable insights into what is described as prevalent uses, but does not provide approaches for the operationalization of injunctive norms (i.e. assumptions regarding (in)appropriate or (un)desirable codes of conduct and practices), which is what the present dissertation focuses on. Consequently, the operationalization and methods Gibson and colleagues offer are not functional for the studies in the present dissertation. As a result, the methodological gap in the form of a framework that can be used for analysis of injunctive norms in mediated public discourses remains to be filled.

One area of research in which norms are often not explicitly addressed, but where normative, moral, and evaluative aspects in mediated public discourses generally play a central role is *framing research*. Therefore, in the following, I will further detail existing methodological approaches to the study of normative, moral, and evaluative aspects in framing research.

Framing is one of the most popular areas of research for scholars in media and communication research as well as in the social sciences in general (see, e.g., Matthes, 2007, 2009; Cacciatore et al., 2016; Lecheler & de Vreese, 2019). Normative and evaluative aspects are key, as framing studies typically examine issues that embody a conflict between values (Nelson et al., 2015), or specifically focus on values or morality as frames that impact audiences' political judgement and reasoning (see, e.g., Ball-Rokeach et al., 1990; Shah et al., 2001; Shen & Edwards, 2005). Moreover, moral interpretations are one of the frame elements in Entman's (1993) seminal definition of framing:

To frame is to select some aspects of a perceived reality and make them more salient in a communicating context, in such way as to promote a particular problem

definition, causal interpretation, *moral interpretation*, and/or treatment recommendation for the item described. (p. 52; emphasis added)

However, this evaluative dimension is often not clearly operationalized in framing studies that build on Entman's definition (Jecker, 2014; Matthes, 2007). Consequently, A. Schmidt (2015) even claims that the integration of normative concepts in framing analyses is theoretically and methodologically underspecified.

Not all framing studies draw on Entman's definition of framing (see, e.g., Matthes, 2007; Matthes & Kohring, 2008). Several framing studies specifically focus on *value frames* and the role of values in framing processes. Existing approaches on value framing often either focus on values that are ex-ante defined and explicitly stated in news media coverage and other texts; or focus on morality and ethics as generic frame that cuts across different issues. For example, in their study on journalistic presentations of parties' value horizons, B. Scheufele and Engelmann (2013) examined pre-defined values by distinguishing between universal values that are applicable to each policy area (e.g., freedom) and values specific to each policy area (e.g., environmental sustainability; see B. Scheufele & Engelmann, 2013, p. 539, for an overview of coded values). B. Scheufele and Engelmann speak of value frames when political and social values serve as frames of reference for policy fields, political actors, or processes. In their conceptualization of value frames, values form the core around which the elements of frames (i.e. problem definitions, cause attributions, or solutions to problems) are organized (B. Scheufele & Engelmann, 2013, p. 536). Teutsch and Niemann (2016) use a similar conception of value frames. In their study they qualitatively extract and then quantify three holistic value frames (i.e. informational self-determination, security, and psychosocial need satisfaction) in German media coverage on privacy and data protection on social network sites. Furthermore, other studies in framing research have focused on *morality* as a generic basic frame in news media coverage (Dahinden, 2006; Neuman et al., 1992; Nisbet, 2009, 2010; Semetko & Valkenburg, 2000). Semetko and Valkenburg (2000), for example, examined morality as one of five deductively defined frames in news media coverage (i.e. human interest, conflict, morality, attribution of responsibility, and economic consequence). With respect to morality, their guiding questions for coding were: "Does the story contain any moral

message?"; "Does the story make reference to morality, God, and other religious tenets?"; "Does the story offer specific social prescriptions about how to behave?" (Semetko & Valkenburg, 2000, p. 100). In his studies on framing of science and climate change, Nisbet (2009, 2010) in turn, identified eight general frames. In his conceptualization of frames, each frame is a general organizing idea for arguments and interpretations. More specifically, each general frame is neutral in its valence, meaning that the frame can express pro, anti, and neutral positions (Nisbet, 2009). Thus, the "morality and ethics" frame is operationalized as a definition of an issue "as a matter of right or wrong; or of respect or disrespect for limits, thresholds, or boundaries" (Nisbet, 2010, p. 46).

This brief overview shows that existing approaches in framing research often lack a clear operationalization of the normative dimension of frames. Study 2, presented in chapter 7 of this dissertation, will show a way to address this issue and to specify evaluations and normative elements in frames. Furthermore, this brief overview shows that existing approaches in framing studies seldom go beyond the mere diagnosis that a topic is framed as an issue of morality; or beyond the analysis of ex-ante defined and explicitly stated values in news media coverage and other texts. They thus seldom allow for the unveiling of more implicitly expressed normative claims (A. Schmidt, 2015; Zillich et al., 2016; Jecker, 2014). This is relevant, since, as outlined in the discussion of conceptualizations of norms in chapter 2, definitions of norms recurrently stress their dynamic negotiation and their often rather implicit nature. Yet, for the examination of these dynamic negotiations in mediated public discourses, framing research offers an important instructive approach. Based on Entman's definition, Matthes and Kohring (2004, 2008), suggested the following. First, they suggested that we understand a frame as a certain pattern in a given text or across texts that is composed of several elements. Second, they suggested that we understand each frame element as consisting of several content analytical variables. Specific patterns of elements that systematically group together in a specific way across different texts or statements are then defined as frames. This approach is instructive as it also helps operationalize the complex construct of norms for content analyses. This idea also resonates with the important approach by Zillich and colleagues (Zillich et al., 2016; Geise et al., 2021).

In their research, Zillich and colleagues examine the normativity of communication studies and how academic authors express normative ideas in their journal articles. However, most importantly for the present dissertation, they present an approach that can be used to translate the concept of norms into categories for content analysis and show us how to take the dynamic and implicit nature of norms into account. They measure normativity with the help of normative claims and the concrete calls for action articulated in such claims. They also code the *content*, the *addressed subject* and *object*, as well as *calls of action* in each normative claim.

Following up on their approach and the approach for operationalizing media frames (Matthes, 2007; Matthes & Kohring, 2004, 2008), I suggest the following: (1) to code on the statement level, and (2) to dissect the complex construct of norms into normative statements with distinct elements, by which we are able to capture more implicitly expressed normative claims in mediated public discourses as well. In the following section 5.2, I further detail these methodological statements, resulting in the framework for analysis.

5.2 Analyzing Norms in Mediated Public Discourses: A Framework

As outlined in chapter 2, norms can be described (1) as behavioral regularities – what people generally do (i.e.) descriptive norms – and (2) as assumptions of what people should do (i.e. injunctive norms). In this second, injunctive sense, norms are also specific evaluations of practices and claims (Detel, 2007, p. 63; see also Luckmann, 1995 on acts of evaluation and moral communication) that define practices as acceptable or unacceptable; or that express the expectation that something should or should not be done in a given circumstance (Bicchieri, 2017; Esser, 2000; Homans, 1974; Stemmer, 2008). These aspects – i.e. norms as forms of evaluations of practices and of expectations about how to act – are used for the analysis of norms in the present dissertation. These characteristics are useful as they allow us to dissect the complex construct of norms into normative statements with distinct elements (i.e. elements that can be translated into specific variables for content analysis (see table 3)). In short, based on these characteristics

I use the term *normative statements* for actor statements that provide evaluations and define particular practices as (un)desirable or (in)appropriate. Recurring patterns of these normative statements are then identified as norms.

The suggestion to code on the statement level and to dissect the complex construct of norms into normative statements with distinct elements also resonates with operationalizations of media frames (Matthes, 2007; Matthes & Kohring, 2004, 2008); the procedure of political claims analysis (Koopmans & Statham, 2010); and the analysis of evaluative statements, as suggested by Wilke and Reinemann (2000). This strategy of coding on the level of statements simplifies the operationalization and ensures a way of qualitative and quantitative coding that is as researcher-independent as possible. Moreover, this approach allows both for the analysis of normative claims as a specific and meaningful interplay of statement elements (see table 3), as well as the individual examination of different elements. In this way, the framework also allows for the identification of *actors* – i.e. the actor(s) that speak, evaluate, contest, or legitimize – as well as the *evaluated practices* and *evaluated or addressed actors* – i.e. the actor(s) and aspects that are the reference point of normative statements – in mediated public discourses on visual data practices. As the elements are coded separately, they can be analyzed both separately and in their interplay (e.g., by means of cluster analyses; see study 2). Furthermore, the differentiation of objects of evaluation also allows us to differentiate between the various levels in which norms come into play (e.g. contents, practices of dissemination, overarching informational or communicative norms; see section 2.1). In the following subsection 5.2.1, I further detail elements of normative statements.

5.2.1 Elements of Normative Statements

For the purpose of this dissertation, the term *normative statements* designates *statements that contain positive, negative, or ambivalent evaluations of particular practices that express how something should, may, or must be done, as well as what should not be done*. Furthermore, they can – but not necessarily need to – refer to particular actors as evaluated

or addressed actors; entail concrete recommendations for actions that provide guidance or recommendations regarding how actors should act, either now or in the future; or give reasons for evaluations. Overall, I propose the inclusion of the following elements and guiding questions for the analysis of normative statements (see table 3). This general framework can be used and adjusted in both qualitative and quantitative research designs as the individual articles demonstrate (see chapter 6-8). It is important to note that not all normative statements necessarily include every single element (see, similarly the distinction of explicit and implicit frames by Matthes, 2007, p. 138).

Element	Guiding question
Subject – actor	Who evaluates, claims?
Object – evaluated actor	Who/whose action is evaluated?
Aspect/object – evaluated practice	What / which practice is evaluated?
Evaluative tone	How is the evaluative tone?
Content/subject matter – (un)desirable, (in)appropriate practice, recommendations	What should (not) be done?
Reasoning – legitimization(s)/contestation(s)	For which reasons should something (not) be done?
Addressee	Who is addressed? Who should act?

Table 3: Elements of normative statements

The coding unit of a normative statement is defined according to semantic criteria. In this definition a statement is generally defined as a semantic unit of meaning that includes all instances and any number of passages in which one and the same actor expresses a view on a given topic (see for a similar approach Wozniak et al., 2015). Actors can be journalists expressing their own points of view, as well as any individual or collective actor whose evaluative standpoints are directly or indirectly quoted. For the analysis of normative statements with respect to visual data practices this means that an actor statement includes all instances in an article where one and the same actor refers to visual data practices. More specifically, it includes all instances where they describe and evaluate visual data practices in a positive, negative, or ambivalent way; legitimize or contest particular visual data practices; or give recommendations for action. Elements of such statements are not

necessarily part of the same sentence or a predefined section; they can also be ‘scattered’ throughout an article or interview.

Following Zillich and colleagues (Zillich et al., 2016; Riesmeyer et al., 2016; Geise et al., 2021), as well as Jünger and Donges (2013), I propose to use the evaluative dimension of normative statements (i.e. the characteristic of norms as forms of evaluations of practices) as a starting point for the identification and empirical analysis of norms. Thus, the identification of evaluations is the first step in the qualitative or quantitative coding process.

In the following subsection 5.2.2, I detail how evaluations can be identified. After, I will further expand on the analysis of legitimizations and contestations, which helps with the identification of expectations, i.e. ideas of (in)appropriate or (un)desirable practices, in subsection 5.2.3.

5.2.2 Identifying Evaluations

Evaluative categories are a key challenge in content analyses (Rössler, 2010). In their discussion on normativity in theories on public spheres, Jünger and Donges (2013) identify indicators for evaluative statements that are also used as indicators in the present dissertation. In short, *explicit evaluations; demands* and related *expectations*; as well as *recommendations for action* can be identified with the help of *modal verbs* (such as ‘can’, ‘may’, ‘will’, ‘must,’ and ‘shall’), as well as *prescriptive phrases* and *desiderative phrases* (such as ‘it should be done’ or ‘it is required that’).

While these indicators can serve to initially identify the existence of an evaluation, four additional ways in which actors can express evaluations – i.e. adjectives and adverbs, figures of speech, or descriptions of potentials or risks – can help us further specify evaluations and give us more concrete insights into how practices and actors are described. First, evaluations can be expressed through *adjectives* and *adverbs*, such as ‘good,’ ‘bad,’ ‘valuable,’ ‘helpful,’ ‘carefully,’ ‘fortunately,’ ‘fun,’ ‘alarming,’ ‘creeping,’ ‘scary,’ or ‘problematic.’ The functions of adjectives are (a) to describe the qualities or states of being of nouns or (b) to designate the quantity of nouns. Therefore, they are indicators of

evaluations of people (i.e. actors/groups of actors) and objects. Adverbs describe the ways in which actions happen. As such, they are important indicators of evaluations of practices. Secondly, evaluations can also be expressed through, for example, different choices of language use, including *metaphors* and other types of figures of speech. Theoretical and empirical studies have emphasized the role of metaphors as crucial narrative tools in argumentation strategies and the popularization of knowledge (Charteris-Black, 2011; Lakoff & Johnson, 1980; van Dijk, 1997; van Leeuwen & Wodak, 1999). More specifically, they have shown the important role metaphors play in the process of making sense of abstract and complex phenomena such as digital technologies (see, e.g., Portmess & Tower, 2015; Puschmann & Burgess, 2014; Wilken, 2013). Examples of such metaphors are phrases, such as, “mass invasion of privacy” or “Big Brother scenarios,” which actors use to express concerns with facial recognition tools. Another example would be metaphors referring to diseases and natural disasters, for example, when actors talk about “digital exhibitionism,” “vanity excesses,” or the “flood” of images when referring to everyday practices of image sharing on social media platforms. Here, the choice of words suggests that taking or sharing images, as well as the frequency of this practice, is considered problematic. Research of media panics (see chapter 2.3.3) offers further indicators. Drotner (1999, p. 615) has stressed that on the linguistic level, media panics are characterized by a “panic language,” often deploying symbolic registers of food (“poison,” “insipid fruit”), hygiene/health (“pollute,” “disease”), and sexuality (“licentious,” “indecent,” “seduction,” “promiscuity”). The list of indicators and signal words provided here is of course not exhaustive; instead, the list has an illustrative function. Nor can such signal words be used as sole indicators, since the specific expressions might vary depending on the specific discourse topic. As such, they should be seen as only the “tip of the iceberg” of norms and value concepts (van Leeuwen, 2007, p. 97). However, such signal words do provide us with an important orientation in the coding process. They are relevant ways in which normative ideas can be expressed and are valuable for the identification of normative statements. Beyond adjectives, adverbs, and figures of speech, actors can suggest evaluations by underlining either potentials or risks of visual data practices. Thus, thirdly, a positive evaluation can be suggested when an actor

emphasizes the potentials and advantages of FRT or the opportunities that photo sharing practices might have for maintaining long distance relationships, without particular striking adjectives, adverbs, or metaphors. On the other hand, an actor can also foreground risks and potential negative implications, whereby a negative evaluation is given. We can find examples of this when actors stress that children might be embarrassed to see their images shared on social media platforms or when they stress that the use of FRTs can lead to the tracking of people and their movements. Therefore, such negative evaluations are the fourth identified way in which actors can express evaluations.

Beyond evaluative tendencies, the proposed framework also includes *the level of reasoning*, which refers to the ways in which actors legitimize and contest particular practices, hence the reasons they give for particular evaluations. By looking at legitimizations and contestations, the proposed framework also allows us to further specify the ideas actors have of practices they deem appropriate or inappropriate, as well as their underlying assumptions of priorities worth pursuing.

5.2.3 Legitimacy, Legitimization, and Contestation

According to Suchman (1995), legitimacy “is a generalised perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions” (p. 574). Legitimacy is never a definitively acquired status, but constantly open to challenge and dependent on social perceptions and attributions (Rosanvallon, 2011, p. 7). Following Reyes (2011) and Peters and colleagues (Peters et al., 2008), I define the process of legitimization as the act of providing justification for social actions, ideas, thoughts, declarations, evaluations etc. In addition, in this view, the act of legitimizing or justifying is related to a goal, for which the actor, in most cases, seeks support and approval. As such, for the present dissertation, legitimizations are defined as those parts of actor statements that justify, accredit, or license a practice (see also van Leeuwen, 2007). Hence, legitimizations are the reasons that are employed by an actor to argue why visual data practices are acceptable, adequate, or even favorable. Such legitimizations can be identified when, for example, in the case

of visual data practices, actors claim that the use of facial recognition tools is necessary to fight terrorism. Contestations, in turn, are acts of problematizing, disapproving, or opposing practices¹². Contestations can be identified when actors give reasons for why they consider practices – for the present dissertation visual data practices – problematic, risky, unfair, or illegal. Moreover, contestations can also be identified when actors refer to negative implications of visual data practices, such as infringements of personal rights.

From a critical discourse study (CDS) perspective, van Leeuwen (2007, p. 92) presented a framework for the analysis of the language of legitimization, which is also used in the present dissertation. For his concept of legitimization¹³ he refers to Berger and Luckmann (1966):

Legitimation provides the ‘explanations’ and justifications of the salient elements of the institutional tradition. (It) ‘explains’ the institutional order by ascribing cognitive validity to its objectivated meanings and [...] justifies the institutional order by giving a normative dignity to its practical imperatives. (p. 111)

¹² This conceptualization and analysis of legitimizations and contestations based on the categories established by van Leeuwen (2007) allows a fruitful and pragmatic way to examine and specify these important elements of normative statements. For a more detailed and in-depth analysis of legitimizations and contestations a link to argumentation studies would be necessary and fruitful. For example, approaches such as the Argumentum Model of Topics (see Rigotti & Greco, 2019; Rigotti & Greco Morasso, 2010; Greco Morasso, 2012) would allow us to further detail argumentative inferences and micro-argumentative moves in actor statements. Moreover, the framework presented here can be elaborated with insights from the pragma-dialectical approach to argumentation (see for an overview van Eemeren, 2018). This would help us to investigate argumentation structures and argument schemes and thus to specify if or how arguments work together, and how e.g. symptomatic, causal, pragmatic, or analogical argumentation comes into play in the discourses. Thus, taking on a more argumentation theoretical approach in future research and follow-up studies would help us to further detail how actors justify, accredit, or license, as well as contest, practices in mediated public discourses.

¹³ Van Leeuwen (2007) and Bergmann and Luckmann (1966) use the term “legitimation”. Sometimes these terms are used interchangeable. Yet, I rather use ‘legitimization’ to emphasize the *process* and act of legitimizing, justifying, and licensing a practice.

Van Leeuwen (2007) distinguishes *four major categories of legitimization* that can occur separately or together (see also van Leeuwen & Wodak, 1999): (1) *authorization*, (2) *moral evaluation*, (3) *rationalization*, and (4) *mythopoesis*. Van Leeuwen (2007) stresses that these categories are diverse modes that actors can employ separately or in combination in order to legitimize, but also de-legitimize and to critique a given practice or standpoint “by answering the questions ‘Why should we do this?’ and ‘Why should we do this in this way?’”(pp. 92–93). As such, for the framework for analyzing normative statements, all these categories can be used to specify (un)desirable or (in)appropriate practices by giving reasons for an evaluation and why something should (not) be done. Van Leeuwen (2007) defines his categories as follows. *Authorization* is legitimization by reference to the authority of tradition, custom, and law, and/or of persons with personal or institutional authority. A practice is then legitimized by referring to the fact that it is approved or demanded by people with expert authority or a high social status, as well as statements such as ‘because the law says so’ or ‘because everybody does or did so’. *Moral evaluation* is legitimization by reference to value systems. Here, a legitimization is implicitly linked to specific discourses of moral value. This can be done by means of adjectives, such as ‘healthy,’ ‘normal,’ ‘natural;’ by abstractions; and by comparing a practice to another activity that is associated with positive or negative values. *Rationalization*, is legitimization by reference to the goals and uses of institutionalized social action. This includes, for example, instrumental rationality when practices are legitimized by means of reference to their goals, uses, and important effects; as well as references to theoretical definitions, experiences, or scientific knowledge. Finally, *mythopoesis*, in van Leeuwen’s (2007) definition, is “legitimation conveyed through narratives whose outcomes reward legitimate actions and punish non-legitimate actions” (p. 92). Here, legitimization is achieved through the storytelling of tales in which protagonists are either rewarded for engaging in or restoring the legitimate order, or tales that convey and caution what happens in case of deviance. Schulze (2015) has adopted and extended this scheme to provide a framework for the study of surveillance legitimizing strategies in scandal discourses. For the example of the German discourse on the NSA scandal, Schulze analyzed rhetorical strategies used to maintain or repair the legitimacy of surveillance practices. Schulze

included, for example, singularity or legitimization through security and securitization, by which he built on the constructivist international relations scholars Buzan and Wæver (2003). Studies on securitization explore the social construction of security and how actors construct threats and transform issues in a matter of security (Buzan et al., 1998). Overall, these approaches and categories are important for the studies in the present dissertation because they help identify and systematize legitimizations and contestations with respect to visual data practices. Study 1 (chapter 6) in particular adds to these important works by van Leeuwen (2007) and Schulze (2015), by providing qualitative insights into the ways in which these categories and forms of (de)legitimization come into play in the construction of norms for visual data practices.

Overall, this chapter discussed how norms and their construction in mediated public discourses can be examined empirically. It is important to note that for the individual studies (see chapters 6-8), I suggest coding norms on the statement level by dissecting the complex construct of norms into normative statements with distinct elements (actor – evaluated actor – evaluated practice – evaluative tone – (un)desirable / (in)appropriate practice – legitimizations/contestations – addressee). This procedure allows us to operationalize the norms for content analyses and to capture more implicitly expressed normative claims in mediated public discourses as well. As such, chapter 5 has provided the basis for the distinct qualitative and quantitative study designs and methods of the three individual publications that are included in this cumulative dissertation and that will be presented in the following chapters 6-8.

6 Study 1: How to Govern Visibility?: Legitimizations and Contestations of Visual Data Practices after the 2017 G20 Summit in Hamburg

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Abstract

Technological changes shift how visibility can be established, governed, and used. Ubiquitous visual technologies, the possibility to distribute and use images from heterogeneous sources across different social contexts and publics, and increasingly powerful facial recognition tools afford new avenues for law enforcement. Concurrently, these changes also trigger fundamental concerns about privacy violations and all-encompassing surveillance. Using the example of police investigations after the 2017 G20 summit in Hamburg, the present article provides insights into how different actors in the political and public realm in Germany deal with these potentials and tensions in handling visual data. Based on a qualitative content analysis of newspaper articles (n=42), tweets (n=267), experts' reports (n=3), and minutes of parliamentary debates and committee hearings (n=8), this study examines how visual data were collected, analyzed, and published and how different actors legitimated and contested these practices. The findings show that combined state, corporate, and privately produced visual data and the use of facial recognition tools allowed the police to cover and track public life in large parts of the inner city of Hamburg during the summit days. Police authorities characterized visual data and algorithmic tools as objective, trustworthy, and indispensable evidence-providing tools but black-boxed the heterogeneity of sources, the analytical steps, and their potential implications. Critics, in turn, expressed concerns about infringements of civic rights, the trustworthiness of police authorities, and the extensive police surveillance capacities. Based on these findings, this article discusses three topics that remained blind spots in the debates but merit further attention in discussions on norms for visual data management and for governing visibility: (1) collective responsibilities in visibility management, (2) trust in visual data and facial recognition technologies, and (3) social consequences of encompassing visual data collection and registered faceprints.

Introduction

“It is an amount of visual data never seen before in the criminal history in Germany” (Monroy, 2017), “a new standard of proof” (Monroy, 2018); “we enter uncharted technological territory” (Bürgerschaft der Freien und Hansestadt Hamburg 2018, p. 8).

With these words, the chief inspector of Hamburg's criminal investigation department praised the wealth of images and the pivotal role of facial recognition tools that were used for police investigations after the 2017 G20 summit in Hamburg. Protests had culminated in various violent confrontations between protesters and the police as well as in severe riots (for a detailed chronology and an in-depth analysis of the dynamics, see Malthaner et al., 2018). In the subsequent prosecutions against individuals accused of, for example, disturbing the peace, assault, civil disorder, damage to property, or looting, the police collected more than 100 TB of photographs and videos and analyzed them with the help of a third-party facial recognition tool. Moreover, the police published more than two hundred pictures of suspects online in several waves of national, and later European, public searches.

These practices reflect important shifts in how visibility can be established, governed, and used in highly visualized and datafied societies: Both protests and public life in general are increasingly videotaped or captured by photographs – be it by the police, video surveillance cameras, people who attend an event, or those who simply pass by a given public place. Vast numbers of digital images taken and shared in private and public contexts can be widely distributed, combined with images from other sources, and (re)used across different social contexts and publics. Visual data, that is the combination of a given photograph or video sequence with specific metadata, such as GPS coordinates or the date or time at which a picture or video was taken, can detail fundamental personal information such as a person's whereabouts at a given time, individuals' physical and facial traits, or how people interact with each other. Moreover, increasingly powerful tools for algorithmic analyses, such as facial recognition tools, now promise significant advancements for scanning large data sets, mapping facial features from a photograph or video, and identifying individuals or tracking their movements.

These changes and characteristics have implications for how the police and public, private, and voluntary sector partners interact in policing strategies (see Spiller & L'Hoiry, 2019; Trottier, 2015). Furthermore, they entail both myriad potentials as well as possible risks. On one hand, extensive and heterogeneous visual data and facial recognition tools might

be beneficial in situations such as searching for terrorists or a missing child. In fact, they can open up significant opportunities for safeguarding public security and for supporting policing operations, as the case of the Boston marathon bombing has shown (Mortensen, 2015). On the other hand, ubiquitous visual technologies, the potentially broad reach of images or videos, and biometric analyses may also be considered fundamental threats to civil liberties and an intrusive shift in control capacities (Crawford, 2019). In fact, encompassing visual data can also contribute to exclusion, repression, and targeted control when pictures or videos published online are used to monitor and collect information about individuals or groups of people, their activities, interactions, and associations (see, e.g., Pearce et al., 2018; Lane et al., 2018; Uldam, 2018; Dencik et al., 2018).

How images were handled in the G20 investigations triggered controversial public and political debates. In these debates, the crucial steps of (visual) data management and governing visibility – that is, how to collect, how to analyze, and how to use and distribute data – moved to the center of public attention. The ways in which facial recognition was used even led to a precedent lawsuit in Germany (Caspar, 2019). This makes the 2017 G20 investigations a timely case study to investigate discourses on visual data practices and to examine how ethical and legal norms for handling visual data and for governing visibility are currently discussed. Visual data practices are thereby understood as practices of collecting, analyzing, and publishing visual data. Tracing these practices and debates on visibility management and law enforcement is vital as they provide insights into an urgent social concern (Flyverbom, 2019) and are a key site for understanding the politics of datafied societies in general (Hintz et al., 2018).

So far, insights into how different authorities and stakeholders in the political and public realm deal with potentials, risks, and normative questions related to visibility and visual data are scarce. Based on a qualitative content analysis of newspaper articles, tweets, experts' reports, and minutes of parliamentary debates and committee hearings, I seek to address this gap in a twofold way. First, I compile publicly available information about visual data practices. Second, I examine how different actors in mediated public and political debates legitimated and contested visual data practices.

I start by outlining the theoretical concepts of visibility and visibility management. I then conceptually discuss how changing visual practices shift visibility and surveillance constellations. The subsequent review of previous research and the empirical study focus on how different actors such as political decision-makers, journalists, or citizens make sense of these shifts and their implications. Based on the empirical findings, I discuss three topics that remained blind spots in the debates but merit further attention in discussions on norms for visual data management and for governing visibility: (1) collective responsibilities in visibility management, (2) trust in visual data and facial recognition technologies, and (3) social consequences of encompassing visual data collection and registered faceprints.

Visuals, Visibility, and Shifts in Surveillance Practices

The following sections lay the conceptual groundwork for discussing shifts and tensions related to visibility, visual data, and surveillance and for contextualizing legitimizations and contestations of visual data practices during the 2017 G20 investigations.

Visibility and Visibility Management

Following Stohl, Stohl, and Leonardi (2016), visibility can be conceptualized as the combination of three attributes: availability of information, approval to disseminate information, and accessibility of information to third parties. Especially in political and protest communication, the concept of visibility is closely related to power and struggles for presence, recognition, attention, voice, agency, and control in the public sphere (Dahlberg, 2018; Brighenti, 2010; Thompson, 2005; Honneth [1992] 1996; Doerr et al., 2013; Teune, 2013). The term is often used to refer to the possibility of being seen, being heard, and being present in the public, especially in mass media coverage (Dahlberg, 2018).

Visibility established through visual representations is considered particularly powerful for at least two reasons. First, the polysemic character and context-dependency of visuals notwithstanding (Müller & Özcan, 2007), they are often designated as a form of

knowledge and evidence (Bock, 2016). Correspondingly, closed-circuit television (CCTV) is often characterized as an “objective witness” (Degli Esposti & Santiago Gómez, 2015, p. 447). Second, being visible for individuals often means being identifiable with numerous forms of fundamental personal information such as physical or facial traits (Marx, 2005; Rettberg, 2017).

How individual and collective actors establish and govern visibility and how they can collect, manage, store, circulate, and make sense of information are fundamentally shaped by technical developments and infrastructures, changing social practices, and regimes of classification (Bowker, 2005; Hand, 2012). In recent years, the convergence of mobile communication, networked communication, and cameras (Hand, 2012); an increasing entanglement of different levels of public spheres; and the creation of increasingly powerful tools for automated visual analysis have fundamentally altered how the visibility of individuals can be created and shaped. This also has important implications for how different actors may structure their visibility management, that is, their decisions about how to disclose information, how to establish and maintain secrecy, or how to seek ways to monitor and surveil others (Flyverbom et al., 2016).

Changing Visual Practices and Shifts in Surveillance Constellations

Definitions of surveillance conventionally refer to the targeted and systematic monitoring and appropriation of personal information: “Where we find purposeful, routine, systematic and focused attention paid to personal details, for the sake of control, entitlement, management, influence or protection, we are looking at surveillance” (Ball et al., 2006, p. 4). Andrejevic (2019, p. 8) adds that surveillance typically invokes asymmetrical power relations between dominant watchers and those being watched. Importantly, surveillance is not entirely dissimilar to visibility. However, it focuses particularly on how the societal consequences of access to and visibility of information can lead to loss of privacy as well as to categorical discrimination, social sorting, and a chilling effect on public speech (Trottier 2015, p. 210).

The social meaning of surveillance and control have become increasingly complex (see, e.g., Fuchs et al. 2012; Lyon, 2007, 2015). Ordinary citizens were traditionally framed as the object of panoptic top-down surveillance. Now they are also active agents in creating and shaping visibility (Trottier, 2017; Lyon, 2018) within the many lateral forms of peer surveillance or mutual watching (Bakir et al., 2017); in decentralized, participatory, social surveillance practices; and in surveillance cultures (Marwick, 2012; Trottier, 2012, 2015; Albrechtslund, 2008; Lyon, 2018).

Changing photographic devices and practices play an important role in this regard. With the digitalization of photography and the neat integration of mobile communication, networked communication, and cameras (Hand, 2012), most people have a camera at hand in nearly every moment of their lives and can share images instantaneously. Public spaces are thus saturated with visual technologies and are increasingly surveilled not only through ubiquitous government or private CCTV but also with the help of individuals' own (mobile) devices and activities (see, e.g., Timan & Oudshoorn, 2012). This makes the gatherings and practices of different kinds of actors increasingly visible and trackable as Bock (2016), Ullrich and Knopp (2018), Schneider and Trottier (2012), and Trottier (2012) have shown with their studies on cop-watching practices and crowdsourced user-led policing.

Overall, these possibilities lead to transformations within what Haggerty and Ericson (2000) call the "surveillant assemblage," that is, the rhizomatic and heterogenous totality of different types of interlinked surveillance technologies and practices. The interconnection also allows for combining and migrating information that was collected or published for diverse initial purposes. Possibilities of (re)combination gain particular relevance in current networked public spheres (Benkler, 2006). Content such as images can be widely distributed and accessed by different actors across different interconnected areas of the public sphere: the 'traditional' mass media public sphere, personal publics (Schmidt, 2014), and hashtag publics (Rambukkana, 2015). This also implies that images can be re- and decontextualized (boyd, 2011; boyd & Crawford, 2012), which increases the chance for unintended audiences to see and (re)interpret them. Overall, these current

visual and surveillance practices create an exponential multiplication of visibility (Haggerty & Ericsson, 2000) and a visibility paradox: Ordinary lives are increasingly made visible to peers, large organizations, and state authorities. At the same time, how or by whom people are made visible to others is increasingly obscure to those whose data are garnered and used (Lyon, 2018). This is even further amplified by shifts to environmental surveillance (Andrejevic, 2017), automating surveillance (Andrejevic, 2019), dataveillance (Clarke, 1988; van Dijck, 2014), and big data surveillance (Andrejevic & Gates, 2014; Brayne, 2017) – shifts towards the continuous tracking and collection of (meta)data for unstated preset purposes.

In addition to the decentralized, participatory, and continuous nature of contemporary surveillance, the convergence of state, commercial, and consumer surveillance needs to be taken into account (Andrejevic, 2019). State intelligence agencies piggyback on data that are collected for economic purposes. Moreover, police surveillance relies on, among other systems, commercial social media platforms that people use for managing relationships, entertainment, commerce, and work. In many cases, data collection and analyses are modeled on third-party systems and tools from the private commercial sector, as is the case with facial recognition tools.

Public Debates on Surveillance Practices

So far, insights into how different actors and stakeholders in the political and public realm deal with these changes, the implied potentials and tensions, and their social implications are scarce. Examining these public discourses is particularly important because they are both a source of information for different stakeholders and the general public and a forum for public sense-making and social coordination in which changing visual data practices and their social and normative implications can be discussed by different actors (see, e.g., Ferree et al., 2002). They can thus play a central role in shaping public perception, attitudes, and decision-making processes with respect to these practices.

The present study builds on previous research on German and European public and political discourses on (smart) CCTV (Möllers & Hälterlein, 2013), on public acceptance

of security and surveillance technologies (Friedewald et al., 2017; Pavone et al., 2015), and on news media coverage of the Snowden revelations. Research on the Snowden revelations has taken a specific interest in discourses on digital privacy and data security (Meißner & von Nordheim, 2018) or surveillance legitimization strategies (Möller & Mollen, 2017; Hegemann & Kahl, 2017; Schulze, 2015). Wahl-Jorgensen, Bennett and Cable (2017) and Wahl-Jorgensen, Bennet and Taylor (2017) specifically highlight mechanisms of surveillance normalization in newspaper coverage. They show that journalists stressed concerns over national security and focused on the surveillance of elites while mostly neglecting the mass surveillance of citizens and infringements of civil rights (Wahl-Jorgensen, Bennett & Cable, 2017; Wahl-Jorgensen, Bennett & Taylor, 2017).

Previous research foregrounds the opinion “people who have nothing to hide have nothing to fear” as something that circulates widely in public discourses and international media debates on surveillance (Lyon, 2015; Mols & Janssen, 2017; Wahl-Jorgensen, Bennet & Taylor, 2017) and is often accompanied by affirmations that surveillance is a necessary trade-off that needs to be accepted in our insecure world (e.g., Dencik & Cable, 2017). In other words, the idea of national security constitutes a discursive trump card overriding any other claims to justice (see also Schulze, 2015).

Studies that examine German media coverage on surveillance practices highlight in particular the high value of privacy and data protection in Germany and the German media public (Möller & Mollen, 2017, p. 115) as well as the decisive historical backdrop of totalitarian regimes in Germany (Schulze, 2015). Against this background, the current study focuses on visual data practices and how they were discussed in the context of police investigations after the 2017 G20 summit in Hamburg.

Methods and Empirical Data

The study addresses two main research questions: What information about how visual data are collected, analyzed, and distributed in the G20 investigations is publicly available? And how did different actors in media and political debates legitimize or contest visual

data practices? As the G20 investigations in Hamburg were highly controversial, this particular case offers rich material for this research.

Police authorities and political decision-makers in particular were asked to explain and legitimize, for example, the decision to publish pictures online for public searches or the use of facial recognition tools. The Senate of Hamburg established a special parliamentary committee¹⁴ for reviewing political and policing strategies in the run-up to and the aftermath of the G20 summit. Moreover, parliamentarians placed several written inquiries to which the responsible bodies had to respond. Finally, Hamburg's commissioner for data protection issued several expert reports in which he assessed visual data practices in the prosecution process.

The committee's work, the inquiries, and the reports allow for analysis of how the criminal investigation department, Hamburg's Senator of Justice, and the commissioner for data protection explained the technological infrastructure or data management strategies and of how they assessed potentials and risks. Moreover, the G20 investigations stimulated vivid debates in news media coverage as well as in ad hoc and hashtag publics. These debates give further insights into how visual data practices were legitimated and contested by different actors. Overall, sourcing and analyzing this heterogeneous material from different forums for public sense-making and social coordination enables reconstructing practices and sheds light on public debates in which visual data practices, their legitimacy, and their social and political implications are discussed.

The present analysis takes into account: (a) three detailed experts' reports by Hamburg's commissioner for data protection, Johannes Caspar; (b) seven meeting minutes and reports by the special parliamentary committee; and (c) ten written inquiries by parliamentarians including the Senate's responses and eight meeting minutes and reports of parliamentary

¹⁴ The special committee was installed on July 12, 2017; the first session was held on August 31, 2017, the last on August 16, 2018.

debates in the Senate of Hamburg.¹⁵ Moreover, I analyzed (d) forty-two articles¹⁶ published between July 1, 2017 and January 31, 2019 in regional (*Hamburger Morgenpost* and *taz Hamburg*) and leading high-circulation national print and online news media (*Frankfurter Allgemeine Zeitung [FAZ]*, *Süddeutsche Zeitung [SZ]*, and *Der Spiegel*, including their online outlets). To assess how the use of visual data was legitimated and contested outside the classic news media coverage, my analysis of media coverage also includes (e) articles published on the platform *netzpolitik.org*.¹⁷ As the public search triggered particular controversies on Twitter, I also analyzed (f) tweets (n=267) with the hashtag-combination #G20 OR #NoG20 AND #Öffentlichkeitsfahndung [public search] published until June 30, 2018.

The articles, documents, and tweets were qualitatively coded (Saldaña, 2013; Kuckartz, 2014). First, visual data practices were reconstructed. Therefore, information regarding the origin, the collection of visual data, and how and by whom they were accessed, analyzed, and handled were extracted and systematized. In a second step, the coding focused on the type of actors who made a statement or claim and how these actors legitimized or contested, for example, biometric analysis or the publication of photographs. In this regard, to legitimize means to justify, accredit, or license a type of behavior or practice (Reyes, 2011; van Leeuwen, 2007). Contestations, in turn, refer to evaluations and arguments with which actors oppose certain practices and characterize them as problematic.

¹⁵ The documents are available online via <https://www.buergerschaft-hh.de/parldok/>.

¹⁶ A first sample was drawn with a keyword search for “G20 OR G-20 AND Ermittlungen [investigations],” “G20 OR G-20 AND Öffentlichkeitsfahndung [public search],” and “G20 OR G-20 AND Gesichtserkennung [facial recognition].” After clearing duplicates and filtering by thematic relevance, I analyzed forty-two articles that specifically focused on the collection, analysis, or distribution of visual data in depth.

¹⁷ *netzpolitik.org* is a blog and news website on digital rights and digital culture. It is a leading forum for coverage on internet politics, data protection, privacy, and digital rights issues in Germany.

Visual Data Practices in the G20 Investigations in Hamburg

In what follows, I present findings regarding (1) the origin and collection of visual data, (2) their analysis, and (3) their publication. For each of these aspects, I summarize key information that was found in the material at hand. The second part of the findings further expands on how these visual data practices were legitimized and contested by different actors.

Origin and Collection: Mixing Heterogeneous Sources

Findings show that photographs and videos used in the investigation process were taken in very different contexts and for very different initial purposes. Photographs and videos taken by the police were complemented by visual material that officers downloaded from various social media platforms. Additionally, the police asked witnesses at crime scenes for video footage and called on the public to upload photographs and video material on a dedicated platform (Bürgerschaft der Freien und Hansestadt Hamburg, 2017, p. 14). The platform was hosted by the Federal Criminal Police Office and also allowed for anonymous uploads. Until July 17, 2017, when the possibility to upload was officially closed, private individuals or companies uploaded 12,204 files (Bürgerschaft der Freien und Hansestadt Hamburg, 2017; according to Der Hamburgische Beauftragte für Datenschutz und Informationsfreiheit, 2018, the number of files uploaded was 14,334). Moreover, the police asked numerous newspapers, television broadcasters, and municipal transport services to provide their visual material covering the summit days and protest events.

In total, the police gathered more than 100 TB of photographs and videos. Most of the material originates from CCTV cameras in buses, urban railways, metros, train stations, or shops. Taken together, the combination of these heterogeneous visual data allowed the police to depict public life in large parts of the inner city of Hamburg during the summit days (Monroy, 2018; Baeck, 2018; Der Hamburgische Beauftragte für Datenschutz und Informationsfreiheit 2018, p. 4).

Analysis of Visual Data: Face Prints

The police analyzed more than 17 TB (15,157 videos and 16,480 pictures) of the collected data with the help of a third-party facial recognition tool by Videmo, a German company for software systems and solutions in the field of automated image analysis. Only technical restrictions hindered the import and analysis of the full data set (Baeck, 2018; Der Hamburgische Beauftragte für Datenschutz und Informationsfreiheit, 2018; Caspar, 2018a).

Hamburg's data protection commissioner Johannes Caspar explained the analytical process in his report and in several media interviews with the leftist newspaper *taz* and the online news sites *Spiegel Online* and *netzpolitik.org*, drawing on software testing and interviews he had conducted with police officers and Videmo executives. The pattern recognition technology by Videmo is based on two main analytical steps: detection and identification. Detection is the mere localization (finding) of faces in an image or a video sequence. The analytical step of identification then generates so-called "face templates." These are mathematical models of essential facial features such as the eye-distance, nose shape, ear-to-ear-distance, labial angle, or hairline of all individuals depicted in the data. For the G20 investigations, face templates of all persons depicted in the material were created and saved (Der Hamburgische Beauftragte für Datenschutz und Informationsfreiheit, 2018). This database served as a basis for further potential comparisons and matchings between templates or, subject to approval by the prosecution department or court order, with other archived photographs or stills of suspects. These automated analyses were combined with manual visual analyses by specifically trained police officers (Der Hamburgische Beauftragte für Datenschutz und Informationsfreiheit, 2018).

Publication of Images: Public Search and Media Coverage

On July 9, 2017, two days after severe riots in a neighborhood known for its subcultural and left-liberal tradition, the German tabloid newspaper *Bild* – the newspaper with the widest circulation in Germany with more than nine million readers per issue (Media-

Analyse agma Media-Micro-Census, 2019) – published pictures of suspects on its website. The day after, several pictures were also published on the cover of *Bild*'s print edition.

In December 2017, the police launched the first wave of a European public search and published pictures and videos of 104 suspects on stand-up displays during a press conference (see Figure 1) and on their website (see Figure 2). Taking up the public search, on December 19, 2017, the tabloid *Bild* published pictures of suspects on its cover. A large-format picture of a minor complemented the headlines: “So young, so full of hate. Police searches for this riot-barbie... and 103 other G20 slobs” and “G20 slobs, you will not escape” (see Figure 3).



Figure 1: Stand-up displays with images of suspected delinquents

Police set up these displays at the press conference during which the launch of public searches was announced. ©NDR, photo: Heiko Sander. <https://www.ndr.de/nachrichten/hamburg/G20-Randale-Polizei-startet-Foto-Fahndung,gipfeltreffen744.html> [accessed September 6, 2018].

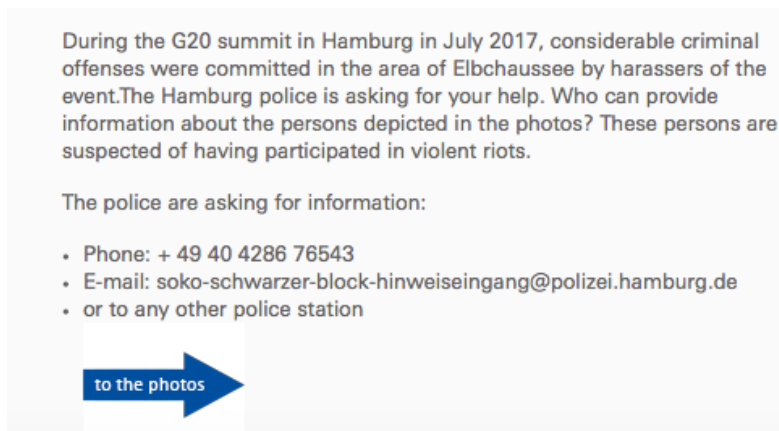


Figure 2: Screenshot of the official call published on the police's website

<https://www.polizei.hamburg/g20-public-search/> [accessed December 28, 2017].



Figure 3: Bild's cover page and page two of the issue published on December 19, 2017

The pages display pictures of suspects. <https://meedia.de/2017/12/22/methode-barbie-polizei-rechtfertigt-oeffentliche-g20-g20-fahndung-auch-nach-minderjaehrigen/> [accessed January 6, 2018].

Legitimizations and Contestations of Visual Data Practices

The second part of the findings further expands on how different actors legitimated and contested visual data practices.

Origin and Collection of Visual Data

Jan Hieber, chief inspector in Hamburg's criminal investigation department praised the wealth of pictures and video material as "an amount of visual data never seen before in the criminal history in Germany" (Monroy, 2017).

News media coverage mentioned the different origins of pictures and videos, their combination in a data set, and also the final sample sizes quite often – but without further discussion or evaluation. Hamburg's data protection officer Johannes Caspar alone warned against the combination of data "from all possible areas" (as cited in Carini, 2018) and against "a bulk storage of data from various and highly heterogeneous sources with different temporal and local backgrounds" (Caspar, 2018a). In his critique, he directly referred to the subsequent analyses that occurred with the help of facial recognition tools. He contended that the combined heterogeneous visual data and the analytical tools enabled law enforcement authorities to reconstruct and track the behavior of persons over a certain period.

Facial Recognition: An Indispensable Tool, "A New Standard of Proof," or "Steps Towards Ultimate Control"

The police and the senator of the interior brought up two core arguments to legitimize the biometric analyses. First, Hamburg's criminal investigation department gave a rather practical justification underlining that the dataset was just too big for manual screening. The police described the use of Videmo as a "mere adjunct" for the screening of the vast amount of visual data (Baeck, 2018; Monroy, 2018) that served to investigate the behavior of suspects before or after a crime, or to find exculpatory evidence (Der Hamburgische Beauftragte für Datenschutz und Informationsfreiheit, 2018, p. 6). Furthermore, the police stated that the software was a necessary, even indispensable, tool as the manual screening of the data would have taken about sixty years (Spiegel Online, 2018a; taz, 2019; Carini, 2019). Moreover, the Senator of the Interior in Hamburg, Andy Grote, repeatedly stressed that without facial recognition there would hardly have been any success in the investigations (Carini, 2019). Second, the police also praised the potentials of facial

recognition technologies as “a new standard of proof” (Monroy, 2018) and forensic advantage. The police particularly argued that they had entered “uncharted technological territory” thanks to which criminals “cannot feel safe anymore” (Bürgerschaft der Freien und Hansestadt Hamburg, 2018, p. 9).

Caspar, Hamburg’s data protection officer, and local liberal, green, and leftist politicians expressed fundamental concerns. They admitted that face recognition could be an important instrument for the investigation of serious crimes. At the same time, they considered the creation and indefinite storage of mathematical face ID models a drastic infringement of the fundamental personal right of informational self-determination. Caspar and the politicians especially criticized the unexceptional and suspicion-less recording and measurement of all human faces in the data set. This included innocent passersby in a given surrounding area or people riding a bus on their way. They underlined that the people affected were not aware of these analyses and of the indefinite storage of their face IDs. Hence, they could not intervene (Der Hamburgische Beauftragte für Datenschutz und Informationsfreiheit, 2018; Baeck, 2018; Caspar 2019; *taz*, 2019). Moreover, Caspar stated that the analysis of face IDs in the comprehensive data set allowed for the tracking of a person’s movements, routines, and social contacts during the summit days. He thus stressed that it was possible to fully reconstruct the events a person attended, the shops and restaurants they visited, and to draw conclusions about their patterns of behavior and preferences. The data commissioner and several local liberal and leftist politicians called this analysis a new dimension of, and even a revolution for, police surveillance. They described it as a significant first step towards a “Big Brother-scenario” (Carini, 2019) and towards the “ultimate control” of public areas and people’s whereabouts (Caspar, 2018a, 2018b; Carini, 2018, 2019). In this regard, Caspar characterized images as the principal means for political power and control stating, “Ultimately, the state’s control over images implicates control over people” (Caspar 2018b, p. 25). Based on these concerns and critiques, Caspar requested in December 2018 that the police end the use of facial recognition tools and delete the database of biometric faceprints. However, his directive was rejected by Hamburg’s Administrative Court in October 2019.

Facial Recognition: A Call for Rules

Caspar stated that biometric technology revolutionized possible paths for policing and law enforcement, but he insistently warned of the implications these possibilities might have. He specifically criticized the lack of a legal framework. Consequently, Caspar and local liberal and leftist politicians underlined the urgent necessity for politics to work within a comprehensive regulatory framework that defines requirements and warrants to prevent the misuse of facial recognition tools. They claimed that the development of these rules was indispensable for protecting the personal rights of citizens and for preventing police authorities from taking significant steps towards a surveillance and police state (Hamburger Morgenpost, 2018; Caspar, 2018a, 2018b; Der Hamburgische Beauftragte für Datenschutz und Informationsfreiheit, 2018; Spiegel Online, 2018a; Süddeutsche Zeitung, 2018; Carini, 2019).

Hamburg's criminal investigation department and the municipal office of the interior countered these critiques. They argued that the analyses were legally justified and that face IDs would only be used in cases with concrete and strong suspicion. Moreover, they underlined that Caspar's critique was referring to potential uses, instead of assessing actual practices in the context of the G20 investigations.

The Role and Responsibility of The Press?

The decision by the police and a few media institutions to publish selected pictures of suspects was a major issue in the controversial public debates. The tabloid *Bild* was accused of employing "Wild West" methods, of undermining principles of the press code, and of eroding the separation of powers and rule of law (see, e.g., Buß, 2017). This critique was predominantly brought forward by other journalists. The German Press Council criticized the publication of the pictures as a "media pillory" and an offense against the press code. The council underlined that it was not the press' task to search for citizens without official request by the public prosecutor's office. According to the press council, "the consequences of a self-staged manhunt can no longer be controlled and can also encourage vigilante justice" (Presserat, 2017, para. 11).

Bild's then-chief editor Tanit Koch justified the publication via Twitter. As suspects were accused of having thrown stones at police officers, she simply stated: "no stones, no cover stories" (Koch, 2017). Other journalists and actors on Twitter underlined that the guilt of the people depicted was not yet clear and that criminals also had personal rights. They stressed that the publication might have negative long-term repercussions for the people depicted, as they might be stigmatized or might lose their jobs. Koch, in turn, attributed responsibility for possible negative consequences solely to the depicted suspects and their behavior.

Public Search: Ultima Ratio or "Public Pillory"

The public search and the publication of pictures by the police provoked fundamental critiques in the media coverage and in debates on Twitter. Many politicians, activists, and journalists criticized the publication of the pictures as disproportionate, stigmatizing, an uncontrollable "public pillory." They criticized that it was an invitation for playing "deputy sheriff" (Prantl, 2017) and to hunt down a large number of people whose guilt was still unclear. They particularly stressed that the ability to upload visuals anonymously opened the door to denunciation and manipulation and created a toxic social atmosphere. Headlines like "guilty as charged on the Internet" (Maak, 2017) or statements such as "101 enemies, presented on a silver platter, appetizingly served for public slaughter" (Schipkowski, 2018) stressed threats to the very social existence of people and characterized the public search as an infringement of the presumption of innocence. Critics underlined that this type of perpetrator search failed to take into account the individual cases as well as the different qualities of crimes. For them, the *Bild* headline was the clearest sign of a very prominently placed stigmatization and prejudgment that the police had deliberately tolerated (Hahn, 2017). Moreover, critical voices underlined that the pictures, once published online, could be saved and shared. Hamburg's authorities defended their practices referring to a strict judicial examination. They argued that it was beyond authorities' power to influence media coverage, headlines, or the sharing practices of social media users (Hahn, 2017). In this view, protesters had to be aware of the fact that they could appear in news media due to the worldwide interest in the G20 protests.

However, Hamburg's Senator of Justice, Till Steffen (Green Party), also admitted that the means of the public search substantially intervened in personal rights. He, therefore, claimed that it was only permissible as ultima ratio in cases of criminal offenses of "considerable importance" and emphasized that the pictures should be removed after the end of the search (Wyssuwa, 2017; Meyer, 2018). Overall, the Senator of the Interior legitimized the public search and stressed that rioters could not feel safe anymore, even several months after having committed a crime (Spiegel Online, 2018b).

Besides all criticism, the police's actions also received approval and praise from some politicians, citizens, and journalists. Actors argued that the search was legal and referred to the search's successes and the crimes committed. Moreover, responsibility for the publication of images and the possible consequences was again attributed to the depicted suspects and their behavior: "Those who participate in jointly throwing stones and fireworks at policemen shall not be surprised when they are jointly searched" (katinka, 2018) or "Those who do not want the police to publicly search for them just shall respect the law" (DPoIGHH, 2018). A leading politician of the Christian-Democratic-Union, Alexander Dobrindt, stated: "Those who consider the public search wrong, obviously prioritize the perpetrator protection over victim protection" (Hahn, 2017). This statement and the overall analysis I present in this article illustrate how the use of visual data provoked heated debates about how to balance the conflicting priorities of law enforcement with fundamental rights such as privacy, informational self-control, and the presumption of innocence.

Discussion

The present study has shown that photographs and videos used in the G20 investigations had originally been taken for different purposes. State and corporate-produced visual data stemming from CCTV cameras in public transportation services and stations were complemented with photographs and videos taken by journalists created for media coverage as well as with visual material taken and shared by private individuals. Images following a media production logic were thus combined with images presumably taken

for communicating with others, for matters of self-representation, or just because the events seemed photo-worthy and a camera was at hand. This combination of state, corporate, media, and private sources perfectly illustrates that surveillance capacities in modern societies have undergone significant shifts in the ways in which surveillance and prosecution are conducted and also in which agents and which technologies are involved in these practices and surveillant assemblages (Haggerty & Ericsson, 2000). The practices and tactics employed in the G20 investigations thereby follow general international trends and patterns as they parallel the use of visual data and policing tactics after riots in Manchester, London, and Vancouver (Pieri, 2014; Schneider & Trottier, 2012; Trottier, 2012).

Overall, we see two decisive moments in the production of visual data: the moment when a picture or a video is taken for a specific purpose and the moment when it is combined and aggregated with other sources and de- or re-contextualized for a different purpose. In the case of Hamburg, the combination of different visual data sources allowed for the depiction of public life in large parts of the inner city.

This analysis demonstrates that the collection, analysis, and publication of visual data provokes quite complex debates about ‘appropriate’ visual data practices. The ways in which actors thereby legitimized and contested visual data practices reflect major general categories or types of (de)legitimization (van Leeuwen, 2007) and patterns of surveillance legitimization in German public discourses (Schulze, 2015): rationalization, singularization, authorization by law, and moral evaluation (see Table 1). Actors legitimized the practices of surveillance by referring to necessities and uses (rationalization) or to the singular nature of practices and their limited harms (singularization) to override any other claims to justice. References to the authority of law are used to legitimize as well as to contest visual data practices (authorization by law).

Moral evaluations – that is, references to value systems including personal rights and ideas of desirable social order – are an important resource to contest practices. The main legitimizations and contestations that were shown in the previous section can thus be summarized with the types, categories, and ideas displayed in Table 4.

Type	Category	Summary of main idea
<i>rationalization</i>	necessity	Visual data and facial recognition tools are necessary and indispensable tools needed to manage huge data sets because a manual screening would not be possible.
	crime detection	Visual data and, facial recognition tools especially, enhance the ability to solve crimes and provide a strong source of evidence against perpetrators.
	crimes justify means	Crimes committed justify the means; e.g., the publication of images or infringements of personal rights.
<i>singularization</i>	limited uses, effect, and harms	Usage is limited to cases with concrete suspicion. Possible harms and infringements of personal rights are minimal.
<i>authorization by law</i>	legal conformity	Practices are covered by existing law. Actors counter critiques and legitimize practices by stating that they are covered by existing law.
	lack of regulation	The use of facial recognition tools is problematic because a clear legal regulatory framework is missing.
<i>moral evaluation</i>	problematic extent, scope	The extent and scope of visual data collection and analysis is problematic and even “excessive,” as analyses also affect innocent people.
	infringement of personal rights	Visual data practices – e.g., the publication of images online or the use of facial recognition tools – are infringements of personal rights such as privacy and informational self-determination.
	Big Brother-scenario & function creep	Visual data practices, and facial recognition tools in particular, (can) have problematic implications. They (can) lead to extensive social control, oppression, totalitarianism, or the end of a liberal society. Current visual data practices are problematic, as the use of practices such as facial recognition may or will be gradually extended beyond the purposes for which they were originally intended.

Table 4: Types of legitimizations and contestations

As illustrated, the 2017 G20 investigations are a timely case study for examining how ethical and legal norms for visual data management and for governing visibility are currently discussed. In this regard, the present analysis shows particular patterns of legitimization and contestation. Furthermore, the findings also draw attention to three topics that remained blind spots in the debates. These are (1) the collective responsibilities in visibility management, (2) trust in visual data and facial recognition technologies, and (3) the social consequences of encompassing visual data collection and registered faceprints. These aspects need further attention in deliberations about (desirable) norms, as I will outline in the following section.

Collective Responsibilities in Visibility Management

The general media coverage of the 2017 G20 investigations was particularly concerned with the public search and the publication of suspects' pictures online. Even though visual data and algorithmic analytical tools played a pivotal role in the prosecution process, the concrete practices by which visual data were collected and analyzed remained rather invisible or obscure in the general national media coverage. The two high-circulation national daily newspapers (*FAZ*, *SZ*) scarcely covered the conflict about the use of facial recognition tools. Although this case was a nationwide precedent lawsuit, it was neglected or solely mentioned in short news stories stating that Hamburg's data commissioner requested to end the use of facial recognition tools or that the Senator of the Interior in Hamburg filed a complaint at the Higher Administrative Court. In contrast, experts' reports, parliamentary debates, leftist local media, and online news media discussed the conflict extensively.

The debates on publishing images addressed important questions about the responsibility of actors who made images accessible or disseminated them online. Journalists, politicians, and Twitter users underlined that images shared online were persistent and searchable. They can thus be accessed and disseminated rather easily, even in cases in which a person was erroneously suspected. Hamburg's Senator of Justice admitted that the public search substantially interfered with personal rights and underlined the necessity to delete pictures after the end of investigations. This points to an important problem. Of course, pictures can be deleted from the police's website or databases, but it seems to be a pious hope to wish for and to organize the deletion of all possible multiplications across communication channels and social media platforms. A single *Bild* post on Facebook that contained photographs of suspects was shared over 70,000 times.

This case study thus underlines that further discussions and questions about the obligations and responsibilities of state authorities, media institutions, and journalists, as well as ordinary users and citizens, in highly visualized and networked environments are crucial. Visibility management, privacy, and surveillance are tied to collective action and collective awareness and are realized within communicative networks (see also Möller &

Nowak, 2018). Consequently, questions regarding the contexts in which images are used or could be further used, ways in which actors are represented, who or what remains visible where and with what implications, and who has and can control access to these data need to be carefully reflected by all actors that contribute to the availability, dissemination, and accessibility of information.

Trust in Visual Data and (Third-Party) Facial Recognition Technologies

Besides responsibility, trust was a key issue in the discussions, especially in those regarding the use of facial recognition tools. We see strong affirmations of trust in facial recognition tools and in the evidence they and visual data can provide. Hamburg's criminal investigation department praised the wealth of visual data and the facial recognition software tools specifically as an immense forensic advantage, as "uncharted technological territory" (Bürgerschaft der Freien und Hansestadt Hamburg, 2018, p. 8), and "a new standard of proof" (Monroy, 2018). Visual data and algorithmic tools are thus characterized and legitimized as powerful, objective, and specifically trustworthy tools – or as just a necessity. Most importantly, the police stressed that all analyses were covered by existing law, overriding any other claims to justice.

These characterizations of facial recognition as a neutral tool and particularly powerful proof raise critical questions as they contradict current research findings and academic assessment. For example, several problems regarding the accuracy and potential biases in the performance of facial recognition technologies have been identified (e.g., Bucher, 2018; Buolamwini & Gebru, 2018). Moreover, research institutes studying the social implications of artificial intelligence defined facial recognition and steps towards the automation of surveillance and predictive analytics as one of the core challenges for society, politics, and power relations and called for rules to protect civil liberties (see Whittaker et al., 2019; Crawford, 2019).

These problematic aspects were neglected in the public and political debates. Rather, we see black boxing-mechanisms (Pasquale 2015) in which the end justifies the means while

the concrete analytical steps or the specifics of third-party analytical tools are not called into question.

However, unpacking and reflecting on algorithmic tools, their operating principles, and their “evidence-producing” character will be even more important in the future. Current joint research projects on the police, universities, and software companies such as a German project called “Performance” seek to further develop methods for the upload; the (semi)automated, “intelligent” or “smart” real-time analysis; and the archiving of visual data. Furthermore, they aim to explore business models, legal frameworks, and socio-technical contexts that allow private sector resources to be used for image and video analysis to accelerate investigative work (Eigenseer et al., 2018). The motif of efficiency may be a significant driver to extend technological solutions and state-corporate partnerships. Concurrently, if algorithmic tools for visual data management are applied in daily policing routines or if visual analyses are outsourced, it becomes even more important to critically assess analytical steps and their consequences for social life.

Social Consequences of Visual Data Collection and the Implications of Having Left a Digital Faceprint

Furthermore, we see that practices of visual data collection and analysis triggered doubts about the role and the trustworthiness of police authorities. Hamburg’s data commissioner and various liberal politicians expressed fundamental concerns regarding the ethical, social, and legal implications of the visual data collection and the respective analyses. At the heart of these discussions were privacy infringements that were considered immoral and highly problematic. Johannes Caspar and several politicians condemned the indiscriminate bulk collection, storage, and analysis of the digital faceprints of hundreds of thousands of people and characterized them as infringements of informational self-determination and privacy by police authorities. Privacy in Germany is institutionalized as the right to informational self-determination. It is formally defined as the authority of individuals to decide by themselves when and within what limits personal information should be disclosed to others.

These concerns reflect a general ambivalence. As Haggerty (2012, p. 235) has argued, concerns about police surveillance “sit at the fulcrum of two of modernity’s great nightmares.” On one hand is the fear of routine victimization, with crime and terrorism becoming an endemic part of daily life. Here, police surveillance is understood as a necessity. On the other hand is the prospect of a controlled society. Here, police surveillance is positioned as a tool that always risks being used to monitor and control every aspect of human conduct and movement (Haggerty, 2012). Although these risks of being monitored and controlled were key issues, we also see blind spots in the debates on the G20 investigations. First, the variety of social consequences of data collection practices and the possible implications for citizens of having left a digital faceprint were not discussed. As Caspar and liberal, green, and leftist politicians underlined, most people affected by the analyses – people on their way to work on a bus, at a train station – were not aware of the storage of their faceprints. Consequently, they were also not able to intervene or to consent to the processing of their biometric data. Questions remain: What are the possible implications and consequences of being unwittingly visible in these datasets, of having left a digital faceprint? And who might have access to these data? Who might be able to guarantee that data will be deleted at the end of an investigation? Second, in contrast to key findings on news media coverage of the Snowden revelations, the personal rights of citizens were a key aspect of the debates and criticism. However, the voices of those people affected, ordinary citizens or activists, still remained inexistent and neglected in the debates.

Limitations and Outlook

The exploratory study presented here compiles publicly available information about visual data practices and provides a systematization of strategies different actors use to legitimate or contest these practices. The focus on reported visual data practices and public and political debates is particularly insightful for the aims of this research.

However, the especially strong affirmation of trust in visual data and facial recognition tools and the wish of Hamburg’s police to use them in daily policing routines call for

future research that complements the present study and that addresses one of its limitations. This analysis cannot fully assess the range of visual data practices and uses of (third-party) algorithmic tools in everyday police work. This remains a research desideratum. Moreover, the tools, their logics, and the (political) contexts in which they are developed merit further attention. These further insights are needed to be able to critically assess their application in policing strategies and law enforcement, and their consequences for social life and surveillance constellations. For these investigations, research designs that combine (a) qualitative in-depth interviews with experts, police officers, programmers, and representatives of software companies with (b) ethnographic observational field studies, as suggested by Kaufmann, Egbert and Leese (2019), Kaufmann (2019) and Ullrich (2019), promise to be particularly fruitful.

The case study that I focus on here is a very particular event in a specific national context. This needs to be taken into account when assessing the methods and the findings of the present study. Indeed, the reconstruction of events, practices, and debates on which the analysis is based is particularly applicable for highly controversial events such as the G20 summit that trigger public and political debates. However, these events and controversies are particularly valuable for research. First, they make analyzable practices that are otherwise often invisible to the general public. Second, policing strategies used in these states of exceptions can be seismic shifts as, later on, they are often normalized and integrated into the standard repertoire of policing and investigation techniques (Flyghed, 2002). To do justice to the specific national context, the findings of the present study need to be reflected against the background of Germany's strong privacy and data protection regulations. As the analysis has shown, privacy and data protection were important reference points and key concerns that actors referred to when contesting visual data practices. At the heart of these discussions were privacy infringements that were considered immoral, highly problematic, and decisive steps towards an all-encompassing "Big Brother" surveillance state. Whether the legitimization and contestation strategies discussed in this article actually represent specific national patterns or instead reflect overarching transnational trends in public debates on visual data practices is an open research question and a research desideratum for future studies. In-depth insights into

debates situated in national contexts, such as those given in the present study, are an important basis for highly needed comparative research. The present study thereby provides categories for comparing legitimization and contestations and, furthermore, has identified starting points for further critical debates on ethical and legal norms for handling visual data and for governing visibility and surveillance in and beyond particular case-specific and national contexts.

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7 Study 2: ‘Straight out of 1984?’ Frames and the Construction of Norms in News Media Discourse on Facial Recognition Tools in Germany, Ireland, Italy, Switzerland, and the UK

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Abstract

Facial recognition tools (FRTs) have become ubiquitous but have also triggered debates about desirable social and legal norms for their regulation. Based on a quantitative content analysis of 2195 articles in 15 high-circulation newspapers and cluster analyses, this study comparatively examines how FRTs and desirable norms for their usage are framed in news media discourse in five European countries (Germany, Ireland, Italy, Switzerland, and the UK) between 2013 and 2019. Across countries the results show a polarized discourse and four overall frames that highlight different usage contexts, functions, and norms ('Crime Prevention and Public Security,' 'Efficiency & Utility,' 'Infringement of Personal Rights, Control & Function Creep,' and 'Regulation') and that are prioritized differently depending on newspapers' political orientation. However, concerns over threats to personal liberties and encompassing mass surveillance are the dominant frame in actor statements in all years of investigation. In addition to overall tendencies, national differences in the framing of FRTs are also demonstrated.

Introduction

Smith (2018) stated that "we must ensure that the year 2024 doesn't look like a page from the novel '1984' [...]." With these words, Microsoft's president Brad Smith called for action to legislators to regulate facial recognition tools (FRTs) as in his view, they can encroach on democratic freedoms and human rights. FRTs are pattern-recognition technologies that use algorithms to map and to match facial features. Airports, schools, banks, supermarkets, public transportation services, and most prominently, law enforcement agencies around the world are using facial recognition software for authentication, taking attendance, advertising products on smart billboards, locating missing people, and identifying unauthorized intruders or suspects. Facial recognition has also become a commonplace feature on social media platforms for sorting and curating expanding flows of digital images (Norval & Prasopoulou, 2017), in consumer devices, and a normalized and playful aspect in selfie lenses in popular applications such as Snapchat or Instagram (Rettberg, 2017). At the same time, polarized debates about

‘acceptable’ and ‘legitimate’ uses of FRT and desirable social and legal norms for their regulation have emerged (Roussi, 2020).

FRTs are often celebrated as convenient and efficient ways to ensure speedy, customized and secure ‘hands-off’ services or as important means for policing and safeguarding public and state security in times of globalized crime and terrorism. However, FRTs have also increasingly prompted controversy and fueled researchers’ concerns about racial biases in FRT tools, privacy infringements, and creeping shifts towards totalitarian mass surveillance (e.g., Buolamwini & Gebru, 2018; Mann & Smith, 2017; Naker & Greenbaum, 2017; National Institute of Standards and Technology, 2019). Several, mainly US-based, research institutes studying the social implications of artificial intelligence even characterized facial recognition as a key challenge for society and politics. They posited that governments and businesses should halt all use of facial recognition in sensitive social and political contexts until the risks are fully studied and adequate regulations are in place (Crawford, 2019; Whittaker et al., 2018). In fact, several state and local governments in the US have recently stopped law enforcement officers from using facial-recognition databases (Fussell, 2021), and tech companies, such as IBM, announced no longer offering, developing, or researching facial recognition technology (Peters, 2020).

Hitherto, research has seldom systematically attended to news media discourse on FRTs and the negotiation of norms for their usage therein. The present study addresses this gap. Based on a quantitative content analysis of 2195 articles in 15 high-circulation newspapers, we comparatively examine news media discourse on facial recognition between 2013 and 2019 in five European countries (Germany, Ireland, Italy, Switzerland, and the UK). It is the first systematic analysis and full survey of FRT coverage by the selected news outlets in the defined period under investigation. Throughout Europe, researchers and advocacy groups have diagnosed an increasing and “alarming” rate of FRT deployment (Chiusi et al., 2020, p. 7). Thus, as FRTs spread into diverse areas of private and public life and are the topic of major research initiatives, it is crucial to understand how FRTs and norms for their usage are being discussed in news media discourse, which is an indispensable resource for politicians and citizens alike.

By approaching FRTs as objects of discourse, our study takes up an important claim in critical data studies, which is to study discursive practices and framings related to algorithmic tools (Beer, 2017, p. 9). As Beer stresses, understanding the social power of algorithms and algorithmic tools also implies examining how notions of the algorithm “move out into the world, how they are framed by the discourse and what they are said to be able to achieve” (Beer, 2017, p. 10). Against this backdrop, we examine frames, i.e. patterns with respect to how specific actors describe and evaluate FRTs and how they legitimize or contest their use as (un)acceptable and envision desirable norms and regulation. Our main research questions are: Which particular frames can be identified in news media discourse on FRTs, and which desirable norms for FRT usage are constructed within these frames? (RQ1); and: Are there differences with respect to the framing and the construction of norms in the different countries? (RQ2).

In the next sections, we first differentiate between the main principles and functions of facial recognition and then discuss the theoretical concept of social norms as well as the role of news media discourse in framing and in the construction of norms. Subsequently, we synthesize previous findings regarding news media discourses on FRTs, (video)surveillance, technologies, Big Data, and Artificial Intelligence (AI), explain the methodology of our study and then present and discuss overall tendencies as well as national differences in the framing of FRTs.

Facial Recognition: Verification, Ordering, and Identification

Facial recognition systems scan a person’s face, create a unique facial template, and allow for matching it against existing databases of facial images. Facial recognition can be used for *one-to-one matching* and for *one-to-many searching* (Introna & Nissenbaum, 2010). One-to-one matching is used for the *verification* of identity claims of an individual, such as at international borders to compare faces with digital templates stored in biometric passports or as an authentication measure in consumer devices, such as smartphones and tablets. Facial recognition thus “treats the face as an index of identity” (Gates, 2011, p. 8). One-to-many searching with FRTs can instead be used to screen databases for *ordering*

and *identification*. Possible uses range from curating digital images in personal photo libraries or on social media to search for a suspect. The latter has made facial recognition a heavily promoted tool for law enforcement and security-oriented policies as well as border controls after 9/11.

Social Norms and News Media Discourse

Drawing on a social constructivist perspective (Berger & Luckmann, 1966), we contend that the way in which society makes sense of FRT features and their possible implications for citizens' everyday life and rights, security policies, and surveillance scenarios is discursively shaped. This also applies to social norms for their usage. Researchers distinguish between descriptive and injunctive norms (Cialdini et al., 1991); what people perceive is commonly done within a reference group (descriptive norms) and ideas what people ought or should (not) do (injunctive norms). In this article, we focus on injunctive norms. As such, we refer to norms as codes of conduct that prescribe and proscribe what is socially expected, (un)acceptable or (in)desirable action in a given context (see, e.g., Chung & Rimal, 2016; Hechter & Opp, 2001; Rimal & Lapinski, 2015). Research has shown that news media discourse influences public perceptions and attitudes towards emerging media and technologies (see, e.g., Cacciatore et al., 2012; Lee et al., 2005) as well as imaginaries about the (desirable) role of technologies in future social life and order (Jasanoff & Kim, 2015; Mager & Katzenbach, 2021). This is why we explore how FRTs and norms for their use are discussed in news media discourse.

News media discourse is the interplay of different statements presented or articulated in news media coverage about a common political or social issue (Wessler, 1999). It is a resource and forum for information, public sense-making, socialization, and social coordination and for the representation and negotiation of social norms and values (e.g., Chung & Rimal, 2016; Ferree et al., 2002; Geber & Hefner, 2019). News media discourse plays a vital role in public sense-making by presenting or promoting frames that highlight particular interpretations and predispose understanding and evaluations of practices (Entman et al., 2009). Entman (1993) defined frames as the interplay of four elements: a

particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for a particular issue. While in framing normative aspects and values play an important role (Shah et al., 2001), this normative dimension is seldom clearly operationalized (see Matthes, 2009). To specify evaluations and normative claims in actor statements, we propose a methodology (see below) that builds on Entman's frame elements, but adds further approaches stemming from research on norms and values (Zillich et al., 2016) and research on discourse and (de)legitimization (Reyes, 2011; van Leeuwen, 2007).

Journalists play a double role in news media discourse and framing processes. They are mediators or conveyors making topics and statements or claims of different actors visible and actors that evaluate and frame themselves (Statham, 2007). How journalists take up these roles and how they cover controversial topics, such as FRTs, depends on specific journalistic cultures or traditions in different national media landscapes (see, e.g., Esser & Umbricht, 2013; Hanitzsch, 2011). We take this into account in a twofold way: we investigate evaluative statements of all actors referring to FRTs in the articles in our sample and employ a comparative design (Esser & Hanitzsch, 2012) that includes five European countries.

In the following, we highlight the main findings from previous research on news media discourse on FRT as well as on technologies, AI, Big Data, and (video)surveillance to contextualize our analysis and findings within further current discourses on the uses and implications of technologies.

Media Discourse on FRTs, AI, and Surveillance

Research that particularly focuses on media discourse on FRTs is hitherto scarce. An important exception is the qualitative discourse analysis by Eireiner (2020). She examined media coverage on a FRT pilot project by the German Ministry of the Interior at the train station Berlin-Südkreuz and explored how FRTs were discussed and linguistically framed. She found two primary legitimization strategies pushed by the ministry and law enforcement: the tools' efficiency and the important role of 'intelligent' FRTs for

enhancing security in public spaces. In turn, problematizations mainly addressed issues of informed consent and privacy infringements and referred to FRTs as “intimidating” with a distinct boundary between surveilled citizens and controlling authorities. Eireiner (2020) shows that news headlines repeatedly refer to visions of Kafkaesque or Orwellian ‘Big Brother’ dystopias of totalitarian algorithmic control. Eireiner concludes with the suggestion that “it would be compelling to research how media portray change over time and vary across different regions and nations” (Eireiner, 2020, p. 13). The present study addresses this desideratum.

The arguments on FRTs tie in with the growing body of research on news media coverage on CCTV, surveillance, and digital privacy after the Snowden revelations, AI, and Big Data. Across different social and political contexts, studies generally foreground polarized debates split between two antagonistic evaluative schemata: one plays into trends of securitization (Buzan et al., 1998) and particularly highlights crime prevention and collective national public security objectives. The other stresses concerns over encompassing mass surveillance and threats to privacy and personal liberties (see, e.g., Barnard-Wills, 2011; Lischka, 2017; Pentzold & Fischer, 2017). Moreover, studies have shown that singularization arguments that downplay the harms and scopes of surveillance circulate widely in international media debates on surveillance practices (Lyon, 2015; Wahl-Jorgensen, Bennet, & Taylor, 2017). Furthermore, studies stress that the description of targets plays an important role for the evaluation of surveillance practices. For surveillance to be positively evaluated, it must be targeted ‘appropriately’ at deviant ‘threats’ (Barnard-Wills, 2011; Wahl-Jorgensen, Bennett, & Cable, 2017). We expect to also find these arguments in the discourse on FRTs. Moreover, we also assume to find legitimizations and contestations that research on media coverage on technologies and Artificial Intelligence (AI) has stressed. Technologies and AI are often framed as ‘social progress’ (Nisbet & Scheufele, 2009) and solutions to current problems that increase efficiency or safeguard public and state security (Brennen et al., 2018).

We assume that the prominence of these arguments might vary. Previous research has shown that discourses on CCTV, surveillance, and AI are profoundly shaped by specific

national social and political contexts, newspapers' ideological orientation, and the attention given to specific actors or sources (Kuehn, 2018; Brennen et al., 2018). In the media coverage of surveillance and security issues, government, police, or other state officials stressing national public security objectives are most dominantly cited at the expense of researchers, advocacy groups, privacy experts, and citizens (Russell & Waisbord, 2017; Wahl-Jorgensen, Bennet, & Taylor, 2017). In turn, studies on media coverage on AI describe an industry-led debate that is strongly dominated by the view of corporate actors and the introduction and review of commercial products (Brennen et al., 2018; Fischer & Puschmann, 2021).

Against this backdrop, we first explore the overall frames in news media discourse on FRTs and which desirable norms for FRT usage are constructed within these frames in Germany, Ireland, Italy, Switzerland, and the UK (RQ1). Additionally, we analyze whether there are differences with respect to framing and the construction of norms in the different countries (RQ2). By investigating the statements of all individual or collective actors evaluating FRTs in the articles, we thereby assess whose viewpoints are included in news media discourse.

Data and Method

Materials

This study is based on a quantitative content analysis of 2195 print and online news articles published between June 1, 2013 and June 30, 2019, in 15 newspapers in Germany, Ireland, Italy, Switzerland, and the UK. Our analysis thus covers a period of time with heated debates on surveillance and digital privacy after the Snowden revelations, the presentation of facial recognition as a new feature in consumer devices, such as the iPhone X, and increasing concerns over FRTs and calls for norms and oversight.

With the country sample, we examine national social and political contexts with different security and surveillance traditions and different public discourses and attitudes towards surveillance, privacy, and the use of biometric data (Pavone et al., 2015; Steinacker et al.,

2020; MacDonald & Hunter, 2013; Murakami Wood & Webster, 2009). For each country, the media sample¹⁸ comprises three high-circulation national newspapers with both their print and online coverage. The newspapers encompass different political perspectives and readerships to provide a general cross-sectional overview of the discourse. We focus on high-circulation newspapers as they reach broad audiences, constitute public agendas, and are a prime resource for other journalists, politicians, and opinion leaders (McCombs, 2014). We collected all articles (UK: n=695; Germany: n=580; Switzerland: n=325; Italy: n=379; Ireland: n=216) with a string search for “facial recognition” combined with the respective German and Italian translations (“Gesichtserkennung” and “riconoscimento facciale”) on the database Factiva, and for the German sample, from the outlets’ own online archives. Our study is a full survey of news media discourse on FRTs in the abovementioned media and the defined time frame as we only excluded duplicates and faulty outputs.

Procedure and Coding

Article Level Variables. On the article level we coded formal categories such as dates and years of publication of the articles, the newspaper sections, and the genre of the article for the total sample. Furthermore, we coded the overall topic and overall tone of all articles. The overall tone of an article was coded using a 5-point scale ranging from 1 (positive) to 5 (negative), and the option to indicate that the article did not include any evaluation.

Frame Analysis and Analysis of Norms: Statement Level Variables. For the frame analysis and the construction of norms within frames we coded on the level of statements and include all articles that discuss FRTs as a main topic or that specifically mention FRTs in headlines and/or the opening and closing paragraphs, and that include a positive, negative or ambivalent evaluation of FRTs (in total 23%; 504 of 2195 articles). A statement includes all instances and any number of passages in an article in which one and the same

¹⁸ Germany: Bild, Frankfurter Allgemeine Zeitung, Süddeutsche Zeitung; UK: The Sun, The Times, The Guardian; Switzerland: 20min, Neue Zürcher Zeitung, TagesAnzeiger; Italy: Il Giornale, La Repubblica, Corriere della Sera; Ireland: The Irish Times, The Irish Independent, The Irish Daily Mail.

actor refers to FRTs and evaluates FRT usage in a certain way. Actors can be journalists expressing their own points of view and all individual or collective actors whose evaluative standpoint with respect to FRTs is directly or indirectly cited. Norms can be dissected into normative statements with seven distinct elements; i.e. actor, evaluated actor, evaluated practice, evaluative tone, (un)desirable or (in)appropriate practice, legitimization(s) or contestation(s), and addressee (Author, 2019). We used these elements to specify the normative dimension in frames and translated the four frame elements by Entman into the following statement level variables.

For the frame-element problem definition, we coded the *type of actor* (e.g., journalist, activist, politician, representatives of law enforcement, or tech companies), the *country* the actor refers to, the *temporal reference* (if a past, current, or future use of FRTs is described), and described *targets* (e.g., “threats,” generic “us” or “we,” or specified social groups, all coded as binary variables). To specify the normative dimension of problem definitions and to grasp which normative ideas of (in)appropriate or (un)desirable practices and ideas of priorities worth pursuing actors express, we coded how actors legitimize and or contest FRTs. *Legitimizations* justify and license a practice (Reyes, 2011; van Leeuwen, 2007) and are reasons actors employ to argue why the use of FRTs is acceptable or even favorable (e.g., FRTs enhance efficiency, or help solving crimes). *Contestations*, in turn, are reasons actors give for why they consider FRTs problematic (e.g., FRT usage compromises civil rights, leads to oppression, or is biased and has discriminatory effects). Actors can employ several arguments to legitimize or contest FRTs and their use, which is why we coded all arguments as binary variables. *Described users and usage contexts* of FRTs (e.g., law enforcement, public transportation, and consumer devices, all coded as binary variables) are used to operationalize the frame element of causal interpretation and to specify the evaluated practice. For *evaluations*, we coded four possible ways in which actors express evaluations; (1) adjectives and adverbs, (2) figures of speech, such as “Orwellian invasion of privacy,” (3) describing particular potentials, or (4) risks that the use of FRTs might have in a given context. Evaluations were coded as binary variables to allow for multiple coding. Furthermore, we complemented the quantitative coding with a qualitative dimension and openly collected

adjectives and adverbs as well as particular figures of speech used to describe FRT. We assessed the *evaluative tone* of the statement using a 3-point scale discriminating between a positive, ambivalent, and negative tone. Finally, for the treatment recommendations, we coded whether actors mention or suggest particular *measures or desirable norms* and which *actors are addressed or are held responsible* for the (future) regulation of FRTs. If the actors specified particular measures or regulations, we openly coded them for a further qualitative thematic analysis.

The sample was split between the two authors of this study. To gauge the reliability of the coding procedure, we jointly coded and discussed 50 test articles for training and made sure that all coding questions could be assessed. The two authors then independently coded randomly selected 10% of the material. We assessed reliability by computing Krippendorff's alpha (α) (Krippendorff, 2011), which was between .70 (contestations), .72 (legitimizations), .90 (overall tone of the article), 0.96 (for identifying if an article is eligible to be coded on the statement level), and 1.0 (formal categories such as date, year or the section of publication), indicating a reliable measurement. We define frames as patterns of how frame elements systematically group together. To identify such frames (RQ1), we carried out a hierarchical cluster analysis (Ward method with squared Euclidian distance). We computed binary variables for each statement-level variable and their values or categories. Only those variables with frequencies higher than 5% were included in the cluster analysis because variables with low frequencies do not contribute to the forming of clusters. Overall, we included 42 binary variables in the main cluster analysis. The number of clusters was determined using the so-called elbow criterion in the plot of the heterogeneity measure. Table 5 shows the variables and categories included in the cluster analysis.

Frame elements	Variables	Selected categories for cluster analysis
problem definition	actor speaker	journalist, activist(s)/NGO, political actors, law enforcement, researcher, software engineer
	target	'threats,' generic people, particular social group
	legitimization	crime detection, crime deterrence & prevention, utility & efficiency, security, singularization, authorization by law, identity protection
	contestation	extent, lack of consent, infringement personal rights, lack transparency, control & function creep, performance & biases, misuse & abuses, data security, lack regulation
moral evaluation	expression evaluation	adjectives/adverbs, figural speech/metaphors, potentials, risks
	evaluation tone	positive, ambivalent, negative
causal attribution	user	law enforcement, event locations, public transportation, shops & retailers, consumer electronics & tech companies
treatment recommendation	regulation/measures	no measure mentioned, measure specified
	addressee	politics, no responsible, other

Table 5: Operationalization of frame elements and categories included in the cluster analysis

For the interpretation of clusters and cluster solutions, we compared the mean values of all variables for each cluster (see supplemental material in the appendix). The mean values of binary variables are problematic in statistical terms; however, comparing them helps to identify the determining variables of each cluster (Matthes & Kohring, 2008). To explore whether the framing might vary across the countries (RQ2), we additionally ran cluster analyses for each country separately.

Findings

To contextualize the findings with respect to frames and norms within the frames, we first briefly characterize the contexts in which FRTs are discussed. FRTs are mentioned within a broad variety of topical contexts, though mostly in articles on trends and news of companies or on consumer devices (27.4%). The great diversity of topics is also reflected in the quite high number of articles classified under “other topic” (26.7%), with topics ranging from, e.g., oppression in China, wildlife protection and animal care, sport and music events, or smart city projects. Twenty-three percent of all articles discuss FRTs as a main topic in headlines and/or in the opening and closing paragraphs. Regarding the overall tone of these articles, there is a mixed share: 31.9 % of the articles are positive or have a positive tendency with respect to FRTs, 40 % are negative or have a negative tendency, 21 % of the articles are ambivalent or mixed, and 6.9% do not contain evaluative statements.

We identified and manually coded 908 statements (with $n_{\text{legitimizations}}=419$ and $n_{\text{contestations}}=504$) with journalists (37.6%) as primary actor speakers followed by politicians (11.5%) and tech companies/software engineers (11.4%) and activists (9.1%). The distribution of positive and negative evaluations on the statement level is nearly balanced: 42% of the statements are positive, 49.5% negative, and 7% ambivalent. In 1.5% of the statements, the evaluative tendency is unclear.

Overall Frames and Constructions of Norms in Media Discourse on FRTs

Across all countries, the cluster analysis shows four frames (RQ1). We labeled them (1) ‘Efficiency and Utility,’ (2) ‘Infringement of Personal Rights, Control & Function Creep,’ (3) ‘Crime Prevention and Public Security,’ and (4) ‘Regulation.’

In the frame ‘Efficiency and Utility’ ($n=215$, 23.7% of all statements, highest peak in 2014 with 37.9%), journalists and software developers/corporate representatives of tech companies are the main actors. In this cluster, the focus is on the use of FRTs in consumer electronics or social media platforms and apps. The mentioned targets are mainly users of certain devices, platforms, or apps. There is a clear emphasis on the potentials of FRTs.

FRTs are mainly characterized as a progressive, “revolutionary,” and “consumer friendly” technology. Actors thus stress that facial recognition is valuable and beneficial for efficient, easier, faster, or more convenient processes, such as for unlocking devices, managing and keeping track of photos shared online, enhancing privacy, and ensuring protection against identity thefts. Consequently, the main idea of desirable practice is to use FRTs, with efficiency and convenience as guiding normative principles.

‘Infringement of Personal Rights, Control & Function Creep’ is the most prevalent cluster (n=424, 46.7% of all statements) and the dominant frame in actor statements in all years of investigation; in 2013, 58.6% of the statements employed this frame. Journalists are the main actors, and the focus in this frame is on the use of FRTs by federal, national, or international law enforcement, intelligence agencies, and border control or the use of FRTs in consumer electronics and social media platforms and apps. The targets are mainly generically described as “us,” “we,” and “everyone.” The tone is negative, and the actors foreground the risks related to FRTs. More often than in other frames, figures of speech are used to express the evaluations. Figures of speech create lineage with the popular science fiction film *Minority Report* in which “precogs” predict crimes, visions of Kafkaesque or Orwellian “Big Brother” dystopias of totalitarian state control and mass surveillance machines, “all seeing eyes” and “transparent citizens,” or images of warfare and poison (“plutonium,” “arsenic”) to describe FRTs and their social implications. In this frame, FRTs are characterized as highly problematic or as “intrusive” or “creepy.” For instance, actors criticize a “disproportionate” and “excessive” extent of FRT use and are concerned that the use of FRTs might alter the nature of society in authoritarian lines, leading to the end of a free and liberal society with gradually extended function creeps beyond initial purposes. Actors also prominently address infringements of personal rights. Regarding norms, these contestations of FRTs are strongly guided by a claim to protect privacy and data sovereignty for citizens and to ensure transparency with respect to data collection, storage, and analysis.

In the frame ‘Crime Prevention and Public Security’ (n=164, 18.1% of all statements, highest peak by 2018 with 24.0%), politicians and members or representatives of law

enforcement are the main actors. The overall judgement is positive with a clear focus on the use of FRTs by law enforcement or public transportation and the advantages of “intelligent” FRTs for detecting, solving, or preventing crimes and for safeguarding public and state security and fighting terrorism. Moreover, the actors highlight the singularity of possible problems and downplay possible norm transgressions and their social implications. Congruently, terrorists, suspects, “deviants,” or general “threats” are described as the main targets. The guiding normative idea is fighting crimes and ensuring security with facial recognition as an important or even necessary tool to achieve these ends.

Finally, the ‘Regulation’ frame is the smallest cluster (n=105, 11.6% of all statements, with increasing shares in 2018 at 15.4% and 2019 at 16.9%). The main actors are activists and representatives of non-governmental organizations (NGOs). The frame focuses on the use of FRTs by federal, national, or international law enforcement, intelligence agencies, and border control. The evaluative tone is negative, and actors stress the risks and potential negative implications related to FRTs. Again, the actors criticize the extent of FRT usage, warn against the end of a free and liberal society, infringements of personal rights, and an insufficient precision, discriminatory and racist biases, and the potential long-term effects of misrecognition. The characteristic feature of this frame is that actors particularly criticize the lack of regulation of FRT usage and also partly mention or discuss specific regulative measures put in place or desirable future regulation. Our qualitative analysis shows that this includes generic claims for general legal regulation or (public) deliberation on ‘desirable’ and ‘acceptable’ uses on a broader societal level on the one hand. On the other hand, actors sometimes also voice concrete requests to, for example, stop FRT usage for law enforcement and to develop operating procedures and protocols for police officers to guarantee transparency and controlled, proportionate use. The actors also call for informed consent and assessments of accuracy, biases, and privacy impacts as mandatory preconditions for FRT deployment. The responsibilities are mainly attributed to legislative political actors and law enforcement; however, tech companies are also addressed when actors call on them to stop selling FRTs to law enforcement and governments.

Cross-tabulation and a chi-square test ($\chi^2(20) = 57.111$ $p < .000$, Cramér's $V = .177$, $p < .000$) of frames and the newspapers' political orientation shows that the efficiency and utility of FRTs are prioritized in right-leaning (38.2%) and tabloid papers (30.9%, compared to left-leaning liberals at 14.1%). Left-leaning liberal outlets show a greater emphasis on infringements of personal rights (52.4%, right-leaning 40.9%, tabloid 42.7%) and regulation (15.3%, right-leaning 10.3%, tabloid 0.9%).

Differences Between Countries

With RQ2, we examined differences with respect to framing and the construction of norms in the different countries. In fact, the share of the single frames differs ($\chi^2(12) = 88,429$, $p < .000$, Cramér's $V = .180$, $p < .000$). For example, in the Irish discourse, 'Efficiency & Utility' is by far the most prevalent frame with a share of well over 50% of the statements. In all other countries, the frame 'Infringement of Personal Rights, Control & Function Creep' dominates. This is also reflected in significant national differences regarding the overall tone of articles ($\chi^2(20) = 106.237$, $p < .001$, Cramér's $V = .230$, $p < .001$). Most strikingly, for Ireland, there is a much higher share of articles with a positive tone (positive or with positive tendency, 69.4%), while 16.3% have a negative tone (negative or with a negative tendency). In the German sample, only 17.4% of the articles are positive or have a positive tendency, while 47.1% have a negative tone (negative or with a negative tendency). In this regard, the topical context seems particular relevant; Ireland has a much higher share of articles on public welfare and the national healthcare system (15.3%, overall 2.1%) and police work (6.5%, overall 3.7%).

The national cluster analyses show that the above described frames remain overall stable in the UK and Germany; however, we observed differences regarding the main actors. In the German discourse, journalists are the main actors in the 'Regulation' frame, while in the UK, this frame is rather expressed by activists and NGOs. In Switzerland, Italy, and Ireland, the fourth frame changes; instead of a 'Regulation' frame, actors employ an 'Ambivalence' frame. It is a small frame (Switzerland: $n=10$; 7.0%; Italy: $n=14$; 14.1%; Ireland: $n=4$; 5.6%) in which journalists are the main actors. They refer to FRT usage by

federal, national, or international law enforcement, intelligence agencies, and border control or the use of FRTs in consumer electronics and social media platforms and apps. The frame is characterized by a strong ambivalence towards FRTs, and actors refer to both potentials and risks with no clear evaluative tendency. They discuss FRTs as favorable for ensuring safety and security but also consider them problematic due to the possible negative implications, such as social control and oppression. Given the small shares of this cluster in the respective national samples and the generally smaller number of statements in these three countries, these findings need to be interpreted carefully. The distributions of the shares of frames are displayed in Figure 4.

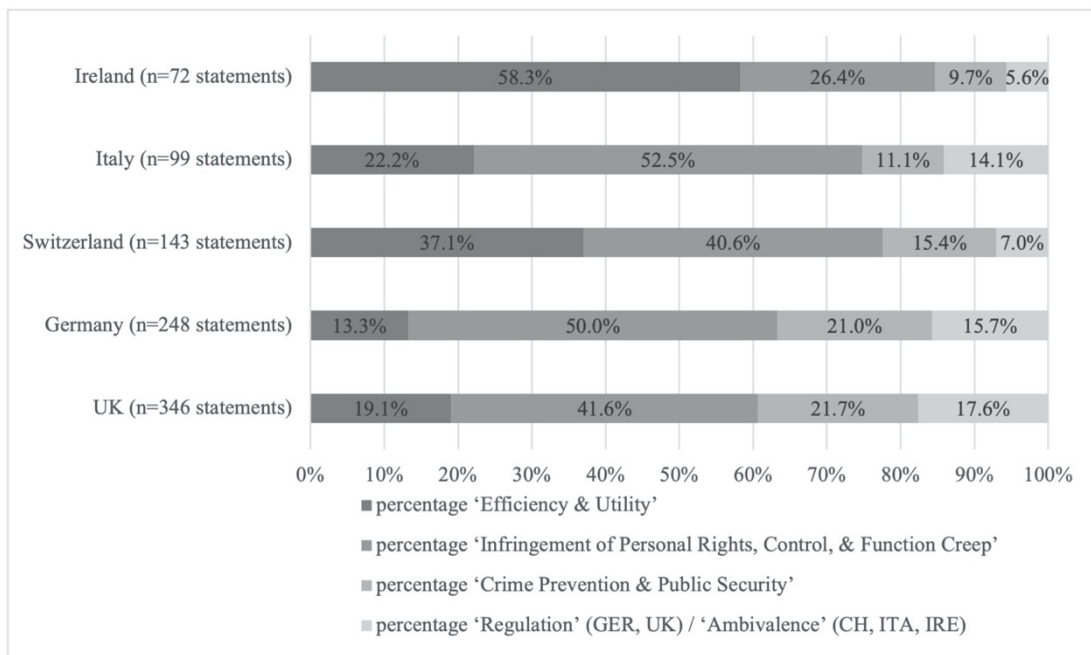


Figure 4: National cluster analysis and frequency of frames in the different countries

Cluster analyses run for each country individually; percentages are rounded.

Discussion

Our analysis shows that facial recognition is a ubiquitous term mentioned within a broad variety of topical context. However, news media discourse on FRTs is often driven by the introduction and review of commercial products; FRTs are mostly mentioned in articles

on trends and news of companies or on consumer devices, which corresponds with general studies on the media representation of AI (see Brennen et al., 2018; Fischer & Puschmann, 2021). Facial recognition thus overall mainly appears to be an increasingly common everyday tool for users and a normalized feature of consumer devices, apps, and platforms.

We identified and characterized four main frames in news media discourse on FRTs (RQ1), which focus on different users or usage contexts and highlight different functions and norms. Altogether, our analysis shows a polarized debate split between two antagonistic evaluative schemata. The first is a positive one in which actors either highlight crime prevention and public security objectives as discursive normative trump card or characterize FRTs as efficient tools that allow for more convenient everyday life ('Crime Prevention and Public Security' and 'Efficiency & Utility'). Legitimizations here clearly show tendencies of technological solutionism (Chiusi et al., 2020; Morozov, 2013) or 'technofix,' framing FRTs as powerful AI solutions to on-going urgent problems. Such views tend to be prioritized in right-leaning or tabloid papers. The negative one, predominantly expressed in left-leaning liberal outlets, stresses concerns over encompassing mass surveillance and threats to privacy and personal liberties ('Infringement of Personal Rights, Control & Function Creep'). This frame is the dominant frame in actor statements in all years of investigation. The choice of language employed to express such concerns echo findings from previous studies (Eireiner, 2020) with references to popular science-fiction films, warfare, and poison or visions of Kafkaesque or Orwellian "Big Brother" dystopias of totalitarian state control and mass surveillance machines.

For the frame 'Efficiency & Utility,' actors mainly focus on one-to-one matching for authentication or ordering. The frames 'Infringement of Personal Rights, Control & Function Creep' as well as 'Crime Prevention and Public Security' rather concentrate on (live) identification of individuals in crowds or across big data sets, though with opposing interpretations. While the first is concerned that FRTs infringe on personal rights, such as privacy, and might alter the nature of society on authoritarian and oppressive lines, the latter echoes important tendencies of what constructivist international relations scholars

call securitization (Buzan et al., 1998). Criminals and terrorists are described as existential threats to public security, while facial recognition is then the necessary tool to deal with such threats.

As assumed, the main frames thus mirror general patterns in discourses on surveillance and AI caught between an antagonism of normative principles of crime prevention, collective national public security objectives, and mere convenience versus concerns over encompassing mass surveillance and threats to data sovereignty and privacy. Interestingly, mainly in the UK and Germany and rather in center-left-liberal outlets, there are attempts to initiate a discourse on how to balance and integrate these different priorities and to further discuss (desirable) social and legal norms for regulating FRT usage in different domains. These references to issues of regulation and responsibility have intensified over time.

Previous studies on surveillance have shown that besides journalists themselves, government, police, and other state officials are most dominantly cited in news media coverage, while researchers, advocacy groups, privacy experts, and citizens play a rather marginal role. Our findings generally confirm these findings. Overall, journalists are primary actor speakers in news media discourse on FRTs as well as the main actors in the most prevalent frames ‘Infringement of Personal Rights, Control & Function Creep’ and ‘Efficiency & Utility.’ Rather unsurprisingly, politicians, state officials, and law enforcement are main actors when it comes to promoting facial recognition as a significant tool for crime prevention and public security. Advocacy groups and activists generally do not have a prominent role in the discourse (9.1% of all statements) but become more dominant actors, especially in the UK, when discussing the desirable norms, regulative steps, and governance of FRT.

With RQ2, we examined differences with respect to framing and the construction of norms in the different countries. We have shown that in Germany and the UK, the national frames largely correspond to the frames identified across all countries, including a ‘Regulation’ frame. In Switzerland, Italy, and Ireland, actors express ambivalent views (Frame ‘Ambivalence’) instead of discussing (desirable) social and legal norms for regulating

FRT usage in different domains. Furthermore, in all countries, ‘Infringement of Personal Rights, Control & Function Creep’ is the dominant frame in actor statements. Actors in Ireland advocate for FRT usage, stressing efficiency and convenience as guiding normative principles and foregrounding the potentials of FRT for more efficient, easier, faster, or more convenient processes. At the same time, this finding reminds us that norms are contextual concepts. Facial recognition is versatile in its application and tends to become a catch-all term. Therefore, it is also crucial to consider the topical contexts in which FRTs are discussed: such ideas of efficiency and utility are prominently stressed in the context of articles on public welfare or on trends and news of companies. However, originally restricted uses and data collection capacities of technologies tend to expand with additional functions beyond their initial purposes (Lyon, 2018). Thus, further discourse on the affordances and potential effects of FRTs, their development context, stakeholders in the process of data collection and analysis, and desirable norms for FRT usage beyond simple trade-off traps between privacy and security is needed.

Limitations and Outlook

Our study has limitations that need to be addressed in further research. This primarily regards the country sample and the focus on the verbal level. First, it would be essential to further examine how news media discourse on FRTs evolves in other countries beyond the Western European context we investigated. Second, we did not examine the visualization of FRTs and the role of visual framing (see, e.g., Brantner et al., 2011; Coleman, 2010) and thus the role of images in sense-making and in conveying evaluations and arguments. Future work should address these aspects. Further research might also explore how frames in news media coverage shape public perceptions and normative attitudes towards FRTs and desirable social and legal norms for their regulation.

Since 2019, the discourse on FRTs has continued, discussing for example their potentials for fighting the global pandemic COVID-19 and surveilling quarantine measures (Roussi, 2020) or the implications of publicly available grand scale facial recognition applications, such as Clearview or PimEyes. Given the importance and complexity of facial recognition

in current societies, it is crucial to further examine how FRTs are framed and norms for their usage are discussed in current and future discourse. For these further investigations, the present study provides both an empirical and methodological groundwork.

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8 Study 3: Analyzing Norms in Multimodal News Media Discourses: An Analytical Framework

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Abstract

Mediated public discourse is a central forum for communicating and negotiating social norms. However, the ways in which norms are discursively constructed have seldom been studied. In particular, there is a dearth of research on the role of visuals and the multimodal interplay in the construction of norms. To address this gap, in this article I present an analytical framework for a qualitative multimodal content analysis of normative statements in news media discourses. The framework is developed to provide guidance for (1) examining normative statements on the verbal level and the visual level and for (2) discerning particular image-text relations in the construction of norms. By doing so, the approach allows the identification of mode-specific contributions as well as multimodal interplays. The theoretical and methodological considerations and analytical steps are illustrated with selected examples.

Introduction

Learning and defining norms, and thus knowing what is considered ‘normal’ and ‘appropriate’ in various contexts, are key aspects of socialization processes and in regulating and coordinating social life. The study of norms is a key cross-cutting topic in the social sciences (Bicchieri, 2006; Chung & Rimal, 2016; Hechter & Opp, 2001; Legros & Cislighi, 2020) and is “of particular importance to communication scholarship because, by definition, norms are social phenomena, and they are propagated among group members through communication” (Lapinski & Rimal, 2005, p. 127). Mediated public discourse, that is, the interplay of public speech acts on a common issue in and across various arenas of public communication (Wessler, 1999), is a central forum in which social norms are communicated and negotiated (Ferree et al., 2002; Geber et al., 2019). However, the ways in which norms are discursively constructed have rarely been studied (Author, 2019). In particular, the role of visuals and the multimodal interplay in meaning-making (e.g., Bezemer et al., 2016; Graber, 1989; Ravelli & van Leeuwen, 2018; van Leeuwen, 2020; Tseronis & Forceville, 2017) have been neglected in the study of norms. This is an important blind spot for two main reasons. First, media environments are increasingly visualized (Stöckl et al., 2020; Lobinger & Geise, 2015; Powell et al., 2015), with images

serving as necessary or even default parts of news media coverage, especially of articles in online editions or postings on social media (Vobič & Tomanić Trivundža, 2015). Second, previous studies have demonstrated that images play a significant role in the construction of social and political worlds, in communicating normative ideas and models of, for example, parenting, professions, education levels, body shapes, or gender roles (Aiello & Parry, 2020), in constituting how events and concerns are framed, affectively experienced, and understood, and in how practices and people are evaluated (e.g., Brantner et al., 2011; Coleman, 2010; Geise & Baden, 2015; Powell et al., 2015; Ross & Lester, 2011). Therefore, it is particularly relevant to explore the role of visuals and multimodal interplays in the construction of norms in mediated public discourses.

To address this gap, this article presents an analytical framework for a qualitative multimodal content analysis of normative statements. The proposed framework uses news media discourse in print and online newspapers as analytical material. In what follows, I briefly define norms, discuss the characteristics of the visual mode of communication, and synthesize previous knowledge regarding the visual expressions of evaluations and normative ideas. I then argue in favor of an approach that takes into account multiple contextual aspects and includes analytical steps on both the monomodal and multimodal levels. I illustrate the suggested procedure using two examples from German and Swiss news media discourse on visual practices. Within this paper, the term visual practices is used to designate practices of taking, sharing, and using images. The overall aim of this article is to suggest and discuss a way in which to reconstruct and analyze multimodal normative statements—not to stress recurrent central patterns in the discourse on visual practices. The article provides an analytical toolkit and aims to stimulate further research and reflection on the multimodal construction of norms in news media discourses.

Norms

Social norms describe what people believe to be a normal, typical, and/or appropriate, desirable action in a given context (e.g., Chung & Rimal, 2016; Rimal & Lapinski, 2015; Hechter & Opp, 2001). Norms guide people's decisions and are important for coordinating

social behavior as they prescribe which practices are expected and deemed appropriate in a given context (Homans, 1974). From a social constructivist viewpoint, norms are understood as dynamic concepts as they are dependent on social perceptions and attributions (Berger & Luckmann, 1966) that evaluate and define practices as desirable or undesirable. This brief definition highlights central elements that will guide and bind the analytical steps in this article: Norms are *evaluations of practices by actors*, and/or address actors, and are tied to particular *contexts*.

Norms, including those relating to the use of media and digital technologies, are communicated and learned in different socialization settings, for example, in families, schools, on- and offline interpersonal communication among peers (see, e.g., Chung & Rimal, 2016; Geber et al., 2019; Hogg & Reid, 2006), and, importantly, through media exposure and mediated public discourses (e.g., Geber et al., 2019; Mabry & Mackert, 2014; Tankard & Paluck, 2016). Norms usually come to the fore when diverging concepts of desirable rules clash or when emerging situations warrant new norms. For example, ubiquitous practices of taking and sharing pictures (Jurgenson, 2020) have led to various controversies and reflections on “adequate” content or image quantities (e.g., Vaterlaus et al., 2016), what to post online, and how to balance self-disclosure (e.g., Hiniker et al., 2016; Zillich & Müller, 2019). For the study of norms, such controversies are important because they show which norms get irritated and which practices are deemed desirable or are found to be problematic by which actors. The present article develops an analytical framework to examine such concepts and constructions in news media discourses.

As the methods section will later outline, the article proposes to dissect the complex construct of norms into normative statements with distinct elements. This helps to translate the concept of norms into categories for content analysis. As stressed above, norms and normative statements evaluate practices and/or actors in a certain way and approve or disapprove of them. Therefore, the following section focuses on the ways in which evaluations can be expressed visually to provide the necessary theoretical basis for examining the role of visuals and multimodal interplays in the construction of norms.

Visuals and Evaluations

The visual mode of communication has a particular associative logic (see, e.g., Kress & van Leeuwen, 2006; Müller, 2007) that makes visual claims difficult to verbalize. Moreover, images are polysemic and, thus, are open to different interpretations and readings (Messaris & Abraham, 2001). This ambiguity is not a matter of deficiency (Parry, 2020). On the contrary, it makes visuals very effective tools of persuasion (e.g., Hawhee & Messaris, 2009; Kjeldsen, 2015; Roque, 2012) and for framing and articulating ideological messages and implicit arguments by activating certain cognitive patterns (e.g., Brantner et al., 2011; Messaris & Abraham, 2001; Richardson & Wodak, 2009; Rodriguez & Dimitrova, 2011). Interpretations and semantic connections can be implicitly suggested by the image syntax, that is, the combination and arrangement of image elements (Lobinger, 2012, p. 75). Researchers from philosophy (Mössner, 2013) and multimodal argumentation studies (Birdsell & Groarke, 2007; Kjeldsen, 2017; Roque, 2012; Tseronis, 2018; Tseronis & Forceville, 2017) have stressed the strong argumentative and persuasive potential of visuals as well as the argumentative use of visuals. They can be used, for example, to concisely present information, put forward political advice and recommendations (Kjeldsen, 2017; Serafis et al., 2020), or provide evidence (e.g., Birdsell & Groarke, 2007; Kjeldsen, 2015, 2017). In fact, images create and guide attention, influence opinions and attitudes, enhance persuasion, information acquisition, and involvement, and effectively represent and elicit emotions (see, e.g., Geise & Baden, 2015; Holsanova et al., 2006; Müller & Kappas, 2010; Powell et al., 2015). Against this backdrop, it is particularly relevant to explore the role of visuals in the construction of norms in news media discourses. Importantly, studies in visual communication research and social semiotics have stressed that topic-specific *motifs* – as well as *representation techniques*, thus, *how* people, practices, and objects are portrayed – are important for (a) making actors and issues visible and salient and (b) suggesting interpretations and evaluations by making people and practices appear, for instance, advantageous, desirable, or problematic (for an overview, see Lobinger, 2012; Dan, 2018, pp. 22-23). In the following section, I will synthesize key findings regarding how visuals can express and suggest evaluations and normative ideas.

Expressing and Suggesting Evaluations Visually

There are different ways in which visuals can express and suggest evaluations. First, images can make actors and aspects of issues visible and *salient*. They can guide attention and affect the importance attributed to the depicted topic or aspect (e.g., Bednarek & Caple, 2017), for example, through the *size* of an image, the prominent *placement* of an image within a publication (e.g., Entman, 1991; Parry, 2020), or the *focus, color, vectors, and centering* of the image (e.g., Kress & van Leeuwen, 2006; Thurlow et al., 2020; van Leeuwen, 2020). Second, visual communication researchers have pointed to the effects of representation techniques and compositional elements on audience perceptions and evaluations of depicted persons and objects. For example, depicting people in groups with similar poses or synchronized action (look, walk, practices, angle) can enforce stereotypes and a “they are all the same-effect” (van Leeuwen, 2001, p. 96). *Camera angles* can make people appear advantageous, dominant, and powerful (low-angle, slight view from below) or rather disempowered, submissive, and less favorable (high angle, above-eye-level shots) (see, e.g., Barnhurst & Quinn, 2012). *Social distance measures* (Kress & van Leeuwen, 2006), including *shot distance* and *proxemic relations between depicted individuals*, can affect the perceived valence of a visual portrayal, creating a sense of either intimacy and closeness or distance and isolation (see, e.g., Bell & Milic, 2002; Kress & van Leeuwen, 2006; Rodriguez & Dimitrova, 2011). Along with distance and angle, the *direction or line of gaze* can create a visual form of addressing the beholder (Kress & van Leeuwen, 2006; Parry, 2020) or make the beholder an “invisible onlooker” (Bell & Milic, 2002, p. 209) when depicted persons are looking away. Finally, nonverbal behavior, especially *facial expressions* (Müller & Kappas, 2010), and *colors* can express emotions and moods (Kress & van Leeuwen, 2002; van Leeuwen, 2020, pp. 476-479) and can affect audiences’ emotional responses (Müller & Kappas, 2010; von Sikorski, 2018).

Nevertheless, the potential role played by these different aspects and their interplay—hence the semantization of motifs and representational and compositional techniques and, therefore, their potential role in communicating and constructing norms—depends on the given thematical, argumentative, social, media, and multimodal contexts that need to be considered during the analysis (see also Lobinger, 2017, 2012; Birdsell & Groarke, 2007;

Christmann, 2008, Chrystlee et al., 1996, pp. 12-13). For example, the interplay of motifs, camera angle, social distance, gaze, and depicted facial expressions can create a vision of technology as something decontextualized, something cut off from ‘real’ social interaction, as Thurlow, Aiello, and Portmann (2020) and Thurlow (2017) have shown in their analysis on how young people and their digital practices are visually represented in stock photography and media discourse. They found a high prominence of technological devices among young people and that especially girls are depicted as glued to their phones, without interacting with each other or the viewer who cannot see what these young women are looking at on their phones or with whom they are communicating. This is a typical visual configuration and interplay of motifs and representational and compositional techniques in this particular thematic and media context. However, we need to carefully explore the potential role played by these aspects and their interplay in other contexts. The relevance of considering the thematical, argumentative, social, media, and multimodal contexts of visuals during the analysis will be further discussed in the following section.

Contexts and Multimodality

Researchers of journalism and argumentation studies have discussed the different functions of images. They have differentiated, for example, dramaturgical, illustrative, and journalistic functions in news media coverage (Grittmann, 2007), or have described a set of uses of images in rhetorical strategies such as visual flags, demonstrations, metaphors, and symbols (e.g., Birdsell & Groarke, 2007). The way in which images are selected and used in news media discourses is often highly routinized and conventionalized (Grittmann, 2007). Selection routines iterate limited topic-specific repertoires of images with recurring motifs and representational characteristics, so-called *image types* that bundle visuals with motifs of similar content or meaning and distinct representational features (Grittmann, 2007; Grittmann & Ammann, 2009, 2011; for recent applications, see, e.g., Brantner et al., 2020; Pentzold et al., 2019). Images and such image types acquire *discourse-specific meaning* and functions when they are recurrently used in a particular *thematic context*, or *within argumentative structures*, and can even become iconic representations of certain issues (Kjeldsen, 2017; Lobinger & Geise, 2013, pp. 337-338; Grittmann, 2013; Herbers

& Volpers, 2013). For example, images of lone polar bears stranded on ice floes have become iconic in representations of climate change (see, e.g., O'Neill, 2020).

Moreover, how the audience evaluates motifs, depicted actors and their nonverbal communication and practices, and the tendency of images is linked to viewers' individual readings as well as contextual factors such as the historical, cultural, and social context, the discourse position of the beholder and the production, source, and reception context (Grittmann & Lobinger, 2011; Lobinger & Brantner, 2015; Christmann, 2008; for a detailed discussion on visual context analysis, see Knieper & Müller, 2019; Bock et al., 2011; Müller, 2011). Furthermore, the intra-media context (medium, positioning, section) in which an image is published can influence how images are evaluated (Grittmann & Lobinger, 2011; Lobinger, 2012).

Moreover, mediated communication is always multimodal. Therefore, images cannot be treated as entities independent of verbal messages in media texts (Graber, 1989; Kress, 2010). The interplay of different modalities, such as written text and visual representations, in news media coverage co-constructs meaning in a multiplicative way (Coleman, 2010; Pentzold et al., 2016; Tseronis, 2018; van Leeuwen, 2020; Kress, 2010). As such, researchers have discerned different image-text relations (see, e.g., Martinec & Salway, 2005; Stöckl et al., 2020). According to Barthes (1977), text and images can be complementary, with each contributing its own distinct information ("relay"), or text can direct interpretation and meaning-making ("anchorage"). Verbal anchors, such as captions, headings, or the article text, then contextualize images and might define a particular interpretation (e.g., Caple, 2013; Kress & van Leeuwen, 2006; van Leeuwen, 2001). They can also categorize and evaluate depicted objects and people in a certain way and, thus, suggest a certain reading and interpretation designating them as, for example, 'typical,' 'normal,' or 'problematic' (Thurlow et al., 2020). Generic or symbolic 'stock' photos provided by image banks, which are corporate content providers (Aiello & Woodhouse, 2016; Thurlow et al., 2020), are particularly interesting in this regard. They are often characterized as 'empty signifiers,' but they can acquire discourse-specific

meaning when they are recurrently used with specific verbal anchors and in specific discursive and argumentative contexts.

With respect to valence and evaluative tone, image and text can be *consonant*, thereby jointly contributing to or *repeating* and, therefore, *amplifying* (reinforcing) certain interpretations. Alternatively, they can be dissonant, *contradicting* each other (Roque, 2012). This also holds true for image-image relations when several images are used in an article. Such contrasts are important ways in which text and visuals complement each other and co-construct meaning in news media discourses (see, e.g., Moernaut et al., 2020; Thurlow et al., 2020). In this regard, from the perspective of visual argumentation, Roque (2012) refers to the characteristics of visual communication and stresses that it is difficult to use an image for the purpose of negation, separate and apart from codified interdiction signs. He argues that “because of this characteristic, the visual and the verbal often combine their properties: the visual is used in order to describe the situation we reject; and the verbal in order to make this rejection explicit” (Roque, 2012, p. 285). This, again, stresses the fact that norms in news media discourses can only be adequately understood if we take into account all modes of communication and their interplay in normative statements.

Overall, the theoretical and empirical research presented so far has two important implications for the multimodal analysis of normative statements: First, the analysis of norms and how they are communicated and constructed both verbally and visually is tied to thematic, argumentative, social, media, and multimodal contexts that need to be carefully reflected both theoretically and methodologically. Second, to adequately examine normative statements, we need to examine their elements on both the monomodal level and the multimodal level. This is necessary to take stock of how the specific characteristics of each modality come into play, as Lobinger and Geise (2013, p. 338) have stressed in the context of visual framing research. Against this backdrop, I develop and illustrate an analytical framework designed to address these needs. The framework takes into account multiple contextual aspects and includes analytical steps on both the

monomodal and multimodal levels. The corresponding methodological considerations and analytical steps are described below.

Developing an Analytical Framework for a Multimodal Analysis of Normative Statements

The development of the analytical framework is based on an exemplary case study that focuses on a specific thematic, media, and socio-cultural context: The examples stem from an exploratory qualitative analysis¹⁹ of articles on visual practices published between 2004 and 2020 in German and Swiss-German high-circulation newspapers and the most popular online news outlets in the two countries. Discourses on visual practices, that is, in the scope of this article, practices of taking, sharing, and using images, offer rich material to study normative statements and how norms are constructed in news media discourses. Images here have a dual role: They are elements in the multimodal construction of norms and, at the same time, the object of discourse. This discourse was chosen because visual practices have been the subject of various heated debates in the past, focusing on, for example, new ways of creating, sharing memories, and sharing images, especially selfies, as a sign of “digital narcissism” (Chamorro-Premuzic, 2014), or the alleged risks of sexting (Hasinoff, 2015). Moreover, ‘sharenting’ practices (i.e., parents sharing photographs of their children by publishing images on social media or sending them to others via messaging services) or, most recently, privacy infringements when social media images are used as training data for commercial facial recognition tools (Hill, 2020) have been controversial topics in this discourse.

¹⁹ The media sample includes both the print and online editions of *Süddeutsche Zeitung*, *Frankfurter Allgemeine Zeitung*, *Bild*, *Spiegel Online*, *Tages Anzeiger*, *Neue Zürcher Zeitung*, and *20min*. Articles were sampled with a string search with the following keyword combinations: Bilder OR Fotos AND Soziale Medien OR Soziale Netzwerke OR Facebook OR Instagram AND teilen OR hochladen; Selfies, Sharenting. Only those articles in which an actor evaluated visual practices in a positive, negative, or ambivalent way were included. The articles were coded in MaxQDA.

Examining the multimodal interplay of images and text in the construction of norms in such discourses comes with particular challenges: While the associative and holistic character and syntactic implicitness of images make them particularly effective for framing and articulating implicit arguments, these characteristics also pose specific challenges in terms of examining norms expressed visually. Coding and analyzing evaluative tendencies are always particularly challenging for the analysis of both the verbal and visual levels (see, e.g., Geise & Rössler, 2012; Müller & Geise, 2015). However, studies in, for example, visual communication research, visual sociology, and social semiotics (e.g., Autenrieth, 2014; Grittmann & Lobinger, 2011; Kress & van Leeuwen, 2006; Mayrhofer & Schachner, 2013; Moernaut et al., 2020; Pentzold et al., 2016) also provide important insights and analytical strategies on how to examine evaluations and the expression of normative ideas on the visual level. These approaches serve as a starting point for the analytical approach suggested below.

Based on the considerations presented so far, I provide an overview by proposing the procedure presented in Table 6. The procedure attends to different contextual aspects (e.g., the discourse and topical context, the formal media context) and includes steps for the analysis of both the mono- and multimodal levels. The analysis starts with the visual level as research has shown that visuals attract and guide attention and, therefore, often serve as entry points for readers in terms of selecting and reading news articles (Holsanova et al., 2006).

Steps	Focus
Step 1: Familiarization with recurring representations and visualization patterns	Exploring the thematic context and discourse-specific repertoires of image types (discourse level)
Step 2: Analysis of the intra-media context and context of use	Analyzing how the image is placed within the layout of the article, the image size, and the image source (article level)
Step 3: Monomodal visual analysis	Focus on central elements of norms and normative statements (actors, practices, contexts, evaluations) to identify which actors, practices, objects, and contexts are shown and in which way (level of single image)
Step 4: Monomodal verbal analysis	Focus on normative statements on the level of written text (headline, caption, article text)
Step 5: Characterizing image-text relations and multimodal interplay	Identify image-text relations with a focus on central elements of norms and normative statements (actors, practices, contexts, evaluations) and reflect on the multimodal interplay in communicating norms and normative statements
Step 6: Summary and overall interpretation	Integration and overall interpretation of the findings obtained in the individual analytical steps

Table 6: Overview of analytical steps for the multimodal analysis of normative statements

The individual, interrelated steps will be explained in greater detail in relation to the example of the two selected articles. Within the broader topic of visual practices, both articles focus on ‘sharenting’ practices. While we will see similar perspectives and normative statements on the verbal level, these two examples help illustrate two distinct image-text relations and types of multimodal interplay in normative statements. Thus, the examples once more illustrate the importance of considering visual elements in the construction of norms.

It is important to note that a visual analysis is very complex and extensive. Within the scope of this article, the analysis is necessarily presented in a condensed manner. For a more detailed visual analysis, visual communication research provides a broad methodological repertoire, with approaches from, for example, visual and social semiotics or iconography and iconology, which can be used (see, e.g. Rose, 2016; Müller & Geise, 2015; Christmann, 2008). In this article, however, I show how methods of visual analysis can be used and applied in the analysis of norms.

Step 1: Familiarization With Recurring Representations and Visualization Patterns

The analysis starts on the discourse level and takes into account all the images in a given sample. The first step is the familiarization with recurring discourse-specific representations and visualization patterns in order to characterize the thematical context. A first sorting of the example material shows that, overall, visual practices are visualized through photographs, illustrations, or data visualizations. To further explore recurring motifs and representation characteristics, an image-type analysis is used. Picture card-sorting techniques (Fincher & Tenenberg, 2005) are very helpful in this regard. They can be used to inductively develop image types by grouping visually similar sets according to the interplay of motifs (focusing on depicted actors, practices, and situational contexts and scenes), visual peculiarities, and distinct representational features. Regarding the articles on visual practices, for example, this step has yielded different types and subtypes, such as (1) taking selfies (a. alone; b. in two/in a group, with celebrities and politicians or ordinary people); (2) taking pictures (a. adults taking pictures of children; b. groups taking pictures (e.g., in museums, at famous sights); (3) people and tech in general (a. people looking at their devices/screens; b. hands holding devices (close-up, screen not visible, heads and faces not visible); c. hand/fingers on screen (screen visible)); (4) human emotions/emotional reactions; (5) “embodied platforms” and measuring faces (logos of platforms mirrored/reflected in eyes, lenses; geometric lines that highlight and measure facial features for facial recognition); (6) logos of platforms and apps (including screens of mobile phones and computers with app buttons), or (7) data visualizations (graphs, maps, and charts on, e.g., statistics on users and their practices; sales and values of platforms).

This overview and the knowledge regarding the topic-specific visual repertoire constitute the essential basis regarding the additional steps on the visual and verbal levels. The step serves to identify which types of images are recurrently used and, thus, gives important insights into which motifs and representational characteristics might be of relevance within the discourse.

Step 2: Analysis of the Intra-Media Context and Context of Use

The second step focuses on the formal context of a given article in the sample and the image within this context of use. The deductive categories reflect the above-outlined considerations of visual context analysis and serve to characterize the intra-media context, the salience, and the source of an image. The heuristic codes and corresponding coding questions are summarized in Table 7 and are then applied to the two exemplary images and articles.

Aspects and heuristic codes	Guiding questions
Intra-media use context	In which formal context is the image used, which medium/newspaper, which section?
Salience	On which page and in which size is the image used and positioned? Where is the image positioned within the article?
Source	Is the source credited; which source is used/where does the image originate from?

Table 7: Heuristic codes and guiding questions to characterize the formal context

Image 1 is a medium-sized stock photo published in an article in the online edition of *Neue Zürcher Zeitung* in November 2016 (see figure 5, photo on the right hand side). It is embedded within the first half of the article text. It is the second image in this article, the first being a larger stock photo positioned directly after the sub-headline (see figure 1 on the left). The exemplary analysis presented here focuses solely on image 1. A more detailed analysis of the material would need to consider both photos and take into account the interplay between them.

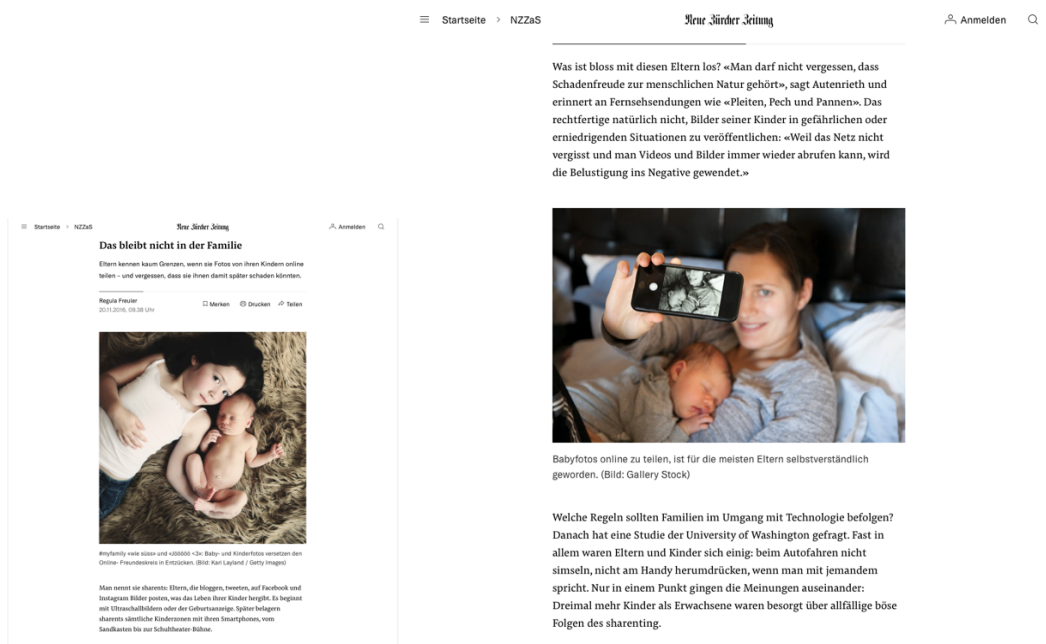


Figure 5: Screenshot 1: Formal context of image 1

Image 1 on the right. Neue Zürcher Zeitung, 20.11.2016: Das bleibt nicht in der Familie. <https://www.nzz.ch/nzzas/nzz-am-sonntag/eltern-auf-social-media-das-bleibt-nicht-in-der-familie-ld.129450>

Image 2 is also a medium-sized stock photo, published within an interview in the online edition of *Süddeutsche Zeitung* in December 2018 (see Figure 6). It is positioned as an opener directly below the headline, with the long interview text following without further visualization.



Figure 6: Screenshot 2: Formal context of image 2

Süddeutsche Zeitung, 21.12.2018: Kinderbilder in sozialen Medien – “Eltern sollten ihre Kinder bei jedem Foto fragen.” <https://www.sueddeutsche.de/leben/fotos-kinder-soziale-medien-1.4262852>

Step 3: Monomodal Visual Analysis

Step 3 focuses on the visual level. The heuristic codes and guiding questions for the visual analysis include deductive categories that are inductively complemented and further refined. The deductive categories first reflect the key elements of norms, which is why the guiding questions refer to depicted actors, depicted practices, the depicted context/setting, and potential evaluative aspects. Second, they also reflect the theoretical considerations and empirical findings regarding the potential role of the compositional features and image contexts outlined earlier. Therefore, the framework also includes aspects such as the facial expression of actors, their social distance, or the striking visual features in a given image. The heuristic codes and corresponding coding questions are summarized in Table 8. In what follows, they are applied to the two exemplary images.

Aspects and heuristic codes	Guiding questions
Depicted actors and practices	Who and what is depicted? (further specified with subsequent questions)
Depicted actor(s)	Whose action is depicted? How many? Which type of actor, which gender, age group?
Depicted practice	Which practice is depicted?
Depicted objects	Which objects or devices are depicted?
Depicted context/setting	Which context is depicted?
Composition	How are people, practices, and objects portrayed? (further specified with subsequent questions)
Camera angle	What is the camera angle? Is it a very high- or low-angle or a neutral-level shot?
Social distance: shot distance	What is the distance between the position of the camera and the represented person?
Social distance: distance between depicted people	Intimate, personal, social, or public distance?
Face	Do we see the face(s) of the depicted actor(s)?
Gaze	Are the depicted actors looking at/away from the viewer?
Facial expression	What is the facial expression?
Interaction/relationship	What relationship between the actors can be assumed given their posture, proportion, and position?
Striking visual features, accent	What is the first thing that catches the eye? What is dominant in the foreground? Which centers of attention are created through focus, contrast, color, vectors, gazes, and centering?
Evaluative aspects	Are there particular aspects that yield an evaluative tendency? How are they constituted?

Table 8: Heuristic codes and guiding questions for the analysis of normative statements on the visual level

Two actors are depicted in image 1: a young woman and a baby sleeping on her torso. The woman is holding a smartphone in her right hand, seemingly taking a picture, a selfie, of herself and the baby (depicted practice). The depicted context/setting and moment seem private or intimate as the woman is lying on a sofa or bed with her seemingly peacefully sleeping baby. Regarding the composition, we see that the image is a high-angle shot (shot from above) and that the shot distance is very close and intimate. The distance between the two depicted people is also intimate. We see the woman's face and that she is smiling into her camera. Her right eye and part of the right side of her face are covered by the

smartphone that she is holding toward the beholder. We also see the baby's head lying on their mother's chest. The head is turned sideways, the face directed toward the beholder. Striking visual features are the centering and color of the scenery depicted on the smartphone. The device is depicted in the foreground, with the depicted woman and the beholder looking respectively at the smartphone camera and screen. The beholder thus also sees the picture that the woman is seemingly about to take of herself and the baby on the smartphone screen. The picture detail on the smartphone screen is in black and white and sharp, while the rest of the image is in color, albeit blurry. There is no clear tendency for evaluative aspects. On one hand, we see a positive emotion, with the woman happily smiling with her baby. However, the centering on the technological device and the coloring of the scenery on the screen in black and white also leave room for an alternative evaluative reading: For the beholder, the device catches the eye, directs the gaze, and represents the filter through which the scenery is seen. Furthermore, the coloring creates a colder atmosphere, 'absorbs' the emotive aspects of the colors, and makes it seem detached from the scenery we see in the image background. This suggests that the selfie that the woman is about to take cannot depict and convey the moment 'entirely' and 'correctly' but only in a 'filtered' way. In this alternative interpretation, the device and photo then inhibit the full experience of the given moment. Furthermore, the picture detail on the smartphone screen in black and white, and the fact that the beholder looks onto the scenery through a screen, might also create associations with surveillance threats and aesthetics of images from video surveillance systems.

The second image, image 2, shows a child (depicted actor), holding their hands in front of their face (no depicted action, but nonverbal communication is depicted). The context remains unclear, with the viewer only seeing a white wall in the background. The photo is shot slightly from below, and the shot distance is very close and intimate. The face is not fully visible. According to the mimic and gesture, the child seems upset, fearful, or ashamed. In this image, the particular strength of the visual mode of communication, that is, showing emotions and eliciting empathy, comes into play. It is the aspect that guides the evaluative tendency; the depicted nonverbal communication suggests fear or shame. The intimate shot distance further amplifies this emotional appeal.

Step 4: Monomodal Verbal Analysis

Step 4 focuses on the verbal level. To operationalize norms on the verbal level, which, in the context of news media coverage, can include headlines, the article text, and image captions, the construct of norms can be dissected into normative statements with distinct elements (Geise et al., 2021; Zillich et al., 2016; Author, 2019). This approach allows us to translate the concept of norms into elements and guiding questions for content analysis and has been applied in both qualitative (Author, 2019) and quantitative (Author, forthcoming) studies. In the framework presented in this article, these elements and questions were used within a thematic qualitative content analysis (Kuckartz, 2014; Schreier, 2014). Normative statements contain positive, negative, or ambivalent evaluations of particular practices and express that something should, may, or must be done and how or what should not be done. Furthermore, they can evaluate or address certain actors or give reasons that legitimize evaluations. Recurring patterns of such evaluations and claims are then interpreted as norms. To analyze normative statements, I suggest using the following seven elements and guiding questions listed in Table 9.

Elements	Guiding questions
Subject – actor	Who evaluates, claims?
Object – evaluated actor	Whose action is evaluated?
Aspect/object	Which practice is evaluated?
Evaluative tone	How is the evaluative tone?
Content/subject matter – (un)desirable, (in)appropriate practices	What should (not) be done?
Reasoning – legitimizations/contestations	For what reasons should something (not) be done?
Addressee	Who is addressed/who should act?

Table 9: Heuristic codes and guiding questions for the analysis of normative statements on the verbal level

In the first example, the first actor is a journalist, and the evaluated actors are a generalized collective of parents. The evaluated practice is the sending or publishing of images. This is evaluated negatively and characterized as inappropriate and undesirable. The journalist laments the parents’ excessive sharing of images (e.g., reflected in terms such as “parental incontinence”) without reflecting on the possible risks and potential harms for their kids

and their digital identity. This evaluation and the contestation are also specifically highlighted in both the headline (which reads²⁰ “this does not stay within the family”) and sub-headline. On one hand, the headline stresses the potentially broad reach of the image and that it will be seen or re-shared outside the trusted space. On the other hand, it also takes up a main line of argumentation in the article, that is, that parents infringe trust and privacy and might cause harm when they share images outside the trusted inner family circle. The other actors are two researchers who specify a concrete desirable code of conduct. They argue that images should only be shared with the consent of the children and that parents should avoid publishing potentially unfavorable or embarrassing images.

Similarly, in the second example, the actor is a researcher, and the evaluated actors and addressees are parents. The evaluated practices are the sending or posting of photographs via messenger or on social media. The evaluative tone is negative. Posting images only with the explicit consent of children and seeking permission to publish each single photo are described as desirable norms aimed at enabling self-determination, participation, and avoiding the consequence of embarrassing children. This normative claim and recommendation for action are highlighted in the headline, which reads “parents shall seek the permission of their children to publish each single photograph.”

Step 5: Characterizing Image-Text Relations and Multimodal Interplay

Following the visual- and verbal-level analyses, step 5 examines the image-text relations, how evaluative aspects on the verbal and visual levels interact, and how normativity is thereby communicated. The selected images represent different text-image relations that can be characterized with the help of the following guiding questions. The guiding questions, again, reflect the central elements of norms and normative statements (see Table 10).

²⁰ All quotes presented here were translated by the author.

Aspects	Guiding questions
Actor(s)	<p>Is the subject/group also mentioned/discussed in the text? Is the depicted subject/group an actor whose action is evaluated (object) in the text? If yes, is this in a positive or negative way?</p> <p>Alternatively, is the depicted subject/group an actor who is described in the text as affected by a practice that is evaluated in the text?</p>
Practice	<p>Is it a practice that is also discussed on the verbal level (in the caption, headline, main article text?)</p> <p>If yes, is it discussed as a general practice, a desirable practice, or a practice to avoid? Is it a scenario that is discussed as a possible implication of a practice?</p>
Context	<p>How is the context specified? (image/text/both?); is the context also mentioned in the text?</p>
Interplay of evaluative elements	<p>What is the tone of the (a) image caption, (b) headline, and (c) article text (is it rather positive, negative, ambivalent, neutral, or not discernable)?</p> <p>Which aspect in the image is made salient in the (a) caption, (b) headline, and (c) article text? How does the headline interact with the image?</p> <p>Overall, how do evaluative aspects on the verbal and visual levels interact? Do they contradict or amplify each other? How/where is normativity created and with which intensity?</p>

Table 10: Guiding questions for characterizing image-text relations and multimodal interplay

In the examples, the captions and verbal statements in the article text categorize and evaluate depicted people in a certain way (image 1) or establish a connection to photo sharing (image 2). As such, the verbal level suggests a certain reading and interpretation of otherwise non-specific images. In image 1, the woman is the depicted subject whose action is evaluated in the text. The baby, in turn, is described as the affected subject. The depicted practice is characterized as a typical, self-evident, taken-for-granted practice by the parents in the image caption (“Sharing baby photos online has become natural for most parents.”) and, furthermore, as a practice that should be avoided.

The image shows a private and intimate context, characterized as such via the couch or bed and the sleeping baby on the woman’s chest. The verbal statements in the article do not refer to the specific scenery and context depicted but, rather, to the photo-sharing practices of parents, privacy infringements in general, or potentially embarrassing photo

situations for children (e.g., photos taken of children using the toilet). With respect to the interplay of the evaluative elements in image 1, we see a neutral tone in the caption that categorizes the depicted practice as prevalent, with a rather negative tone in the headline and the article text. The aspects made salient are oversharing, privacy infringements, and potential harms, not the happiness of the smiling mother who might try to capture a photo as a visual memory of a precious moment with her baby. Overall, in image 1, we see a contrast between the visual and the verbal level. On the visual level, we see a happy, smiling person, with a seemingly peacefully sleeping baby, who is about to take a selfie. The negative, normative evaluations and claims regarding the depicted practice are predominantly introduced on the verbal level. However, the negative evaluation of photo sharing might be supported or amplified by the black and white detail in the image, which was discussed in the visual analysis in step 3. This detail absorbs emotive aspects but also creates a certain surveillance aesthetic and might support the threat that is made salient on the verbal level, that is, to cause harm when images are shared and seen outside the trusted inner family circle.

In image 2, in turn, we see neither the problematized practice nor the problematized actors nor a particular context. What we see are the nonverbal behavior and the emotion of a child. The interview text and the image caption characterize the emotion as an effect of photo sharing (caption: “Children are sometimes embarrassed by pictures depicting them – which are distributed by parents on the Internet”), with the child, the depicted actor, as an affected individual. Thus, the written text (i.e., the headline, caption, interview text) puts this generic image into the context of sharing images of children online. In image 2, the visual representation of the child’s emotion plays a key role in the creation of normativity. The strong visual normative claim is further amplified by the neat headline–image relation, with the image placed directly below the headline stressing the requirement of explicit permission from the persons depicted as a desirable norm.

Step 6: Summary and Overall Interpretation

The last step summarizes and integrates the analytical findings of the previous steps, contextualizing them in light of the question of how normativity is created with mode-specific contributions as well as in the multimodal interplay in the particular context under examination.

The exemplary analysis presented two possible cases of a multimodal interplay in the construction of norms, with different roles of the visual mode. The first example shows a contrast between the visual level and the verbal level. We see a rather happy and positive atmosphere on the monomodal visual level, with no clear evaluative tendency, while on the verbal level, the depicted practice, that is, taking and sharing a photo with a baby, is normatively characterized as a practice that should be avoided. The main arguments supporting this claim include the poor reflection of what could happen with the image the woman is about to take and share, the possible harms, and the implications for the identity and privacy of children. What is criticized and made salient on the verbal level is the implication of the depicted practice. In the multimodal interplay in the construction of norms, the image depicts the *practice that shall be avoided*. This example illustrates what Roque (2012, p. 285) described, that the visual is used to show the rejected practice in a given context, while this evaluation and rejection, what is deemed inappropriate and problematic, are expressed on the verbal level.

The second example presents a strong visual claim and emotional appeal via the depicted fearful and shameful nonverbal communication. The intimate shot distance to the seemingly desperate child further amplifies the emotional appeal. However, verbal anchors in the headline and sub-headline establish the link to visual practices and sharing images of children online. They categorize the depicted emotion as an effect of nonconsensual photo sharing. In the multimodal interplay, the image here has two main functions. First, it depicts the *effect* of what happens when parents do not follow the desirable norm expressed on the verbal level, which is to seek permission to publish each single photo. Second, the strong visual claim provides the *reasons* why a certain practice, in the given example nonconsensual photo sharing, should be avoided. The strength of the

visual mode of communication, that is, showing and eliciting emotions, comes into play and amplifies the negative evaluation expressed on the verbal level.

Conclusion and Outlook

The starting point of this article was that the ways in which norms are discursively constructed have seldom been studied; in particular, studies on the role of visuals and the multimodal interplay in the construction of norms have remained a research desideratum. To address this gap, the aim of this article was to develop an analytical framework for a qualitative multimodal content analysis of normative statements in news media discourses. The theoretical considerations and empirical examples demonstrated that visual communication research provides crucial insights for analyzing how norms are communicated on the monomodal level as well as in the multimodal interplay with written text.

Overall, with the six analytical steps illustrated in this article, I have provided a systematic framework for the analysis of normative statements, along with heuristic codes and guiding questions, that leave room for an in-depth analysis of the material, as demonstrated in the exemplary analysis. The suggested analytical framework provides guidance for (1) examining normative statements on the verbal and the visual level and for (2) discerning particular image-text relations. As such, the framework helps identifying mode-specific contributions and multimodal interplays in the construction of norms. The framework thereby allows for a holistic and context-sensitive approach: The steps are designed to take into account the thematic context and the overall discourse level (step 1, image-type analysis), the formal context of an article in which an image is embedded (step 2), the visual level (step 3), the verbal level (step 4), image-text relations and multimodal interplay (step 5), and an overall summary and interpretation with respect to the monomodal elements and the multimodal interplay (step 6). All steps are guided and bound by a focus on the central elements of norms: actors, evaluations, practices, and context.

The exemplary analysis has illustrated the importance of analyzing the single monomodal elements and the multimodal interplay to discern which visual elements are made salient and, consequently, how normativity is created and communicated. Future research needs to follow up on the functions and interplays identified in the two examples to explore whether they represent patterns and ideal-typical aspects of the multimodal interplay in the construction of norms.

For further studies on the multimodal interplay of images and text in the construction of norms, it is promising to adapt the original approach of the image-type analysis. Image-type analyses, as conceptualized by Grittmann and Ammann (2009, 2011) and applied in step 1 of the framework proposed in this article, focus on topic-specific repertoires of recurring motifs and representational characteristics. Thus, such analyses provide important insights into recurring discourse-specific representations and visualization patterns. For further analyses of patterns in the multimodal construction of norms, it would be interesting to reconstruct image types that are not based exclusively on motifs and representational features but that also take into account the role of the visual in constructing and communicating norms as an additional layer. Other researchers have suggested the similar idea for describing sets of image types taken and shared within close social relationships (Lobinger, forthcoming). The resulting image types might then be more heterogeneous in terms of image motifs, but they capture how the images are embedded in practice (Lobinger, forthcoming). For the analysis of norms, this means that the resulting image types capture how the images are embedded in the expression of evaluations and normative ideas of (un)desirable practices.

The analytical framework presented here requires further case studies to refine and adjust the heuristic categories and guiding questions that were developed and applied in the particular interplay of the thematical, social, and media contexts. The application of the analytical steps to other (media) contexts and even the inclusion of moving images might require a reflection of other contextual factors that mold meaning-making processes. I hope to have paved the way for such an increasingly ambitious multimodal research on norms and their construction in mediated public discourses. The systematic framework,

with its heuristic codes and guiding questions, can guide, but will hopefully also stimulate, further research on the multimodal construction of norms.

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9 Conclusions

This dissertation had two essential starting points and motivations. Firstly, digital technologies and particularly visual data practices come with both potentials and risks, which generate normative questions: (A) What kind of society do we want to live in?; (B) What are the values we deem worth protecting?; and (C) How do we translate such values into more concrete social norms for the use of digital technologies to ensure that uses of digital technologies cater to the kind of life we deem desirable and that we want to live in the future? In short, with this desirable future in mind, which practices do we want and which do we reject? Secondly, norms are essentially “communication phenomena” (Rimal & Lapinski, 2015, p. 393), with mediated public discourses as important forums for the communication and negotiation of norms (see, e.g., Real & Rimal, 2007 and the discussion in chapter 2). Yet, hitherto, in-depth studies of the *construction of social norms in mediated public discourses* remained a research desideratum in media and communication research. This lack of research is even more pronounced for norms for visual data practices. This dissertation with its overarching research goal of examining the construction of norms for visual data practices in mediated public discourses, tackles this gap on the conceptual, empirical, and the methodological level. The three individual articles helped answer the overarching research questions presented in chapter 4:

- (1) What visual data practices are considered appropriate or desirable? (*i.e. What do we want?*)
- (2) What visual data practices are considered inappropriate or undesirable? (*i.e. What do we reject?*)
- (3) How do different actors legitimize or contest certain visual data practices? (*i.e. Why should we (not) do this? What are the goals worth pursuing or values worth protecting?*)
- (4) Who are the actors in discourses on norms for visual data practices? (*i.e. Who is visible, who is addressed and who should act?*)

These four questions will also guide the discussion and conclusions in this chapter 9 in which I will highlight important findings and how the studies and the overall dissertation extend the existing research literature on norms as a crosscutting topic in media and communication research. In the following section 9.1, I will provide a short synthesis of the main empirical results. In doing so, I will highlight important findings from the studies with respect to the central research questions of the overall dissertation. I thereby show how the different studies helped answer these questions. I will then discuss the empirical (section 9.2), as well as the conceptual, and methodological contributions (section 9.3) of this dissertation. Finally, I will address limitations of this dissertation and will give an outlook on future research in section 9.4.

9.1 Main Empirical Results

In this section, I will briefly summarize the relevant findings on the *empirical level* and discuss what these findings imply regarding the construction of norms for visual data practices. I will mainly focus on the results of study 1 and study 2, while the important methodological contributions of study 3 will be discussed in section 9.2.

The first two overarching research questions served to examine practices that are deemed (in)appropriate or (un)desirable. Importantly, as the following synthesis will show, different actors evaluate the exact same practices differently.

9.1.1 What Do We Want? Appropriate and Desirable Visual Data Practices

With regard to practices that are deemed *appropriate* or *desirable*, study 1 shows that police forces and political actors, such as the minister of the Interior, consider it appropriate to *collect and store big visual data sets* to solve crimes in the context of the 2017 G20-protests. In addition, police forces consider it appropriate to *analyze big visual data sets* with the help of FRTs, in order to identify individuals. With respect to the use of FRTs for the analysis of visual data, both study 1 and 2 show that FRT usage is deemed appropriate in general, and for *targeted, focused use of FRTs* in cases with *concrete suspicion*, deviants and *threats*, in specific.

Thus, these ideas of desirable conduct also specify ‘adequate’ situations for visual data practices and when to use visual technologies. Furthermore, study 2 demonstrates that actors such as journalists or spokespeople of tech companies deem it desirable to use FRTs in consumer devices, applications or software for *one-to-one matching* (i.e. identity verification claims of an individual by comparing their face with a stored digital template). This includes, for example, *unlocking everyday consumer devices* with the help of facial recognition instead of using passwords. As shown in study 1, practices of *disseminating* and *distributing* visual data were heatedly debated in the context of the G20 investigations. Here, representatives of police forces and political actors deem it appropriate to *publish images of suspects online* in case of severe crimes.

Taken together, what is characterized as desirable is making best use of the ubiquitous and networked character and the machine readability of visual data for law enforcement and authentication. Hence, what is deemed desirable are practices whose uses cater to security and efficiency needs, as will be further discussed in subsection 9.1.3 after having summarized central results for practices that actors in the studies reject as inappropriate or undesirable in the following subsection 9.1.2.

9.1.2 What Do We Reject? Inappropriate and Undesirable Visual Data Practices

When it comes to practices that are deemed *inappropriate* or *undesirable*, study 1 demonstrates that particularly practices of *collecting and managing visual data* were contested. It shows actors warning against, for example, a “*bulk storage*” of images. These warnings and worries mean practices of *creating data sets that allow to reconstruct and track behaviors of people* are deemed highly problematic.

In terms of FRTs, study 1 and 2 demonstrate that the *unexceptional and suspicion-less use of FRTs to capture and analyze facial data* is deemed inappropriate and disproportionate by certain actors. The criticism of inappropriateness was heavy in both studies, especially in cases where FRTs are used like that by federal, national, or international law enforcement. Furthermore, the *use of FRTs in order to identify individuals* in crowds or data sets *without knowledge of people who are affected* is considered inappropriate. Study

1 shows that data protection officers and certain politicians stress that the people affected were not aware of these analyses and had no chance to intervene. More precisely, what is deemed inappropriate or undesirable is that people have no knowledge that they are affected. Unbeknownst to them (1) their *face prints* are being *created* and (2) their *facial data* is being *stored*.

Furthermore, practices of *disseminating* and *distributing* visual data played a specific role in study 1. This study illustrates that actors strongly criticize the practice of *publishing images of suspects online* by the police and news media for public searches, *especially if the guilt of the depicted individuals is still unclear*. Whilst the examples in study 3 do not represent systematic findings with respect to prevalent normative claims, the two exemplary articles show evaluations of practices of *disseminating* and *distributing* visual data that are worth mentioning here. Firstly, the quoted academic researchers and the two journalists problematize photo-sharing practices by parents, especially when they *publish images of children online*. Moreover, they deem it inappropriate to *publish images of children without their consent*. Furthermore, with respect to contents of visual data (i.e. what images to take and to share later on), the examples in study 3 show that *sharing images that are potentially unfavorable or embarrassing* for the people depicted is deemed inappropriate.

In sum, actors strongly reject extensive uses of FRTs in public spaces and advocate for transparency and consent as necessary preconditions for collecting and sharing visual data and for the usage of algorithmic tools for biometric facial data analysis.

To further examine the construction of norms and to gain a deeper understanding of the ideas of priorities worth pursuing expressed in actor statements, the third overarching research question in this dissertation focused on how actors legitimize and contest certain visual data practices.

9.1.3 Why Should We (Not) Do This? Legitimizations and Contestations of Visual Data Practices

A key finding to emerge from the studies is that legitimizations of visual data practices are linked to the aims of (1) *protecting security*, (2) *increasing efficiency*, and (3) *increasing convenience*. Visual data, and FRTs especially, are hailed as being able to *enhance the ability to detect and solve crimes*, as well as having the ability to provide a strong *source of evidence* and forensic advantages against perpetrators. As stressed by law enforcement and conservative politicians, in this view, it is legitimate to use and combine any kind of visual data and analyze it with the help of facial recognition in order to solve crimes and safeguard public security.

Additionally, in study 2 we find that actors prominently justify the use of FRTs for one-to-many searches, for which the argument is used that FRTs enhance the ability to detect, solve, and (even) anticipate crimes (e.g., that it is easier to identify, track and find suspects or troublemakers). Additionally, the aspect of security is used to legitimize the usage of FRT and to foreground why FRTs are favorable. The study shows that actors stress that FRTs and their uses are important and useful for *ensuring (public or private) safety and security*, as they allow for the identification of unauthorized intruders; the restriction of their access; and the detection of risks, threats, ‘deviant’ behavior, and terrorism, even in real-time.

Another reason that is brought forward to license and accredit the use of FRTs is the *utility, efficiency and convenience of FRTs*. More specifically, they are useful and *allow for more efficient, more convenient, ‘smoother’, easier, and faster processes*. Examples of this can be found when actors describe the use of FRTs for consumer devices; entrance checks and access controls for events; identity checks and biometric boarding at airports; or for payments. These ideas of efficiency and convenience are mainly discussed for one-to-one-matching with the help of FRTs and are, as study 2 shows, particularly emphasized in the Irish news media discourse.

Yet, for one-to-many searching as well, both empirical studies show the rationalizing claim that stresses the need for FRTs and their efficiency. For example, as discussed in

study 1, FRTs are described as *necessary and indispensable tools, needed to manage visual data sets* because a manual screening was not possible in the context of the G20 investigations. *Singularization* is another legitimization strategy used by actors in both study 1 and study 2. The actors emphasize the singular nature of visual data practices and stress that possible problems and harms are minimal. As seen in study 1, this can include actors' acknowledgements of norm transgressions, but that they *narrow down the scope of use of FRTs or of possible negative implications*. Findings in study 1 and 2 show that the use of FRTs is described as a targeted search (i.e. a mere scan) and not an identification process. A further finding in terms of legitimization and singularization is that actors stress the limited time frame (in the sense of 'we did not do it for a long time or we just started it') or specific spatial area ('it is just happening in a limited area') in which FRTs are used.

Additionally, study 1 in particular shows that references to the authority of law are used to legitimize visual data practices. Collecting large amounts of visual data, publishing images of suspects online, and the using FRTs, are legitimized by stressing *legal conformity*. Thus, actors state that all these practices are covered by existing rule of law. In this view, the use of visual data and FRTs is not problematic at all, as long it is not forbidden by the law.

Apart from legitimizations, the studies also put a special focus on *contestations*, i.e. acts of problematizing, disapproving or opposing visual data practices; as well as the reasons actors give for considering a given practice inappropriate or undesirable. Here, the studies show that actors specifically refer to *privacy* as a central value and right worth protecting. Furthermore, actors link their arguments to overarching interaction-related norms, such as *transparency* and *consent*.

Study 1 and 2 significantly demonstrate that actors contest visual data practices, and particularly the use of FRTs for one-to-many searching, based on visual data collected in public spaces. In fact, study 2 shows that the cluster 'Infringement of Personal Rights, Control & Function Creep' is the most prevalent cluster (46.7% of all statements) and the dominant frame in actor statements in all years of investigation and in all countries, except for Ireland. In this frame, FRT usage is strongly criticized; actors stress *infringements of*

personal rights and democratic freedom, as well as possible future extensive uses. More specifically, actors criticize the *extent and scope of visual data collection and analysis*. They characterize it as problematic and *disproportionate* (or more drastically as “excessive” or “invasive”), for example, because the analyses also affect innocent people.

Especially FRT usage for one-to-many searches is contested as undesirable and highly problematic. In both studies actors stress that one-to-many searching *compromises and threatens fundamental civil and personal rights* such as *privacy, informational self-determination, and data sovereignty*. In this regard, actors also criticize the *lack of consent* for the analysis and processing of personal data in the analytical process, as well as the *lack of transparency with respect to how data is collected, stored, and analyzed*. In the same vein, study 1 also shows that actors characterize the publication of images of subjects online as infringements of personal rights and infringements of the principle of the presumption of innocence. The examples in study 3 also reflect the idea of privacy protection and informational self-determination. One key line of contestation in the exemplary statements discussed in study 3 concerns the notion that parents breach trust and infringe on the privacy and self-determination of children when sharing their images outside the trusted inner family circle. It is emphasized that doing so might cause significant harm.

Furthermore, actors oppose the use of FRTs because they are concerned that FRTs might alter the nature of society in authoritarian and oppressive lines. The findings in this dissertation demonstrate that the use of FRTs in particular is contested by referral to possible (future) implications. Actors fear that the use of FRTs *will lead to extensive social control, monitoring, and oppression* of individuals, certain social groups, or even to *totalitarianism and the end of a free and liberal society*. In this regard, we see recurring references to a kind of ‘Big Brother-scenario’ in which behavioral patterns, preferences, attended events, and movements of individuals can be tracked and traced. Alternatively or accompanying, actors also express *concerns about function or mission creeps*; current visual data practices are considered problematic, as actors state that the use of FRTs may gradually extended beyond the purpose for which they were originally intended.

Furthermore, actors, especially activists and advocacy groups, oppose the use of FRTs because they criticize the *performance and/or the potential long-term effects of misrecognition and biases* (e.g., false identification, insufficient precision, (racial) biases or profiling). In this regard, they refer to the potential consequences of being falsely accused, as well as the discriminatory effects of algorithmic biases. In doing so, they strongly oppose basing decision-making on algorithmic tools.

Furthermore, we see that the reference to the authority of law is not only used to legitimize, but also to criticize visual data practices, especially the use of FRTs. Here, actors problematize the use of FRTs by underlining the fact that a *regulatory legal framework for their use is missing*. We find this contestation in both study 1 and study 2, but it is specifically prevalent in the ‘Regulation’-frame in study 2. Actors emphasize the urgent need for politics to work on a comprehensive regulatory framework that defines requirements and warrants that protect the personal rights of citizens. In their view, this regulation is essential for the prevention of FRT misuse and the prevention of significant steps towards an unwanted surveillance and police state.

Overall, we see two main antagonistic evaluative schemata and reference points when it comes to guiding normative principles for the defining of norms for visual data practices. Actors legitimize visual data practices by foregrounding efficiency, convenience, and security. In turn, actors’ contestations strongly refer to privacy, informational self-determination and data sovereignty, and threats to democratic liberties. As demonstrated, different actors evaluate the exact same practices differently. This was found for the practices of collecting and storing big visual data sets. In addition, it was shown to be particularly prominent for the analysis of these data with the help of FRTs. In the following subsection 9.1.4, I will briefly reiterate the specific constellation of actors in the discourses analyzed in study 1 and 2.

9.1.4 Who is Visible and Who Should Act? Actors in the Construction of Norms for Visual Data Practices

In general, with respect to visible actors, the findings in study 1 show that the debate is characterized by the interplay between (a) police force representatives and political actors, such as the minister of the Interior and (b) data protection officers, as well as leftist, green, and liberal politicians. Normative claims mainly refer to and address law enforcement; both in statements that deem visual data practices problematic and those that deem them desirable. Furthermore, we see that political decisionmakers are urged to act and work on a comprehensive regulatory framework for the use of FRTs.

Study 2 shows that journalists are primary speakers in news media discourse on FRTs and main actors in the most prevalent frames ‘Infringement of Personal Rights, Control & Function Creep’ and ‘Efficiency & Utility’. Importantly, we see that actor constellations vary within the different frames. Rather unsurprisingly, politicians, state officials, and law enforcement are the main actors when it comes to promoting facial recognition as a significant tool for crime prevention and public security. Journalists, software developers, and corporate representatives of tech companies are the main actors that stress the efficiency and utility. However, journalists are the main actors warning against the infringement of personal rights, as well as control and extended application of FRTs that go beyond the initial purposes and contexts of use. The findings in study 2 also indicate that advocacy groups, activists and representatives of non-governmental organizations (NGOs) generally do not have a prominent role in the discourse. However, they gain more visibility, especially in the United Kingdom, when it comes to discussing the lack of regulation and possible regulatory steps. Here, as we also see in study 1, political decisionmakers are urged to present legal rules and codes of conduct for the use of FRTs. Finally, tech companies are also addressed when actors call on them to stop selling FRTs to law enforcement and governments.

9.1.5 Synthesis: Constructions of Norms for Visual Data Practices – What Kind of Society Do We Want To Live In?

Overall, the findings in study 1 and 2 show that discourses on norms for visual data practices are characterized by the diverging prioritizations of law enforcement, which includes fighting crime, security and convenience on the one side, and privacy, data protection, data sovereignty on the other side. In fact, privacy, data sovereignty and security or efficiency are characterized as antagonistic incompatible goals and principles. This pattern of results is consistent with the previous literature; discourses on visual data practices surrounding the 2017 G20 summit in Hamburg (see chapter 6), as well as framings of facial recognition tools in news media coverage in the five European countries (see chapter 7), reconfirm well-known polarizations in mediated discourses on technologies, surveillance, and AI, which present privacy, security, convenience, and efficiency as necessary trade-offs (see, e.g., Barnard-Wills, 2011; Lischka, 2017; Lyon, 2015; Möllers & Hälterlein, 2013; Pentzold & Fischer, 2017; Schulze, 2015; Wahl-Jorgensen, Bennett, & Cable, 2017; Wahl-Jorgensen, Bennet, & Taylor, 2017). More precisely, we see tendencies of *technological solutionism* (Morozov, 2013), in which visual technologies are presented as powerful solutions to ensure a more efficient, convenient and secure social life. Moreover, the ways in which norms for visual data practices are constructed in the sample material of study 1 and study 2 also echo important tendencies of *securitization* (Buzan et al., 1998). Here, visual data practices are transformed into a matter of security. Criminals and terrorists are described as existential threats to society and public security. The extensive collection of visual data, the combination of different data sets and sources, the public searches with publishing images in and across network publics, and the analyses of visual data with the help of facial recognition, are then the urgent reactions needed to deal with threats and to protect citizens. These tendencies also play into mechanisms of *surveillance normalization*. The first important aspect of these mechanisms is the proliferation of practices of collecting, storing, and sorting large amounts of personal data, which become an increasingly ‘normal’ part of the experience of everyday life. The second relevant aspect is that surveillance normalization is enforced by legitimization strategies, which stress that the

tracking and analysis needs to be accepted for the greater good of preventing security threats (Murakami Wood & Webster, 2009; Lyon 2015; Wahl-Jorgensen, Bennett, & Cable 2017; Wahl-Jorgensen, Bennet, & Taylor 2017).

On the other hand, contestations of visual data practices, especially contestations of the use of FRTs for the identification of people in public spaces, mainly refer to infringements of personal rights, such as privacy. Contestations are strongly guided by concerns with respect to personal liberties and societal future. The collection and analysis of visual data, especially facial biometric data, might alter the nature of society and social life along authoritarian and oppressive lines. The role ascribed to visual data and visual technologies plays a decisive role in these interpretations. Overall, we see that visual data and visual technologies are characterized as particularly powerful, yet with opposing interpretative foci. In legitimizations, visual data and visual technologies are characterized and licensed as powerful, objective, and particularly trustworthy ‘evidence-providing’ tools. What we see here can be regarded as a ‘comeback’ of a positivist, well-known, but also rather outdated view on photographs and visual data as ‘objective’ and ‘neutral’ representation of ‘reality’. Research has recurrently shown and stressed that images display actors and events in very specific ways (see, e.g., Rose, 2016; Lobinger, 2012); all visual data, including the selected details of scenery, motifs, camera angles, and so on, are always but selections made by the producer. Through this selection and further processing, visual data acquires additional meanings. However, these aspects remain neglected in the legitimization practices we see with respect to visual data practices in the studies presented in this dissertation. Moreover, problematic aspects, such as biases and misidentifications in visual technologies, are also neglected. Rather, we see black boxing-mechanisms (Pasquale, 2015) in which the end justifies the means, whilst the algorithmic architectures of the digital tools that are used remain obscure. In this view, as was discussed in study 1, concrete analytical steps of tools or social implications of potential biases and misrecognition are not called into question. Contestations, in turn, strongly underline the role of visual data as personal and sensitive information that allows for the identification of individuals and the monitoring of habits, preferences and whereabouts. As such, visual data and visual technologies are, again, characterized as particularly powerful, and as a

principal means for political power and control over people, as it can be easily used to track and trace individuals and to undermine their civil liberties.

What kind of society do we want to live in? What are the values worth protecting? These foundational questions were brought up in the introduction of this dissertation. The empirical findings show that constructions of norms for visual data practices are guided by different or even diverging priorities regarding favorable social goals and futures. On the one hand, the idea is to make the most of digital technologies and data, which can help us to live in secure and highly efficient societies. In this view, digital (visual) technologies, such as FRTs, cater to a convenient everyday life. Moreover, they allow law enforcement to better detect risks, threats, ‘deviant’ behavior, and terrorism – even in real-time or through predictions. On the other hand, we see significant concerns with respect to dissolving protection of liberties and a clear focus on preserving privacy when ‘making the most of digital technologies and data.’ Critics admit that digital technologies and visual data practices can be important instruments for the investigation of serious crimes. Yet, the guiding principle is the protection of individual liberties and privacy that is characterized as an indispensable structural feature of a desirable future society. This idea of a desirable future society includes that citizens’ behavioral patterns and movements are not tracked and traced without there being concrete suspicion. In addition, it includes citizens’ abilities to oversee and deliberately control the kind of (visual) information they disclose.

9.1.6 Additional Remarks: Blind Spots in the Construction of Norms for Visual Data Practices

So far, I have discussed what we see in mediated public discourses on visual data practices through empirical research. However, I also want to point out some noteworthy blind spots in discourses on visual data practices. One key aspect is directly related to the diverging views on norms and values worth protecting. What remains less visible is how to go beyond narrations of necessary trade-offs and juxtapositions of privacy versus security or efficiency, as mutually incompatible greater goods. The results in study 2, with respect to the ‘Regulation’ frame, demonstrate that there are a few attempts to initiate the highly

needed and essential discourse on how to balance and integrate these different priorities and to further discuss desirable social norms, as well as possible future legal norms, for the regulation of FRT usage that would cater to both security needs and privacy protection.

In this regard, as recent as 2020 we have seen an example of necessary and promising starting points for the further tackling of prevailing trade-off traps of ‘necessary either-or’-narrations; as well as a relevant example of a broader discussion on the desirable guiding principles for the development, implementation, functionalities and uses of digital technologies. Specifically, we have seen vibrant public discourses on so-called ‘Corona apps’ for contact tracing in, at least, Austria, Germany, and Switzerland. In spring 2020 the discourses started off with strong claims that cuts in privacy and data protection ought to be accepted by the public for the sake of public health. However, as the discourse developed we have also observed a broader debate on the apps’ designs and technological backgrounds, as well as their affordances and desirable norms with regards to their functionalities. Most importantly, the discourse included suggestions and explanations on how to design and adjust features in order to preserve both public health and civil liberties (see Venema & Lobinger, 2021). These aspects should be an essential part of future mediated public discourses on digital technologies.

Observing and critically discussing such blind spots in public discourses is vital; if issues related to digital technologies in general, and visual data practices in particular, remain invisible, it is impossible to publicly contest them. As Wahl-Jorgensen and colleagues (Wahl-Jorgensen, Bennet, & Taylor, 2017) have previously stressed: *legitimization also operates by exclusion*. Study 1 (chapter 6) and study 2 (chapter 7) have shown that the concrete practices by which visual data are collected and analyzed with the help of facial recognition remain invisible or rather obscure in high-circulation newspapers. One of the findings in study 2 was that FRTs are mainly presented as an increasingly common everyday tool for users, as well as a normalized feature of consumer devices, apps, and platforms. The results in study 2 show that news media discourse on FRTs is often driven by the introduction and review of commercial products. Thus, FRTs are often mentioned in articles on trends, consumer devices, and company news, which is in line with general

studies on the media representation of AI (Brennen et al., 2018; Fischer & Puschmann, 2021). However, explanations of concrete analytical steps and procedures of facial recognition; how such analytical tools work in different settings; and what differences between one-to-one matching and one-to-many searching exist, remain scarce. Consequently, these aspects and possible social and normative implications are difficult to understand or to contest for people without expert knowledge.

An additional blind spot can be found when looking at the actors involved in the construction of norms for visual data practices. Lyon (2002) requested that “some social practices and technological systems that affect everyone [...] [need to be] understood and actively negotiated by everyone” (p. 251). In this regard, both studies 1 and 2 show that the personal rights of citizens were key aspects for contesting visual data practices. However, the findings also demonstrate that the voices of those people affected, whether ordinary citizens or activists, are seldom present in the mediated public discourses on visual data practices.

So far, we have synthesized and discussed the main empirical results. In the following section 9.2, I outline how these findings add to prior research.

9.2 Empirical Contributions

As section 9.1 showed, on the *empirical level*, the insights provided in the present dissertation are relevant for the study of norms, particularly in media and communication research, as well as further subfields of media and communication research.

In short, the studies in this dissertation show how actors evaluate, legitimize or contest visual data practices; how they discuss their social and political implications; and how they thereby envision and construct norms for visual data practices. As such, this dissertation shows how norms for urgent social concerns in visualized, and datafied societies, such as security and privacy, are discussed and constructed in mediated public discourses. The insights presented here extend previous *research on norms*, which is particularly recent as, hitherto, the construction of norms in mediated public discourses remained understudied.

Furthermore, with these insights, I also extend previous research in further subfields of media and communication research. In fact, as outlined in chapters 3 and 4, changing visual data practices, new technologies, as well as new avenues in automated visual analyses and their social and political implications, have previously been reflected in a growing body of literature in e.g., visual communication research, surveillance studies, critical data studies, or machine vision. The findings presented in this dissertation add to this body of research by showing how these developments that prior research has examined as research objects, are turned into objects of discourse, and how they are discussed and framed in mediated public discourses.

As the studies in the present dissertation mainly focus on news media coverage, I also add relevant insights on *journalistic coverage* on visual data practices and visual technologies. This is an important contribution since, as outlined in chapter 4, hitherto, research on journalistic coverage and public sense-making of recent developments concerning visual data practices is scarce. As such, chapters 6 and 7 provide important insights into event-related coverage on visual data practices in German regional and national news media (study 1); and national, as well as overarching transnational, patterns in news media discourse on FRTs in high-circulation newspapers (study 2). In addition, study 2 provides relevant findings on the different prioritizations of frames depending on newspapers' political orientation.

The dissertation additionally adds to the field of *media governance*; as the dissertation focuses on the construction of norms in mediated public discourse, the findings presented here are relevant to research in that field as well. As argued in chapter 2, mediated public discourses have to be taken into consideration as a level and force of governance in their own right (Katzenbach, 2018, pp. 298–299). They contribute to the institutionalization of expectations and acceptance – regardless of the establishment or adoption of formal and legal rules (Katzenbach, 2018, pp. 293–303). Thus, the presented results that shed new light on the construction of desirable norms for the use of digital technologies in mediated public discourses are vital for media governance research. More specifically, it is relevant for this particular field of research because of the interest of media governance research in

the manifold discourses on rules for media and digital technologies and the emerging dynamic structures of norms, as well as the institutional and legal regulation (see, e.g., Katzenbach, 2018; Donges, 2007).

Furthermore, I complement perspectives in the field of *(digital) media ethics* by focusing on the public ethical and normative reasoning by different actors. The empirical studies explore what ideas and reasonings regarding (un)desirable conduct (i.e. ‘what (not) to do’) are visible or prevalent in mediated public discourses. Additionally, they show how actors translate abstract ends and values – e.g., privacy, security, efficiency, trust, or responsibility – into more concrete codes of conduct, as well as ideas of (un)desirable practices. In doing so, this dissertation also offers relevant insights for a broadened perspective on media ethics (Couldry, 2013). Couldry (2013) states that we should regard media ethics as a tool for asking normative questions about media- and technology-related practices by any individual or collective actor. In sum, for such an ethical perspective, the present dissertation provides insights into the ways in which different actors reflect on the appropriateness and the inappropriateness of visual data practices, as well as their reasoning on what constitutes and/or justifies ‘right’ or ‘wrong’ visual data practices.

Moreover, understanding the understudied construction of norms for visual data practices in mediated public discourses is essential beyond academic research as well. The findings presented here are also relevant for those who play key roles in these discourses, e.g., policy makers, law makers, law enforcement representatives, tech company representatives, and data protection officers, amongst others. It is also important to keep in mind that what is publicly envisioned and constructed as desirable conduct is also relevant for us as a society and as citizens. Thus, when it comes to the ways in which norms are defined, whether it is for the practice of sharing visual data or for the use of algorithmic tools for visual data analysis, an understanding of the construction of norms is vital for us all, as citizens in a highly visualized and datafied world. This understanding is vital because, first, citizens are part and parcel of the visualization of everyday life with their own visual data practices; and second, they are, as outlined in chapter 3, also affected

by visual data practices of other private individuals or corporate, institutional, and state actors.

In the following section 9.3, I will reiterate and elucidate the original conceptual and methodological contributions of this dissertation.

9.3 Theoretical, Conceptual, and Methodological Contributions

On the *theoretical* and *conceptual level*, this dissertation extends previous research on norms. More specifically, as outlined in chapter 2, it successfully bridges (a) research on norms and (b) theoretical and empirical research on mediated public discourses and their dynamics. This link provides us with a close look at the understudied communicative and discursive dimension of norms as communication phenomena. In this way, the theoretical and conceptual perspective in this dissertation draws attention to the social and discursive aspects of social norms instead of prioritizing individual norm perceptions, which is important for research on norms in a general sense. As such, it allows for insights into how norms are communicated and constructed in mediated public discourses. Specifically, the studies presented here identify the constellation of actors (i.e. who speaks, who is visible, who is addressed, or who should act); discuss the ideas of desirable codes of conduct; and present which priorities and social goals are deemed worth pursuing. Moreover, the theoretical and conceptual considerations in this dissertation draw attention to the role of visuals, as well as the multimodal interplay between visuals and verbal text in the construction of norms, which has rarely been reflected on in research. This is a particularly relevant extension to prior research, as our media environments are becoming ever more visualized.

On the *level of methodology and the level of methods*, the dissertation develops and proposes a framework for the analysis of norms and their construction and advances methods from previous research. The proposed approach covers the verbal level (chapter 5), as well as the visual level and the multimodal interplay between images and texts (see chapter 8). Specifically, it demonstrates a way to translate the complex concept of norms into normative statements with distinct elements and categories for content analyses. The

approach presented in this dissertation also allows us to take the dynamic, and often also rather implicit, nature of norms into account.

The overall framework is applicable in qualitative and quantitative research designs, as the three studies have demonstrated (see chapters 6-7). In fact, all three studies advance methods for the study of norms in mediated public discourses. When we take the example of the discourses studied in the context of the 2017 G20 summit in Hamburg, study 1 demonstrated that the elements of normative statements and the respective guiding questions help systematize in-depth qualitative analyses of the construction of norms. In addition, they help us to carve out key legitimizations and contestations of practices. In study 2, which concerned the analysis of frames and the construction of norms in news media discourse on FRTs in five European countries, we demonstrated that the general methodological considerations for the analysis of norms are also applicable and relevant in quantitative comparative research designs. Specifically, as shown in study 2, the elements of normative statements can be translated into categories for quantitative content analyses. This allows us to systematically reconstruct and characterize the construction of norms in larger data sets, whilst still doing justice to the dynamic and implicit character of norms. Importantly, study 2 also shows that the elements of normative statements help us specify the evaluations and normative elements in frames. In addition, it helps us to theoretically and methodologically integrate normative concepts in framing analyses. Finally, study 3 (chapter 8) further advances the methodological approach presented in chapter 5 and the qualitative and quantitative methods presented in chapters 6 and 7. Whilst chapters 6-7 focus on the analysis of norms on the verbal level, based on these important considerations, chapter 8 presents a systematic framework for the examination of the multimodal construction of norms in mediated public discourses. More specifically, the article in chapter 8 suggests heuristic codes and guiding questions that allow us to examine normative statements both on the mono- and multimodal level. Additionally, it allows us to discern particular image-text relations and interplays in the construction of norms. The analytical framework thereby builds on knowledge regarding the visual expression of evaluations and normative ideas, as well as studies of multimodal argumentation. The article demonstrates a way to translate important findings in these

fields with respect to visual salience, effects of representation techniques, compositional features, and different image-text-relations, into heuristic codes and guiding questions for the examination of the multimodal construction of norms. Importantly, for future research and future methodological approaches, the article also demonstrates the importance of analyzing both the single mono-modal elements and the multimodal interplay, in order to adequately examine normative statements. This is especially vital for the identification of mode-specific contributions to the construction of normative ideas. In fact, the short exemplary analysis presented in study 3 illustrates that we can see similar perspectives and normative statements on the verbal level (e.g., a critique on sharing images of children), but we may find different image-text relations and different possible types of multimodal interplay in normative statements. For example, we have seen the case that the image depicts the practice that shall be avoided; while the evaluation and rejection (i.e. what is deemed inappropriate and problematic) is expressed on the verbal level; or that the image shows emotional appeals and presents effects resulting from not following the desirable norm that is expressed on the verbal level.

The methodological framework was developed for content analyses of mediated public discourses and was applied to the analyses of norms for visual data practices. However, the suggested operationalization with the help of statement elements can also be of use for research on norms with other study designs (e.g., qualitative and quantitative interview studies). Reflecting on elements of normative statements can help with the design of quantitative surveys, as well as the development of guiding questions for qualitative interviews and group discussions. Furthermore, elements of normative statements can be used as deductive guiding categories for qualitative analyses of interview data. This dissertation, thus, provides an important and fruitful basis for future research on norms as a crosscutting topic in media and communication research, as well as the social sciences in general.

A final important contribution of the present dissertation is the fact that the studies raise a variety of intriguing questions for future studies. In the following section 9.4, limitations of this dissertation and implications for future research will be discussed.

9.4 Research Limitations and Outlook

In the following I will account for three overarching limitations of this dissertation. The study specific limitation can be found in the conclusions of the individual articles (chapter 6-8). As stressed throughout this dissertation, and chapter 2 in particular, norms are contextual concepts of ‘legitimate’ and ‘appropriate’ action. The dissertation has focused on a particular *geographical and socio-cultural* context; a specific *contextual setting* for the negotiation of norms; and a particular *topical context and area of application*. Certain limitations of this dissertation could be addressed in further studies. Therefore, this discussion of the limitations will be linked to suggestions for avenues of future research.

Firstly, the three articles included in the present dissertation examined the construction of norms for visual data practices in mediated public discourses with a focus on the Western European context and thus a *specific geographical context* and a *specific socio-cultural setting*. With the country sample in study 2, news media discourses on facial recognition tools were examined in five Western European countries. These countries have different security and surveillance traditions, as well as different attitudes towards surveillance, privacy, and the use of biometric data. Study 2 demonstrated that even within the Western European context, we see important differences with respect to the framing and the construction of norms. For example, in the Irish discourse ‘Efficiency & Utility’ is by far the most prevalent frame, while in all other countries the frame ‘Infringement of Personal Rights, Control & Function Creep’ dominates. These are relevant findings, however, it would be pertinent to further investigate how norms for visual data practices and uses of visual technologies are constructed outside the Western European context and socio-cultural setting at the center of the studies presented here. Doing so would allow us to further compare (a) actor constellations in the discourse, (b) the reasoning actors provide that legitimate or problematize practices, and (c) which norms they envision or deem desirable. The present dissertation offers both theoretical and methodological foundations that can be used for such further investigations. Furthermore, it provides categories that can be employed in comparative studies of, for example, legitimization and contestations of practices in and beyond specific geographical and socio-cultural contexts and settings.

Secondly, as this dissertation repeatedly argues, mediated public discourses are an important, and hitherto understudied, *contextual setting and forum* for communicating and constructing norms. The three studies in this dissertation mainly focus on news media discourses as one important part of mediated public discourses, with study 1 including expert reports, debates on Twitter and in parliament and committees as well. However, overall the main focus in the dissertation remained news media discourses and thus a contextual setting and forum in which professional journalistic norms and specific news values come into play and impact on how specific topics are covered and discussed. It is important to remember, however, that mediated public discourses are not restricted to news media coverage. In fact, for example, advertisements, movies, television series, or policy papers also heavily contribute to public sense-making. Additional research that takes into account these forums and materials would provide further insights into ideas of desirable conduct that are communicated and constructed. Additionally, in order to complement such research, it is vital to shed light on how mediated public discourses on norms are perceived and taken up from the audience. In fact, forums and contexts in which norms are constructed and negotiated beyond mediated public discourses have been left out in this dissertation. I have argued that mediated public discourses are central forums for social coordination, the negotiation of desirable norms, as well as for guidance on how to make sense of social and political implications of visual data practices and technologies. However, I also argue not to lose sight of other contexts in which, and by which norms can be observed and negotiated. If we were to neglect these other context, we would risk committing ourselves to a purely media-centric or public discourse-centric perspective on the construction of norms. As was stressed in chapter 2, norms are negotiated and learned in different, often interrelated, contexts; this could be among family members, friends, peers, as well as in institutions such as schools. In fact, we learn about norms by talking to referent others, by observing their practices, and by observing approval or disapproval of such practices by referent others. We thus also need to take into account other communication processes and settings; including face-to-face communication, as well as mediated interpersonal communications that take place via direct messages, calls, or, social media platforms (see also Geber & Hefner, 2019).

In fact, we may formulate the following plea that can be taken as a starting point to be addressed in further research on norms in media and communication research: Future research needs to draw attention to the interrelation of different forms of communication and observation in different contexts and forums in which norms are communicated and constructed. Geber and Hefner (2019) have proposed such links on a theoretical level, however, future research that explores these links empirically is much needed. The conceptual and methodical frameworks, as well as the empirical insights that this dissertation offers, provide a solid foundation on which this relevant future research can build.

Thirdly, the study of norms and their construction in mediated public discourses presented in this dissertation focuses on a specific *area of application*: visual data practices. While the studies give in-depth insights into the construction of norms for visual data practices, it is beyond the scope of this dissertation and its overall research aim to empirically examine the construction of norms beyond this area of application. To provide insights into broader patterns, general mechanisms and reasonings, as well as recurring actor constellations within the constructions of norms in mediated public discourses, it is necessary to conduct further case studies that shed light on norm constructions for other areas of application. For such studies, the foundational conceptual and methodological reflections, as well as the specific methods presented in this dissertation can be used. As such, the methodological considerations and the applications in the qualitative and quantitative designs of the studies 1-3 can guide future research on the construction of norms in mediated public discourses.

In fact, further studies on how norms are contested and constructed in mediated public discourses are vital. As outlined earlier in this dissertation, an increasingly polarized socio-political climate implies a strong divergence of extreme and mutually incompatible opinions on political issues. This makes it particularly relevant to further study (a) how actors envision and construct norms, (b) which practices actors deem appropriate or inappropriate, (c) which values are deemed worth protecting for a desirable social life and order, and (d) which different social and discursive mechanisms are at play in discourses.

For such studies there are numerous important ‘hot topics’ that challenge existing norms and require social coordination, be it directly related to media and digital technologies or with respect to broader political concerns. These ‘hot topics’ include, for example, ‘adequate’ measures for the regulation of platforms, or ensuring the visibility of different voices in media coverage without balance bias; i.e. to present different viewpoints without providing a misleading picture of the level of support and respectability of a highly contested standpoint (Boykoff & Boykoff, 2004; Hopmann et al., 2012). Furthermore, highly current topics for future studies on norms are, for example, mediated public discourses on desirable political measures in the fight against the implications of climate change or mediated public discourses on vaccinations against COVID-19 (see <https://covid-norms.ch/en/project> for a current study on the development of social norms for preventive behavior and measures in Switzerland).

The importance of future research on norms notwithstanding, the work of media and communication research on norms should not stop with critical observations of the construction of norms in mediated public discourses and other (interrelated) settings, nor with communicating scientific knowledge within the scientific system. When it comes to fundamental questions such as norms as “the grammar of society” (Bicchieri, 2006), a desirable future social life and social order, as well as the role of digital technologies in such life and future, it is also vital to communicate important scientific knowledge to the general public. Datafied societies need informed and critical citizens that know how to use, know how to contextualize, and know how to critically assess digital technologies. In addition, it is vital that citizens are informed and critical about the potentials and risks of digital technologies. This includes the knowledge and understanding that technologies are never neutral tools that exist per se; but instead that technologies, and norms for their usage, can be socially contested, shaped and governed, for example, through critical public discourses (see also Venema & Lobinger, 2021). This necessitates critical news media coverage, but also input from media and communication research. Such input may include important research findings of both the potentials and challenges linked to specific technologies. Additionally, researchers need to raise awareness of problematic blind spots and trade-off arguments in discourses. However, most important for research on mediated

public discourses in general, and for research on norms in particular, is the need to raise public awareness for what is, or what is increasingly becoming, sayable in discourses. This means that it necessary to raise public awareness of arguments that are visible and those that are not. Furthermore, it is important to raise awareness of the arguments that become normalized over time, as it is through discourse that practices become normalized, get taken-for-granted, or become part of ‘natural’ everyday life. Finally, it is essential to raise awareness of how the ideas of desirable norms and a desirable social future are communicated. Wodak (2018, 2021) has traced such mechanisms in political discourses and has demonstrated how far-right populist arguments build around nationalism, xenophobia, racism, sexism, antisemitism and Islamophobia. In her research, Wodak (2018, 2021) stresses that these arguments have become mainstream; they have become part of the very center of political discourse and have come to be regarded as normal. This again stresses the necessity to further study the construction of norms and the ideas we as society have about the kind of life we want to live. It is my hope that the empirical, conceptual, theoretical, and methodological contributions of this dissertation will play a part in stimulating these important avenues of future research.

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Additional Academic Contributions

I have included three academic journal articles in this cumulative dissertation. All three articles focus on the construction of norms for visual data practices in mediated public discourses.

Before and during my time as doctoral researcher at Università della Svizzera italiana (USI), I have additionally worked on the topics of norms, ethics, and visual practices within other projects and in the context of collaborative publications. We have examined, for example, how norms of taking and sharing pictures are defined in close relationships. Furthermore, we have discussed normative and ethical issues in memetic communication or challenges for visual research ethics in online research. These further publications and academic contributions, including peer reviewed conference talks, are listed below.

Journal Articles

Lobinger, K., Venema R., & Kaufhold A. (2020). Hybrid repertoires of photo sharing: Exploring the complexities of young adults' photo-sharing practices. *Visual Communication* (Online first), 1-24. <https://doi.org/10.1177/1470357219894038>

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Book Chapters

Venema R. (2020) Brennende Barrikaden, Riot Hipster und Verdächtige: Vernetzte Protestbilder zwischen Repräsentation, Legitimierung, Strafverfolgung und Überwachung am Beispiel der G20-Proteste 2017. In C. Brantner, G. Götzenbrucker, K. Lobinger, & M. Schreiber (Eds.), *Vernetzte Bilder. Visuelle Kommunikation in Sozialen Medien* (pp. 238–263). Herbert von Halem Verlag.

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Conference Presentations

- Venema R., Lobinger K. (2020, May 20-26). *The intimacy of surveillance and surveillance in intimacy: Discerning conceptual entanglements* [Panel presentation]. 70th Annual Conference of the International Communication Association (ICA) “Open Communication”. Virtual Conference.
- Venema, R., Pfurtscheller, D., Lobinger, K. (2018, November 29 - December 1). *Doing visual analysis online. Forschungsethische Herausforderungen und Handlungsempfehlungen zur Analyse vernetzter Bilder* [Paper presentation]. Annual Conference of the Division Visual Communication of the German Communication Association (DGPK) “Vernetzte Bilder. Visuelle Kommunikation in Sozialen Medien”. Vienna, Austria.
- Venema, R. (2018, October 31 - November 3). *Pictures and questions of right and wrong. A trilingual qualitative content analysis of norms in Swiss and German news media coverage about visual communication practices* [Paper presentation]. 7th

- European Communication Conference (ECC) “Centres and Peripheries: Communication, Research, Translation”. Lugano, Switzerland.
- Lobinger, K., Benecchi, E., Venema, R., Krämer, B. (2018, May 24-29). *The Pepe dilemma. A visual meme caught between humor, hate speech, far-right ideology and fandom* [Full paper presentation]. 68th Annual Conference of the International Communication Association (ICA) “Voices”. Prague, Czech Republic.
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- Venema R. (2017, May 25). *What are “appropriate” visual practices? A qualitative examination of evaluations, rules and norms in visual everyday communication* [Poster presentation]. ICA Young Scholars Preconference “Interventions In The Practice Of Visual Communication Research”. San Diego, CA, USA.
- Venema R., & Lobinger K. (2015, December 10-11). *Practices, obligations and responsibilities. Visual everyday communication and its challenges for acting responsible in and with media* [Paper presentation]. Conference “Responsibility and Resistance – Ethics in Mediatized Worlds”. Vienna, Austria.
- Venema R. (2015, November 19). *Bilder (wie) zeigen? Fragen und Herausforderungen aus forschungsethischer Perspektive* [Workshop presentation]. Workshop “Bilder zeigen? Herausforderungen und Bedingungen im Umgang mit Bildern in (kommunikations)wissenschaftlichen Veröffentlichungspraktiken”, Conference of the Division Visual Communication, German Communication Association (DGpuK). Erfurt, Germany.

Venema R., Lobinger K. (2015, May 21-25). "*Good*" pictures? *Discussing ethical challenges of visual everyday communication* [Paper presentation]. 65th Annual Conference of the International Communication Association (ICA) "Communication Across the Life Span". San Juan, Puerto Rico.

Appendices

Codebook Study 2

Aim

The study analyses news media coverage of facial recognition tools (FRTs). It explores how FRTs are turned into a public issue in mainstream news media in five different European countries with diverging social, historical and political contexts and surveillance policies (Germany, Italy, Ireland, Switzerland and the UK).

The analysis particularly aims at identifying patterns in media coverage of FRTs regarding

- 1) opinions: how the use of FRTs and processes of automation are described and evaluated, and, more specifically,
- 2) legitimations/contestations: how different actors legitimate and contest the use of FRTs and potential regulations, by e.g., foregrounding particular potentials or risks/problems.

Methodology

A qualitative-quantitative content analysis of articles published in the national print editions of 15 daily newspapers (3 per country) is conducted. The newspapers are chosen to reflect different political affiliations and editorial orientations.

Articles are collected through string search for “facial recognition” or adding the respective translations “Gesichtserkennung” and “riconoscimento facciale” in German and Italian via the Factiva database and the archives of FAZ and SZ (Gesichtserkennung OR facial recognition // riconoscimento facciale OR facial recognition).

All articles that contain these keywords are included in the sample. In total, the analysis is based on 2195 articles published between 1 June 2013 and 30 June 2019. Only those articles that treat FRTs as the main / one of the main overall topic are coded in-depth. Therefore, the variable OVERALL_TOPIC serves as a filter-variable (see further details in **eligibility rules** for sample articles).

The categories and coding strategies are outlined in the present codebook.

The codebook describes

- a) general procedures of coding
- b) rules for coding on the article-level
- c) rules for coding on the level of statements or claims.

Sample

For each country, the media sample comprises three national tabloid and quality newspapers encompassing different political perspectives and readerships.

UK: Sun, The Times, The Guardian
 GER: Bild, FAZ, SZ
 CH: 20min, NZZ, TA
 IT: La Repubblica, Corriere della Sera, Il Giornale
 IRE: The Irish Times, The Irish Independent, The Irish Daily Mail

General Procedure for Coding: General Rules and Concepts

First, each article is read carefully. An article includes the whole text of the database text output. This also includes captions of images or separate text units (such as info boxes) that are included in the output of an article. **Please check carefully if article actually refers to FRTs in the text, the captions or info boxes**, not only in a “related” information or link that refers to other articles. In this case, the article is to be excluded from the sample. Please then follow the steps according to the checklist:

- ◆ read whole article
- ◆ code **article-level variables**, starting with the article identifier
- ◆ check if article is eligible (**check eligibility rules in this codebook**)
 - ◆ if no: END coding and proceed with next article
- ◆ if article is eligible: code overall tone
- ◆ check – is there an actor speaker talking about FRTs and evaluating, e.g., the technology, the use, analytical steps, implications?
 - ◆ if no: insert number of actors: 0 (END coding and proceed with next article)
- ◆ if yes: identify and code the overall total number of actor speakers (important: see detailed instructions below “Identifying the subject actor” and “Determining a statement & statement elements”) in the article and proceed to code subject actor 1
- ◆ identify and code the first subject actor: who is the first actor talking about FRTs and evaluating, e.g., the technology, the use, analytical steps, implications?
- ◆ copy article-level codings and code variables on the **statement-level** for **subject actor 1 (start new line in excel)**
- ◆ check and code how the evaluation is expressed, check for explicitly mentioned information/arguments
- ◆ is there is another actor who evaluates FRTs (the technology, the use, analytical steps, implications)?
 - ◆ if no: END coding and proceed with next article
- ◆ if yes: copy article-level codings and code variables on the **statement-level** for **subject actor 2 (start new line in excel)**
- ◆ is there another actor who evaluates FRTs?
 - ◆ if no: END coding and proceed with next article

subject
actor 1

subject
actor 2

- ◆ if yes: copy article-level codings and code variables on the **statement-level** for **subject actor 3** (start new line in excel)
- ◆ are there other actors who evaluate FRTs?
 - ◆ if no: END coding and proceed with next article
- ◆ if yes: copy article-level codings and code variables on the **statement-level** for **subject actor 4** (and in the following all other **subject actors**)
 - ◆ **important: start new line in excel for each actor!**
- ◆ re-read article, check for consistency of codings

subject
actor 3

subject
actor ...



IMPORTANT, please check carefully:

For statement-level variables (such as country, users, targets, legitimizations, contestations): **code only those information / arguments that are explicitly mentioned by an actor.**

For temporal references: Please check **indicators** and **signal words**

Identifying the subject actor (speaker)

As an important part of the study, we are interested in who is talking about FRTs (including the technology, the use, analytical steps, implications) and in who is given the opportunity to speak. The purpose of this coding is to be able to analyze who is evaluating and defining FRTs and their use as well e.g. their potentials and risks and to understand the relative importance given to certain actors. The coding instructions and decision rules for coding actors are specified below (see instructions for Variable SUBJECT ACTOR)

For each article all subject actors/speakers are to be coded. If an article involves more than one subject actor, all statement level-variables are again coded for each other subject actor (each actor talks about a certain aspect of FRTs, specific uses, evaluates, refers to possible potentials or risks/problems and offers or requests solutions. They can thus describe the use of FRTs and processes of automation very differently). This coding strategy on a statement level is particularly useful to explore particular patterns, especially when it comes to the assessment of potentials and risks.

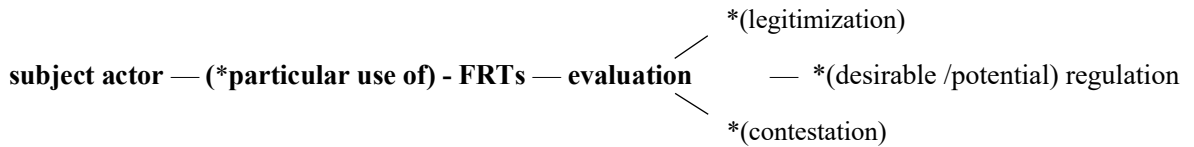
Determining a statement & statement elements

Identifying the subject actor as a speaker that describes and evaluates FRTs/its use in a certain way is the first step for identifying a statement in an article.

A statement is understood as a **connected semantic unit of meaning** that includes **all instances in an article** in which

- the **subject actor** talks about **FRTs** (or **synonymously e.g. biometric face recognition or biometric technology, or emotion detection with the help of FRTs**) and describes e.g. particular features and areas and aims of usage of FRT.
- The study is particularly interested in how actors **evaluate** FRTs and how they **legitimize** or **contest** their use. **Therefore, only evaluative statements are coded. The statement needs to entail** explicit or implicit positive, negative or ambivalent **evaluations**, when a subject actor talks about e.g. potentials or risks that the use of FRTs might have in a given context.
- Moreover, a subject author can – but does not need to – also give **recommendations** for future uses or can refer to (desirable/potential) **regulations**.

Elements of evaluative statements (*optional, not mandatory elements):



Important:

- The elements of a statement **do not necessarily appear together within a single sentence or a predefined section**, but can also be “scattered” in different parts of an article or interview.
- **Only those parts within the statements of an actor that refer to FRTs are relevant for coding.**
- Not all statements will necessarily include all single elements. Therefore, all specifications apart from the subject actor include an option to code “not specified/stated”. For example, a subject actor does not need to specify a particular use of FRTs or targets, but can evaluate the use of FRTs in general.

Indicators for evaluations are for example **phrases, adjectives and adverbs** such as “good/bad,” “positive/negative,” “desirable,” “helpful,” “alarming,” or “problematic”. In addition, evaluations can also be expressed through the **choice of language** when a subject actor talks about e.g. a “mass invasion of privacy” due to FRTs or by describing particular potentials or risks (see for further details coding instructions for EXPRESSION EVALUATION).

Beyond evaluative tendencies, the subject actor can also provide

- **legitimizations**, that are arguments that justify, accredit or license a type of use and when they e.g. describe particular potentials
- or, in turn,
- **contestations** that are acts of arguing, disagreeing with or opposing to the use of FRTs and the reasons why they consider FRTs problematic, a risk or not fair or not legal. Contestations can also be expressed by referring to negative implications of FRTs such as infringements of personal rights.

Units of analysis and units of coding

The unit of analysis can be either articles or statements. Units of coding can be either the article or statements/claims. The coding unit of a statement is defined according to semantic criteria: a statement is understood as a connected semantic unit of meaning that includes all instances and any number of passages and sentences in which one and the same subject actor refers to the use of FRTs, and possibly describes e.g. particular features and areas and aims of usage and evaluates and contests or legitimizes the use of FRTs in particular way or gives a recommendation for future applications or regulations. These elements of a statement do not necessarily appear together within a single sentence or a predefined section, but can also be “scattered” in different parts of an article or interview. **Only those parts within the statements of an actor that refer to FRTs are relevant for coding.**

Article-level variables

ART_IDENTIFIER (nominal): ARTID

Note number of article. The number is important to identify an article in the data set and to link subject actors and their evaluations/legitimizations/contestations with article-level variables.

The identifier is a 5-digits number. The first two digits indicate the newspaper in which the article has been published. The following three digits (starting with 001, continuing with 002, 003, 004, etc for each newspaper, e.g. 01001, 01002, ... for The Sun; 08001, 08002, 08003, ... for Neue Zürcher Zeitung; 12001, 12002, 12003, ... for Il Giornale) represent the **consecutive numbering of articles according to their order in the outputs, regardless whether or not the article is eligible for further coding or not or if the output is messed up.** Thus, also messed up outputs are labeled with an identifier and are part of the consecutive numbering.

01XXX	The Sun
02XXX	The Times
03XXX	The Guardian
04XXX	Bild
05XXX	Frankfurter Allgemeine Zeitung
06XXX	Süddeutsche Zeitung
07XXX	20min
08XXX	Neue Zürcher Zeitung
09XXX	TagesAnzeiger
10XXX	La Repubblica
11XXX	Corriere della Sera

12XXX	Il Giornale
13XXX	The Irish Times
14XXX	The Irish Independent
15XXX	The Irish Daily Mail

NAME_NEWSPAPER (nominal): NEWSP

1	The Sun
2	The Times
3	The Guardian
4	Bild
5	Frankfurter Allgemeine Zeitung
6	Süddeutsche Zeitung
7	20min
8	Neue Zürcher Zeitung
9	TagesAnzeiger
10	La Repubblica
11	Corriere della Sera
12	Il Giornale
13	The Irish Times
14	The Irish Independent
15	The Irish Daily Mail

ART_HEAD (string): HEAD

(string variable) 'headline of article'

Note down (copy & paste) the main headline. Note: Include only the main headline, not the sub-headline.

PUB_DAY (numeric): DAY

Code 'day of newspaper issue' (1-31)

PUB_MONTH (numeric): MONTH

Code 'month of newspaper issue' (1-12)

PUB_YEAR (numeric, interval): YEAR

Code 'year of article issue' (four digits, e.g. 2013)

ART_SECTION (nominal): SEC

Code 'section of newspaper where article appears'.

For coding refer to the section labels or page numbers given in the Factiva outputs. Articles that are labelled with page number 1 are coded as “cover page”. Articles can also start on page 1 and continue on the following pages and different sections. In these

cases, the article is still attributed to the section “cover page” to account for and to be able to analyze the prominent positioning of the topic.

- **If the country in which the newspaper is published is mentioned as section, for example “Ireland”:** code section national news.
- If an article is labelled with **more than on section labels** (e.g. “News, Opinions, Columns”) code according to genre (based on the decision if article is more news- or more opinion-oriented when labels are “News, Opinions, Columns”). If this is difficult to decide: code section unclear/not given.
- Article outputs labelled with section names such as “Features” are coded as “other” and then specified with variable OPSEC.

1	Cover page
2	(National or international) news section, politics
3	Editorial / Commentary pages
4	Business / Economy / Finance section
5	Tech section
6	Science, “Wissen”
7	Culture / Art / Feuilleton / Books/Lettura
8	Lifestyle & Society / Panorama/ LiberiTutti/ Miscellaneous
9	Local / Regional news
10	reader’s letter, letters to the editor
11	other
12	Section unclear / not given
13	Digital/Multimedia
14	Media
15	Features
16	Sports

ART_OPEN_SECTION (string): OPSEC

If SEC=11 (other) – please specify with OPSEC.

Note 'section name' (string) or code NO OTHER (for no other section, if SEC≠11).

ART_GENRE (nominal): GENRE

'Journalistic genre of article'

1	Short news (short news article, newsletters – only to code when shorter than 10 lines (from 10 lines on code news article)
2	News article (day-to-day coverage of events, e.g. news article, news report)
3	Reportage & feature (Feature, documentation, reportage)
4	Interview (of the newspaper itself; references to interview statements drawn from other sources are coded as 1 or 2)
5	Commentary / editorial / op-ed column

6	Tech review / service article
7	Book review
8	Guest article, commentary, column by (prominent, VIP) guest author / columnist
9	reader's letter, letter to the editor
10	"think piece" (Article is a hybrid, combines (background) information and personal opinion and analysis or speculation).
11	other
12	unclear

ART_OVERALL_TOPIC (nominal): TOPIC

Code the overall topic of the article. If the article touches upon several topics, code the topic the article is most concerned with. In case of doubt, use headline/subheadlines to decide about overall topic. If 50 % or more of the article is about FRTs, facial recognition is coded as the overall topic.

1	facial recognition (also steps to regulate it/ways of circumventing it)
2	trends and news of companies, new features of devices, software or social media platforms (trends and news presented e.g. with press communiqués or on tech conventions; new features of consumer devices or consumer software, including smart home applications)
3	police work, law enforcement (e.g. strategies and practices in current criminal cases; (new avenues in) policing strategies, police projects)
4	CCTV and video surveillance systems in general
5	national and international security policies and security strategies (strategies of states, cities, at airports etc)
6	general trends in AI
7	(new) legal frameworks & legislations (GDPR, police law, or rulings of data protection commissioners)
8	political protest and protest events (demonstrations e.g. against summits)
9	concerts, sport events, including entrance/ ticketing systems and regulation
10	politics and strategies of warehouses, shopping centers, advertisers, new consumer and shopping trends including payment options, advertisement strategies
11	online privacy (e.g. privacy issues, privacy protection or privacy policies/terms and conditions online, on Social Media platforms such as Facebook)
12	Public welfare and healthcare system, including social welfare frauds
13	other
14	human facial recognition capacities

ART_OPEN_OVERALL_TOPIC (string): OPTOPIC

If TOPIC=13 (other): Note overall topic (string). If not, code NO OTHER.
When coding the topic openly, stay rather concrete – code e.g. “Irish elections” instead of the more general term “Political campaigning”.

Check if article is eligible.

Eligibility rules:

The articles which are included in the further coding must be essentially about FRTs; that is FRTs must be the central topic. Articles that were coded with TOPIC=1 need to be included. Furthermore, the following cues are to be used to determine if an article is essentially about FRT – one or more need to apply:

- a) 50 % or more of the article is about FRTs and/or FRTs are mentioned in the headline / sub-headline.
- b) In some cases, FRTs may be **the central framing aspect of the article even if less than 50 % of the actual text is concerned with FRTs**. Cues that facial recognition is central to these articles include:
 - FRT is mentioned in headlines and/or quotes in “info boxes”
 - opening and closing paragraphs centrally deal with FRTs

Important: Also articles that deal with emotion detection with the help of facial recognition tools are to be coded if they are eligible.

If article is eligible, proceed with the following article-level variables. If not, end coding and proceed with next article.

Important: In case of doubt, consult study collaborator to discuss the coding of the article.

OVERALL TONE_ARTICLE (nominal): ARTTONE

Code the **overall evaluative tone of the article**. In case it is difficult to decide over the overall tone, the tone of the headline and the sub-headline are to be used as guiding indicator. Example: if it is difficult to decide whether the overall tone is ambivalent or negative, and the headline is “SXSW panel opens window into dangers of facial recognition software” – then the overall tone is negative.

- | | |
|---|--------------------------------------|
| 1 | positive |
| 2 | neutral/positive (tendency positive) |
| 3 | ambivalent/mixed |

4	neutral/negative (tendency negative)
5	negative
6	no evaluation/tendency (only to code when article does not include any evaluations)
7	unclear

Important: If the overall topic is FRTs, but the article does not include any evaluative statements, code 0 for number of actor speakers

Check:

- ◆ Is there an actor speaker/are there actor speakers talking about FRTs and evaluating, e.g, the technology, the use, analytical steps, implications?
- ◆ If no: insert 0, end coding and proceed with next article.
- ◆ If yes: Code total number of actor speakers.

NUMBER_ACTOR_SPEAKER (numeric, interval): NUMBACTOR

Code total number of actor speakers in the article, code 0 for no actor speaker or the respective total number.

Important: In case of doubt, consult study collaborator to discuss the coding of actor speakers.

Check next step:

- ◆ If number of actor speaker=0, end coding and proceed with next article.
- ◆ If number of actor speaker≠0, proceed with statement-level variables.

When coding on statement-level:

- ◆ Start new line in excel for each subject actor and copy all article-level codings, including identifier.
- ◆ Please make sure that these information are included for all subject actors / statement-level variables to ensure the link between the levels of coding.

Statement-level variables

The following categories are coded on a statement level.

Coding the subject actor (speakers)

A subject actor is a single person or a collective (organization, institution, social group, etc.) who **explicitly talks about and evaluates FRTs in a certain way**. “Talking” can also mean being directly and/or indirectly cited. Consequently, when there is a direct or indirect quotation or paraphrase, the actor speaker is the actor being quoted or paraphrased. Persons or groups of persons who are just named, e.g. as user of FRTs will not be considered as subject actors.

Rules for coding the subject actors:

- a. The first actor to be coded is the actor who is mentioned/cited first.
- b. When the journalist uses an intro in which he/she indirectly cites or sums up the main argument of an actor while referring to the actor as source (as in the example: “a watchdog has said”) and then further continues with the given actor’s viewpoint, please code the cited actor as actor 1 (in the example: biometrics commissioner) and treat the introduction part as part of the actor’s statement.

Example:

“Police forces are pushing ahead with the use of facial recognition systems in the absence of clear laws on whether, when or how the technology should be employed, a watchdog has said. Prof Paul Wiles, the biometrics commissioner, said in his annual report that police deployment of the technology, which can be used to scan crowds or CCTV recordings for people of interest, was chaotic and had run ahead of laws that could prevent its misuse.”

- c. All subject actors that appear in the articles are coded.
- d. A journalist or a guest author of an article can also be a subject actor/speaker when they do not solely act as a “chronicler”/mediator for the viewpoints of others, but also postulate their own situation interpretations, viewpoints and classifications.
- e. Apart from clearly identifiable actors (normally presented with a name or a pseudonym or description), statements can also be attributed to **vague actors** (such as “experts state that”, “many people argue that” or “the majority in society is convinced”). In these cases, the subject actor is the author of the article or the interviewee. The vague actors, in turn, are coded as sources.

SUBJECT ACTOR (nominal): ACTOR

Code who is talking about FRTs (or is directly/indirectly cited and “talks” in this way). If the subject actor is a guest author, please code according to their general background and/or occupation.

1	journalist
2	activist(s)/NGOs, including associations of hackers such as CCC, councils for civil liberties or NGOs that provide legal assistance such as ACLU
3	data protection / biometrics officer(s)
4	lawyer(s), bar association
5	politician(s) (e.g. mayors, local politicians, ministers, congressman/women, members of congressional/senate committees or subcommittees, government accountability offices, members/representative of ministers, offices of state, EU commissioners) or their representatives/spokesperson
6	member/ representative of police law enforcement (investigation departments, FBI etc.)
7	researcher
8	private person/citizen(s), (members of) local communities
9	developer, software engineers, software/tech companies
10	public transportation services /facilities/companies and their representatives/spokesperson
11	shops, shopping malls, retailers and their spokesperson/person in charge
12	education institutions or facilities and spokesperson/member/person in charge
13	other

STATEMENT_ID

Note the statement-ID which is important to identify the statement in the data set. The identifier is based on the 5-digits number of the coded article (ART_IDENTIFIER). Please use this identifier and add _1 / _2/ _3 etc for actor statement 1/2/3 etc.

For example 05267_1 for actor 1 in article 05267, 05267_2 for actor 2 and so on.

COUNTRY (nominal): COUNTRY

Code the country to which subject actor refers when talking about the use of FRTs. Whenever a member or representative of local or national police law enforcement agencies (such as particular investigation departments, the FBI, the BKA, the police in Berlin or Hamburg etc.) explicitly talks about their work, how they use FRTs, the potentials or risks FRTs might have for their work, code the country in which they are based, even if the country is not explicitly stated.

1	UK
2	Ireland
3	Switzerland
4	Germany
5	Italy
6	USA

7	China
8	other European country
9	other country world wide
10	multiple countries
11	no specific country mentioned

USERS (nominal)

Users can be actors, institutions, facilities or devices/applications that (want to) use or apply facial recognition or test the use.

Code all actors, institutions or facilities that are mentioned or described as users of FRTs.

Important:

It is important who is **explicitly mentioned/described** as user.

Therefore, e.g. User_TRANSP=1 is also to be coded in cases in which the subject actor talks about passport controls but only mentions “airports” as users (even though border control, passport and entry controls might be tasks of border control and police forces).

User_Police, law enforcement, border control or intelligence agencies: USER_POL

1	yes	To be coded with yes when (local or state) police work; federal, national or international law enforcement agencies; investigation departments; border control; traffic police; intelligence agencies or national security authorities are mentioned as those using FRTs.
2	no	
999	no user mentioned	

User_Event hosts & locations, churches, sights: USER_EVTLOC

1	yes	To be coded with yes when event “hosts” such as football clubs, and/or locations or hosts such as stadiums, concert halls, churches, synagogues, prayer rooms are mentioned as those using FRTs.
2	no	
999	no user mentioned	

User_Public transportation: USER_TRANSP

1	yes	To be coded with yes when public transportation services and facilities, train stations, airports, airlines, airline consortia and airline alliances such as StarAlliance, cruises or urban railway services/companies are mentioned as those using FRTs. Important is who is explicitly mentioned as user, therefore also to be coded in cases in which the subject actor talks about passport and entry travel controls but only mentions “airports” as users.
2	no	
999	no user mentioned	

examples:
“Airports matching faces to online images or watch lists.”

“The airline alliance Star Alliance wants to use automatic facial recognition to manage its passengers in the future.”(SZ_20/02/2020)
 “At Munich Airport, Lufthansa is now testing the procedure, which is designed to make the boarding pass obsolete and to save time.”
 (SZ_20/02/2020)

User_Shops, retailers, ads: USER_RETAILADS

1	yes	To be coded with yes when supermarkets, shops, shopping malls, retailers or advertisers are mentioned as those using FRTs.
2	no	
999	no user mentioned	

“Shops use facial recognition to identify repeat customers and their regular orders.”

User_EducationFacilities: USER_ED

1	yes	To be coded with yes when educational facilities such as schools, universities/university campuses are mentioned as those using FRTs.
2	no	
999	no user mentioned	

User_Consumer electronics, tech comp, social media & apps: USER_TECH

1	yes	To be coded with yes when consumer electronics (such as smartphones), smart home devices or consumer software (e.g. for managing private photo libraries), tech companies such as Apple / Google and their services, apps, websites or social media platforms are mentioned as those using/applying FRTs or testing their use.
2	no	
999	no user mentioned	

“Photos upgrades: Apple is applying some new advanced computer vision to let you automatically compile photo albums and short videos. It will do this partially through new facial recognition techniques.” (Irish Independent_06/2016)

User_Banks: USER_BANKS

1	yes	To be coded with yes when banks and banking systems are mentioned those using FRTs.
2	no	
999	no user mentioned	

User_Other: USER_OT

string other_string. Note which other user(s) are mentioned as those using/ applying or testing FRTs.
 If the subject actor does not mention a user code NO, if no other user is mentioned, code NO OTHER.

TEMPORAL_REFERENCE (nominal): TEMP

Code if a past, current, or future use of FRTs described. Important: **Check signal words!**

1	current use
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2	future (possible) use /future scenarios (signal words: if an actor e.g. talks about how FRTs can/could be used or will be used, including plans for implementing FRT)
3	past/historic uses
4	not specified/not clear

TARGET (nominal)

Code who is described as been targeted by FRTs. A target is a person or particular group of people/living being that **is explicitly described as being watched, scanned, analyzed or aimed to be identified by FRTs/the use of FRTs.**

Important: Only code when a target is explicitly mentioned as such.

Target_“Threats”: TAR_THREAT

1	yes	The subject actor refers to categorized groups such as terrorists, criminals, suspects, “troublemakers”, “deviants”, people of interest or hooligans as targets. example: “FRTs help identify suspects.”
2	no	
999	no target mentioned	

Target_MissingPeople: TAR_MIS

1	yes	The subject actor refers to a categorized group such as missing persons or lost children as targets.
2	no	
999	no target mentioned	

Target_GenericPeople: TAR_GEN

1	yes	The subject actor refers “we”, “people”, “the people”, “everyone”, “crowds” to describe the targets of FRTs. example: “It is well known that China is widely using face recognition to control its people. ” (Spiegel.de_17/02/2020) “Hannah Couchman, of Liberty, said: “It’s absolutely right that the rollout of facial recognition by individual forces has been chaotic and lawless. Invasive facial recognition goes light years beyond traditional CCTV. It snatches our unique personal data, violates our privacy and pressures us to self-police where we go and who we go with. ” (The Guardian_27/06/2019)
2	no	
999	no target mentioned	

Target_SocialGroup: TAR_GROUP

1	yes	The subject actor refers to a specific group of people that is targeted or affected by the use of FRTs. This could be for example attendees of music or sport events, protesters, passengers/travelers, clients, passers-bys in public spaces, smartphone users or depicted people on images shared online. Important: if a group is mentioned, please specify with TAR_GRP_SPEC.
2	no	
999	no target mentioned	

Target_Other: TAR_OT

string	other_string. Note which other target(s) is mentioned. If no target is mentioned code NO, if no other target is mentioned, code NO OTHER.
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OPEN_TARGET_SOCIAL_GROUP_SPECIFIED (string): TAR_GRP_SPEC

If Target_Social group=1 (specific group as target), please specify who is described as been targeted, “watched”/analyzed by FRTs. **Please collect (copy & paste) the passages that refer to the targeted group(s) in order to capture and account for the actual wording in the article.**

If no target is stated, code NO TARGET.

If no social group is mentioned as target code NO.

AUTOMATION_FILTER (nominal, binary): FILT_ATM

Code if the subject actor refers to processes and aspects of automation or automated / automatized facial recognition. **Important: Only code “yes” if the article contains the keywords automation/ automated / automatized.**

1	yes
2	no

USE_AUTOMATION (nominal)

Code what the subject actor describes as automated/automatized. **Important: If automation (automated/automatized) is only mentioned as keyword, code 2 for all variables and NO SPEC for ATM_OT.**

Auto_Organization: ATM_ORG

1	yes	organization of images/data in e.g. personal photo libraries (sorting, classifying, tagging), as well as scanning or filtering data
2	no	
999	no reference to automation	

Auto_Identification: ATM_ID

1	yes	identification, recognition & matching/comparison of faces with existing databases
2	no	
999	no reference to automation	“When I pass an automatic border control at the airport, my face is compared to my passport.” (Spiegel.de_17/02/2020)

Auto_Authentication: ATM_AUTH

1	yes	authentication (e.g. when unlocking smartphones, for log-ins into banking systems)
2	no	
999	no reference to automation	

Auto_Detection_POIs: ATM_POI

1	yes	detection of suspects, terrorists, or persons of interest
2	no	
999	no reference to automation	

Auto_RiskDetection: ATM_RISK

1	yes	detection of risks, “unnormal” / deviant behavior and/or defining targets for police intervention
2	no	
999	no reference to automation	

Auto_MonitorTrack: ATM_TRACK

1	yes	monitoring & tracking of people
2	no	
999	no reference to automation	

Auto_Other (ATM_OT)

string	other_string (please specify). If the subject actor does not refer to processes and aspects of automation code NO, if no other use of automation is mentioned, code NO OTHER. IF automation (automated/automatized) is only mentioned as keyword, code NO SPEC.
--------	--

REF_AUTOMATION (nominal): REF_ATM

Code the way in which the subject actor refers to automation/automated/automatized.

1	keyword Here, automation or automated / automated facial recognition or analysis is just mentioned as a term or keyword without further explanation example: “a face is automatically analyzed”, people are automatically identified/checked/tagged, “automated facial recognition is used for entrance control” “Photos upgrades: Apple is applying some new advanced computer vision to let you automatically compile photo albums and short videos. It will do this partially through new facial recognition techniques.” (Irish Independent_06/2016) “Churchgoers are being secretly monitored with facial recognition technology that automatically checks whether they are attending services.” (The Times_06/2015) “The acquisition of the Israeli facial recognition company Face.com made a statement about Facebook's plan to dominate the photo-sharing market. Face.com's technology was soon incorporated into the "tag suggest" feature, allowing users to automatically tag themselves in friends' pictures. ” (The Guardian_03/2014) “It risked “mass surveillance, screening and predictive policing” where “false positives” from automated facial recognition could have dire consequences.” (The Guardian_10/2017)
2	mentioning of steps/procedures of automation Here, processes of automation are further specified in the sense that the subject actor mentions that a photograph is or can be e.g. matched and automatically compared with an existing database, a watchlist. example: “And automated facial recognition technology isn't passive, like CCTV. It loads surveillance cameras with biometric software to create maps of people's unique facial characteristics in real time. These are then measured and matched to images stored elsewhere.” (The Guardian_05/2018)
3	with explanation/discussion of steps/principles/mechanisms of what is automated/automatized or of “automated” facial recognition/Machine Vision

Here processes of automation are not just mentioned, but basic principles of what is automatically done / of automated facial recognition are explained.

example:

“When deployed in public spaces, automated facial recognition units **use a camera to record faces in a crowd. The images are then processed to create a biometric map of each person’s face, based on measurements of the distance between their eyes, nose, mouth and jaw. Each map is then checked against a “watchlist” containing the facial maps of suspected criminals.**” (The Guardian_06/2019)

999 The subject actor **does not refer** to processes of automation (automated/automatized).

CHARACTERIZATION_AUTOMATION (nominal): CHRCT_ATM

Code the way in which the subject actor characterizes automation/automated/automatized. **If the subject actor does not refer to processes of automation (automated/automatized), code 999, if automation (automated/automatized) is just mentioned as a keyword, code 7.**

- | | |
|-----|--|
| 1 | “live”, “real-time”
Processes of automated facial recognition tools/devices are described as “live” and “real-time”. |
| 2 | smart, intelligent, with (autonomous) agency
Automated facial recognition tools/devices are described as “intelligent”, “smart”. This characterization can be linked to a wording that supposes an – sometimes even totally autonomous – agency of devices and algorithms : Cameras, computers and facial recognition tools automatically do things, think, recognize, understand, match, analyze, know, verify or even – quote – “bring back” missing children. |
| 3 | efficient, fast
Processes of automated facial recognition tools/devices are described as efficient and/or fast |
| 4 | creepy intrusion, control, surveillance apparatus
Automation/automated facial recognition is described as a threat for democracy, for freedom and a massive sneaky shift towards an Orwellian, encompassing surveillance state. |
| 5 | “no worries”_Automation less intrusive
Automation is not only described as faster – but the main argument is that because the analysis is «done» by automated tools, it is even less intrusive or severe in a sense that the face and the data are not seen and processed by a police officer sitting down, looking at albums of photographs, but just by a machine and that no personal data are stored.
example:
“The images are only evaluated by artificial intelligence and are immediately deleted if it does not notice any suspicious aspects.” (SZ_24/06/2019) |
| 6 | other |
| 7 | keyword
Automation/automated/automatized is just mentioned as a keyword and not further characterized. |
| 999 | The subject actor does not refer to processes of automation (automated/automatized). |
-

OTHER_CHARACTERIZATION_AUTOMATION (string): OT_CHRCT_ATM

If CHRCT_ATM=6: Please collect (copy & paste) the passages that refer to/describe processes and aspects of automation. Also add the abbreviation of the newspaper and the date in brackets.

If CHRCT_ATM≠6: Code NO OTHER (no other characterization).

If the subject actor does not refer to processes and aspects of automation): Code NO.

SOURCE (nominal): SOURCE

Code the source(s) the subject actor refers to in their statement.

1	research(ers) / reports (including cases when researchers refer to their own research/studies/reports)
2	data protection officers / ombudsman data protection or their reports (including cases when data protection officers refer to their own research/studies/reports)
3	reports/statements of congressional/senate committees or subcommittees, government accountability offices
4	activists /NGOs, including reports/statistics they are issuing
5	(national) press agency
6	national/domestic other journalists / media source, media coverage
7	foreign/international other journalists / media source, media coverage
8	law enforcement / police, including criminal statistics
9	politician(s)
10	citizen(s)
11	developer, software engineers, software/tech companies or their spokesperson
12	generic, vague source: "experts"
13	generic, vague source: "data and civil rights activist"/"data protectionists", "privacy groups", "civil libertarians" (example: "Civil rights activist/data protectionist/ data protection authorities criticize that ...")
14	generic, vague source: "critics" (example: "Critics consider the biometric control systems a threat to passengers' privacy, NZZ_26.06.2019)
15	generic, vague source: "supporters", "advocators" (example: "Advocators of this technology point to the fact that...")
16	generic, vague source: "many/the majority" (example: "many people argue that" or "the majority in society is convinced")
17	generic, vague source: reference to "statistics", "public opinion polls" without further specifying these sources and empirical data
18	other source
19	no source mentioned
20	multiple source

SOURCE_MULT

If the subject actor refers to multiple sources (SOURCE=20), specify these multiple sources by listing all of them according to our source-list in the codebook. Separate them with ; - so code e.g: 13; 4; 7). If the subject actor only refers to one source code NO; if the subject actor does not mention any source (SOURCE=19) code NO SOURCE.

EXPRESSION_EVALUATION (nominal, binary coding)

Code the way in which the subject actor expresses an evaluation of FRTs/the use of FRTs.

Evaluations can be expressed through **adjectives** and **adverbs** such as “good/bad”, “positive/negative”, “desirable”, “helpful”, “fun”, “alarming”, “carefully”, “efficiently”, “creeping”, “scary” or “problematic” or descriptions of being “appalled”.

Evaluations can also be expressed through e.g. the **choice of language, figural speech and metaphors** when a subject actor talks about e.g. “mass invasion of privacy” due to FRTs or how these tools can “destroy” personal rights of people.



Finally, subject actors can also suggest evaluations by underlining potentials and risks or referring to possible positive or negative consequences (see definitions below!).

Expression_Evaluation_Adjectives: EV_ADJ/ADV

1 yes

2 no

The evaluation is expressed through evaluative adjectives/adverbs such as “good/bad”, “positive/negative”, “desirable”, “helpful”, “fun”, “alarming”, “carefully”, “efficiently”, “creeping”, “scary”.

Expression_Evaluation_Figural Speech, Metaphors, Terms: EV_MET

1 yes

2 no

The evaluation is expressed through a particular choice of language and comparisons, figural speech or metaphors such as “Facial recognition is the ultimate step to a surveillance state and the total control of citizens”, “a next step of the data mania”, “mass surveillance”, “the Orwellian idea”, “a tool directly from Orwell’s 1984”, “the transparent citizen”, “invasion of privacy”, “it might lead to a dystopian future”
– or: positive ones such as “a new standard of proof”

Expression_Evaluation_Potentials: EV_POT

1 yes

2 no

The subject actor refers to potentials the use of FRTs might have for e.g. law enforcement and to protect citizens against terrorism **without further specifying explicit positive attributions or using striking metaphors – but the (potential) advantages and the general potentials of FRTs they describe suggest a positive evaluation.**

Expression_Evaluation_Risks: EV_RISK

1 yes

2 no

The subject actor either states that the use of FRTs can lead to e.g. the tracking of people and their movements in the streets or across different datasets, “a new dimension of surveillance” or that the use of FRTs is e.g. an infringement of personal rights **without further specifying explicit negative attributions or using striking metaphors – but the (potential) risks or implications/problems they describe suggest a negative evaluation.**

OPEN_Evaluation_Adjectives (string): OP_EV_ADJ/ADV

If EV_ADJ=1: Please collect (copy & paste) the respective passages from the article and add the abbreviation of the newspaper and the date in brackets. Otherwise code NO (for no evaluation with adjectives/adverbs, attributions).

OPEN_Evaluation_Metaphors_Terms (string): OP_EV_MET

If EV_MET=1: Please collect (copy & paste) the respective passages from the article and add the abbreviation of the newspaper and the date in brackets. Otherwise code NO (for no evaluation with figural speech, metaphors/terms).

EVALUATION_TONE (nominal): EV_TONE

Code how the subject actor evaluates FRTs/the use of FRTs.

- | | |
|---|--|
| 1 | positive – support (e.g. the subject actor employs specific positive attributions, refers to or underlines the (possible) positive consequences for individuals or groups of people or society) |
| 2 | ambivalent (e.g. the subject actor equally refers to advantages and disadvantages, maybe even underlines the ambivalence of evaluation or the difficulty to judge) |
| 3 | negative – criticism (e.g. when the subject actor employs specific negative attributions, refers to “Orwell’s 1984” or underlines the (possible) negative consequences for individuals, groups of people or the whole society or refers to infringements to personal rights) |
| 4 | tendency unclear |

EVALUATION_AMBIVALENT_OPEN (string): OP_EV_AMB

If EV_TONE=2 (ambivalent): Please collect (copy & paste) the respective passages from the article and add the abbreviation of the newspaper and the date in brackets). Otherwise code NO (for no ambivalent evaluation).

EVALUATION_TENDENCYUNCLEAR_OPEN (string): OP_EV_TENDUN

If EV_TONE=4 (tendency unclear): Please collect (copy & paste) the respective passages from the article and add the abbreviation of the newspaper and the date in brackets). Otherwise code NO (for no unclear tendency).

LEGITIMIZATION

To legitimize means to justify, accredit or license a type of behavior or practice. We contend that the process of legitimization is enacted by argumentation, that is, providing explanations of social actions, ideas, thoughts, declarations, evaluations etc. In addition, the act of legitimizing or justifying is related to a goal, which, in most cases, seeks our interlocutor’s support and approval.
Hence, legitimizations are the reasons that are employed by a subject actor to argue why the use of FRTs in a particular context is acceptable/adequate or even favorable by pointing to/foregrounding e.g., specific potentials the use of FRTs may entail.

Important: Actors might mention or refer to legitimization other actors/vague actors employ in favor of FRTs, but directly argue against them as in the following example: “There is a real sense of technological determinism that is often pushed by the big corporations, but also by law enforcement and by government, that it’s inevitable we’ll have this, so we should stop talking about why we shouldn’t have it,” she said.” (The Guardian_07/06/2019)

These rhetorical moves are not coded as legitimizations, the coding focuses on the actual standpoint and arguments of a subject actor.

A subject actor can employ and list several arguments (for example: “In general, FC Bayern hopes that the cooperation with Hexwave will lead to a further increase in security standards and easier access to the stadium,” the record-breaking champion announced on request.” (SZ_24/06/2019).

Therefore, it is important to code ALL legitimization that the subject actor employs to support their argument/point of view.

This strategy also allows to analyze patterns in terms of co-occurrences of single arguments.

FILTER_LEGITIMIZATION (nominal, binary coding): FILT_LEG

Code if the subject actor legitimizes FRTs/the use of FRTs in a certain way.

1	yes
2	no

LEGITIMIZATION (nominal)

Code how the subject actor legitimizes the use of FRTs. **Important: Only code those legitimizations that are explicitly mentioned by the subject actor and only code their actual arguments that they use support their point of view** (not vague references to standpoints of others/prominent arguments in the debate they might employ).

LEG_CrimeDetection: LEG_CRIMD

1	yes
2	no
999	no legitimization

The subject actor claims that FRTs **enhance the ability to solve crimes** (e.g., easier to identify, track and find suspects; troublemakers) or **anticipate them**, and/or that they are a **source of evidence** against perpetrators.

examples:

“Kimberly Del Greco, the FBI’s deputy assistant director of criminal justice information, said that the FBI’s facial recognition system has “enhanced the ability to solve crime” and emphasised that the system is not used to positively identify suspects, but to generate “investigative leads”.” (The Guardian_27/03/2017)

“a new standard of proof”, criminals “cannot feel safe anymore”

“Federal and state law enforcement officers said that while they had only limited knowledge of how Clearview works and who is behind it, they had used its app to help solve shoplifting, identity theft, credit card fraud, murder and child sexual exploitation cases.” (NYT_18/01/2020)

LEG_DeterrencePrevention: LEG_PREV

1	yes
2	no
999	no legitimization

The subject actor claims that FRTs are **useful for the deterrence and prevention of crimes** (e.g. because people know they are watched), either in the present or a (hypothetical) future.

This strategy can also be backed up by **rationalization strategies**

referring e.g. to numbers and statistics to “prove” this argument and to convey **objectivity and credibility**.

LEG_UTILITYEfficiency: LEG_EFF

1	yes
2	no
999	no legitimization

The subject actor refers to the **utility, efficiency and convenience of FRTs**, e.g. that they are useful or allow for efficient, “smoother”, easier, faster, more convenient processes for e.g.

- entrance checks and access control
- passport and identity checks, «biometric boarding» at airports, verify identities
- payments (payments, e.g. “Smile to pay”-/pay by face-systems)
- ticketing systems
- opening entrance doors
- authentication processes
- clocking in and out
- targeting and approaching customers
- finding missing a missing person / a person on a watchlist
- roll-call system

examples:

“In other words, “anywhere you would otherwise search for your boarding pass,” says Anna-Sophie Poll, Star Alliance spokeswoman. “We want the passengers to have their hands free.” (SZ_20/02/2020)

“Other volunteers were also caught out of the crowd with the help of photos, some of the photos being ten years old. The police chief is very enthusiastic about the facial recognition software from the Israeli company Anyvision: “Imagine how useful it is to be able to locate infants or Alzheimer's patients in real time, but also criminals or terrorists.”

LEG_Security: LEG_SEC

1	yes
2	no
999	no legitimization

The aspect of **security** is used to legitimize the use of FRTs or to foreground why FRTs/their use is favorable: The subject actor states that FRTs/their use are helpful/important for **ensuring (public or private) safety and security** (for example also by being able to identify unauthorized intruders, restrict their access, surveille/monitor who is in the house with the help of FRTs in smart home devices), for (live)detection of risks/threats or “deviant” behavior or for enhancing citizens' feeling of security or to fight against terrorism.

LEG_TechnicalNeutrality: LEG_NEUT

1	yes
2	no
999	no legitimization

The subject actor refers to **technical neutrality**: It is stated that images / faces are analyzed by a “machine”, artificial intelligence, that data are directly deleted when there is no conspicuousness. These processes are characterized as **non- or less intrusive** compared to the analysis done by a human.

example:

“The images are only evaluated by artificial intelligence and are immediately deleted if it does not notice any suspicious aspects.” (SZ_24/06/2019)

LEG_Necessity: LEG_NEED

1	yes
2	no
999	no legitimization

rationalization, need: FRTs are just **necessary or indispensable tools** to manage huge data sets because a manual screening of the data would take too long or was not possible.

LEG_Singularization_LimitEffects: LEG_SING

1	yes
2	no
999	no legitimization

singularization: The subject actor refers to **the singularity of problems or possible norm transgressions**. Singularity is another containment strategy, which can also acknowledge a norm transgression. But it reduces its impact by highlighting its **singular nature** or its **limited effects/harm**. It means to **narrow down the scope of use** of FRTs or the possible implications. The use of FRTs is described as a “a targeted search”, as a mere scanning, not an identification process or with information limiting the time frame (‘we did not do it for a long time or we just started it’) or by limiting its spatial dimension (‘it is just happening in a limited area’).

LEG_AuthorizationLaw: LEG_LAW

1	yes
2	no
999	no legitimization

authorization: The subject actor counters critique / legitimizes the use of FRTs by stating that the use is **covered by existing law**.

LEG_EaseFunUseDevices: LEG_FUN

1	yes
2	no
999	no legitimization

The subject actor refers to the **easier, more fun or playful use of consumer devices** such as smartphones.

LEG_KeepingUp_GeneralTrend: LEG_KEEPU

1	yes
2	no
999	no legitimization

The subject actor legitimizes the use of FRTs by stating that it is **important to keep up with trends/technological developments in other countries** (authorization “we do something because everyone else is doing it”; if others are doing it, so should we).

example

“In snooze mode; China and Silicon Valley are vying for dominance in the application of artificial intelligence. And Germany? Debating the risks and side effects - and running the risk of being left behind in this technology too.”(SZ_30/04/2019)

LEG_NothingToHideNothingToFear: LEG_NOFEAR

1	yes
2	no
999	no legitimization

The subject actor legitimizes the use of FRTs by highlighting that **“If you have nothing to hide, you have nothing to fear.”**

LEG_BenefitsOutweighRisks: LEG_BENEFIT

1	yes
2	no
999	no legitimization

The subject actor claims that the **benefits outweigh the risks** or that possible risks are is a **necessary trade-off** that need to be accepted.

LEG_Protection_IdentityTheft: LEG_PROTID

1	yes	The subject actor refers to the possibility to use FRTs for protections against identity theft and to ensure e.g. secure financial transactions.
2	no	
999	no legitimization	

LEG_OTHER: LEG_OT

string	other_string (please note/copy & paste the respective quotes from the articles. <u>Please also add the abbreviation of the newspaper and the date in brackets</u>). If no legitimization is given code NO, if no other legitimization is given, code NO OTHER.
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CONTESTATION

Contestations refer to acts of arguing or disagreeing about something, more precise: to evaluations and arguments with which subject actors oppose to the use of FRTs and the reasons why they consider FRTs problematic, a risk or not fair or not legal.

Contestations can also be expressed by referring to negative implications of FRTs such as infringements of personal rights.

A subject actor can employ and list several arguments to problematize FRTs and their use. Therefore, it is important to code ALL contestations that the subject actor employs to support their argument/point of view (not vague references to standpoints of others/prominent arguments in the debate they might employ).

FILTER_CONTESTATION (nominal, binary coding): FILT_PROB

Code if the subject actor problematizes FRTs/the use of FRTs in a certain way.

1	yes
2	no

CONTESTATION (nominal, binary coding)

Code how the subject actor problematizes the use of FRTs. **Important: Only code those contestations that are explicitly mentioned by the subject actor** (not vague references to standpoints of others/prominent arguments in the debate they might employ).

PROB_Extent_Scope: PROB_EXT

1	yes	The subject actor criticizes the extent/scope of data analysis as problematic, disproportionate (or more drastically as “excessive”, “invasive”, “bulk storage of data”), for example because analyses also affect innocent people.
2	no	
999	no contestation	

PROB_LackConsent: PROB_CONS

1	yes	The subject actor problematizes the lack of consent to analyze and process personal data in the analytical process. example: “I’m frankly appalled,” said Paul Mitchell, a congressman for Michigan. “I wasn’t informed when my driver’s license was renewed my photograph was going to be in a repository that could be searched by law enforcement across the country.” (The Guardian_27/03/2017)
2	no	
999	no contestation	

PROB_InfringementPersonalRight: PROB_RIGHTS

1	yes	The subject actor describes/criticizes that the use of FRTs compromises civil rights / that it is an infringement to personal rights such as privacy/anonymity or informational self-determination . This can also include cases in which the subject actor claims that threats to fundamental rights of individuals outweigh the benefits of FRTs (see example) examples: “Maja Smolczyk, Berlin Commissioner for Data Protection, also says: “The use of video cameras with face recognition can completely destroy the freedom to move around anonymously in public.” (SZ_21/06/2017) “The threats to the fundamental rights of individuals outweigh the benefits by far.”
2	no	
999	no contestation	

PROB_LackTransparency: PROB_TRANS

1	yes	The subject actor criticizes a lack of transparency/a lack of information about data processing and handling (storage, control, use/implications) examples: “Especially since it is usually not clear who collects the information, who has access to it, who has it for what purpose and how long the surveillance data are stored.” (SZ_17/05/2019) “Doctorow said there needed to be far more public information in how and when these databases are being used.” (The Guardian_11/03/2017) “According to Drago, the current main problem with facial recognition is the lack of transparency: “Who decides on the use of facial controls? And about the storage of the data? There is a complete mystery about that.” (Der Standard_22/01/2020)
2	no	
999	no contestation	

PROB_Control_FunctionMissionCreep: PROB_CONTR

1	yes	The subject actor refers to problematic (possible) implications of the use of FRTs. They are concerned that FRTs might alter the nature of society in authoritarian and oppressive lines. They (can) lead to extensive monitoring, social control or oppression of people/certain social groups, to totalitarianism or the end of a free and liberal society . Alternatively or accompanying the subject actor can also express concerns about function or mission creeps : that the (current) use of FRTs might or will be gradually extended beyond the purpose for which it was originally intended. example: “In real life, however, automated facial recognition and individual capture are not that much fun. You don’t have to be paranoid to think that the idea that someone is
2	no	
999	no contestation	

monitoring where people are, who they are talking to and what they are doing is the ultimate surveillance and the end of a free society.” (SZ_17/05/2019)

PROB_PerformanceBiases: PROB_PERF

1	yes	<p>The subject actor opposes the use of FRTs / criticizes the performance and/or the potential long-term effects of misrecognition and biases: hampered by poor light and shadowing, false identification, insufficient precision, (racial) biases or profiling and potential consequences of being falsely accused, discriminatory effects which is why they problematize basing decision-making on algorithms or AI.</p> <p>→ potentials for and consequences of misrecognition</p> <p>example:</p> <p>“It doesn’t know how often the system incorrectly identifies the wrong subject,” explained the GAO’s Diana Maurer. “Innocent people could bear the burden of being falsely accused, including the implication of having federal investigators turn up at their home or business.” (The Guardian_27/03/2017)</p> <p>“That’s where I think it can get scary because facial recognition’s not that accurate, mood recognition as Facebook’s trying to run out or whatever Toowoomba is trying to do with behavioural pattern recognition – all those algorithms have failures,” he said. “There’s a wider debate that’s beyond privacy, around the adequacy of the decision-making process based on it and that’s a wider thing for artificial intelligence generally.” (The Guardian_08/03/2017)</p> <p>“Michael Cope, the president of the Queensland Council for Civil Liberties, said the technology was “straight out of 1984” and had been linked in the US with a tendency to over-select racial minorities.” (The Guardian_08/03/2017)</p>
2	no	
999	no contestation	

PROB_MisusesAbuses: PROB_MIS

1	yes	<p>The subject actor problematizes the use of FRTs by referring to potential misuses and abuses of tools and data (potential to use it to expose identities, potential of blackmailing).</p> <p>example:</p> <p>“The weaponization possibilities of this are endless,” said Eric Goldman, co-director of the High Tech Law Institute at Santa Clara University. “Imagine a rogue law enforcement officer who wants to stalk potential romantic partners, or a foreign government using this to dig up secrets about people to blackmail them or throw them in jail.” (New York Times_18/01/2020)</p>
2	no	
999	no contestation	

PROB_DataSecurity: PROB_DSEC

1	yes	<p>The subject actor problematizes the use of FRTs by referring to insecure data infrastructures and possible data breaches due to a lack of data security.</p> <p>example:</p> <p>“Clearview’s app carries extra risks because law enforcement agencies are uploading sensitive photos to the servers of a company whose ability to protect its data is untested.” (New York Times, 18/01/2020)</p>
2	no	
999	no contestation	

PROB_LackRegulation: PROB_LREG

1	yes	<p>The subject actor problematizes the use of FRTs because a clear legal regulative framework is missing.</p>
2	no	
999	no contestation	

PROB_OTHER: PROB_OT

MEASURES/REGULATION_RESPONSIBLE (nominal): RESP_MES_REG

Code which actors / if there is any actor held/ described as responsible for (future) regulation (who should to something?)

- 1 yes, politics
- 2 yes, other
- 3 no actor held responsible

MEASURES/REGULATION_RESPONSIBLE_OPEN (string): OP_RESP_MES_REG

If RESP_MES_REG=yes, other: Note actor that is held/described as responsible for (future) regulation (string). If RESP_MES_REG=yes, politics: Code NO OTHER. For no actor held responsible: Code NO.

PROMINENCE (nominal): PRMC

Code the prominence of the position of the actor – only with regard to their viewpoint on FRTs!

- 1 The actor’s standpoint regarding FRTs is the dominant, central one in the overall article.
The actor's point of view is presented most prominently (e.g. number of words, direct quotations, etc.), or no other, competing views are reported (e.g. in an interview). If there is only one actor, it is automatically the central standpoint.
- 2 The actor’s standpoint regarding FRTs is as prominent as other actor’s standpoints (number of words, direct quotations, etc) (irrespective if these views are competing or congruent to each other)
- 3 The actor’s standpoint regarding FRTs plays a rather marginal role in the article.
The point of view is shown, but it is given little space in the article (irrespective if the view, the actor’s arguments is/are is in line with the most prominent standpoint or not)

Please check checklist after coding the first subject actor / subsequent subject actors (see next page).

**Checklist after coding after coding the first subject actor /
subsequent actor speakers.**

◆ **Is there another actor who evaluates the use of FRTs (the technology, the use, analytical steps, implications)?**

subject
actor 2

- ◆ If no: end coding and proceed with next article.
- ◆ If yes: All variables on the statement level are coded for subject actor 2. The identifiers/variables on article-level remain identical and do not have to be coded again. Just copy article-level codings and code variables on the statement-level for subject actor 2 (important: start new line in excel!)

◆ **Is there another actor who evaluates the use of FRTs (the technology, the use, analytical steps, implications)?**

subject
actor 3

- ◆ If no: end coding and proceed with next article.
- ◆ If yes: All variables on the statement level are coded for subject actor 3. The identifiers/variables on article-level remain identical and do not have to be coded again. Just copy article-level codings and code variables on the statement-level for subject actor 3 (important: start new line in excel!)

◆ **Is there another actor who evaluates the use of FRTs (the technology, the use, analytical steps, implications)?**

subject
actor 4

- ◆ If no: end coding and proceed with next article.
- ◆ If yes: All variables on the statement level are coded for subject actor 4. The identifiers/variables on article-level remain identical and do not have to be coded again. Just copy article-level codings and code variables on the statement-level for subject actor 4 (important: start new line in excel!)

◆ **Is there another actor who evaluates the use of FRTs (the technology, the use, analytical steps, implications)?**

subject
actor 5

- ◆ If no: end coding and proceed with next article.
- ◆ If yes: All variables on the statement level are coded for subject actor 5. The identifiers/variables on article-level remain identical and do not have to be coded again. Just copy article-level codings and code variables on the statement-level for subject actor 5 (important: start new line in excel!)

◆ **Continue the coding and procedure for all subject actors (Just copy article-level codings and code variables on the statement-level every subject actor, and start a new line in excel for each actor.)**

subject
actor ...

Supplemental Material Study 2

Variables	Efficiency and Utility (<i>n</i> =215)		Infringement of Personal Rights, Control & Function Creep (<i>n</i> =424)		Crime Prevention and Public Security (<i>n</i> = 164)		Regulation (<i>n</i> =105)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
actor								
journalist	.40	(.492)	.49	(.500)	.18	(.388)	.17	(.379)
activist/NGO	.00	(.000)	.14	(.347)	.00	(.000)	.23	(.422)
political actor	.02	(.135)	.06	(.231)	.35	(.478)	.19	(.395)
law enforcement	.02	(.151)	.00	(.000)	.30	(.459)	.00	(.000)
researcher	.09	(.291)	.09	(.289)	.01	(.078)	.05	(.214)
software/tech	.25	(.435)	.04	(.185)	.12	(.321)	.14	(.352)
user								
police	.11	(.316)	.63	(.485)	.98	(.134)	.82	(.387)
event locations	.11	(.310)	.11	(.311)	.07	(.261)	.08	(.267)
pub. transportation	.16	(.366)	.15	(.356)	.21	(.407)	.08	(.267)
retail	.10	(.298)	.13	(.339)	.06	(.240)	.08	(.267)
consumer electronics & tech comp	.31	(.464)	.31	(.463)	.09	(.289)	.26	(.439)
target								
threats	.06	(.230)	.17	(.372)	.88	(.321)	.15	(.361)
generic	.03	(.178)	.68	(.466)	.06	(.240)	.83	(.379)
social group	.68	(.466)	.33	(.471)	.09	(.289)	.13	(.342)
tone								
positive	.99	(.096)	.01	(.097)	.99	(.110)	.01	(.098)
negative	.00	(.000)	.83	(.380)	.00	(.000)	.95	(.214)
ambivalent	.01	(.096)	.14	(.347)	.01	(.078)	.02	(.137)
expression evaluation								
adjectives	.22	(.414)	.23	(.419)	.15	(.355)	.24	(.428)
metaphors/terms	.09	(.291)	.34	(.473)	.06	(.240)	.31	(.466)
potentials	.96	(.201)	.14	(.349)	.99	(.110)	.02	(.137)
risks	.02	(.135)	.93	(.253)	.02	(.155)	.98	(.137)
legitimization								
crime detection	.11	(.310)	.05	(.217)	.69	(.464)	.01	(.098)
crime detention & prevention	.02	(.135)	.01	(.097)	.19	(.393)	.00	(.000)
utility & efficiency	.71	(.456)	.06	(.244)	.27	(.444)	.00	(.000)
security	.13	(.337)	.03	(.159)	.42	(.495)	.01	(.098)
singularization	.20	(.397)	.02	(.136)	.31	(.464)	.00	(.000)
authorization by law	.06	(.230)	.00	(.000)	.10	(.298)	.00	(.000)
identity protection	.12	(.327)	.01	(.097)	.01	(.078)	.01	(.098)

contestation								
extent	.00	(.000)	.33	(.472)	.00	(.000)	.48	(.502)
lack of consent	.00	(.000)	.09	(.293)	.01	(.110)	.11	(.320)
infringement personal rights	.00	(.000)	.38	(.486)	.01	(.078)	.54	(.501)
lack transparency	.00	(.068)	.15	(.358)	.00	(.000)	.21	(.409)
control & function creep	.00	(.000)	.40	(.490)	.01	(.110)	.49	(.502)
performance & bias	.03	(.165)	.28	(.451)	.01	(.078)	.36	(.483)
misuse & abuses	.00	(.068)	.09	(.293)	.00	(.000)	.14	(.352)
data security	.00	(.000)	.07	(.261)	.00	(.000)	.03	(.167)
lack regulation	.00	(.000)	.08	(.279)	.00	(.000)	.46	(.501)
measures								
regulation specified	.00	(.000)	.04	(.196)	.13	(.335)	.79	(.409)
no measures	1.00	(.000)	.94	(.240)	.83	(.377)	.01	(.098)
responsible measures								
politics	.00	(.000)	.02	(.136)	.08	(.271)	.46	(.501)
other	.00	(.000)	.02	(.136)	.02	(.155)	.36	(.483)
no responsible	1.00	(.000)	.96	(.191)	.90	(.306)	.18	(.387)

Note. Mean values and standard deviations of all variables for the four identified clusters in the total sample. n designates the number of statements. Determining variables for each cluster are highlighted in bold.