

Between Commodification and Autonomy

The Impact of Audience Analytics on Editorial Production Processes
and Implications for Media Organizations and Society

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Digital Appendices

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Abbreviations

AI	artificial intelligence
ANOVA	analysis of variance
ARD	Arbeitsgemeinschaft der öffentlich-rechtlichen Rundfunkanstalten der Bundesrepublik Deutschland
BBC	British Broadcasting Corporation
CI	confidence interval
CMS	content management system
DNA	deoxyribonucleic acid
<i>e.g.</i>	<i>exempli gratia</i> (for example)
EU	European Union
GDP	gross domestic product
H	hypothesis
HDI	Human Development Index
HR	human relations
HSD	honestly significant difference
<i>i.e.</i>	<i>id est</i> (that is)
IMF	International Monetary Fund
IP	internet protocol
IT	information technology
KPI	key performance indicator
M	mean
MS	Microsoft
NPO	Nederlandse Publieke Omroep
PSM	public service media
RQ	research question
SD	standard deviation
SRG	Schweizerische Radio- und Fernsehgesellschaft
TV	Television
UK	United Kingdom
UNDP	United Nations Development Programme
US	United States (of America)
ZDF	Zweites Deutsches Fernsehen (Second German Broadcasting)

1 Introduction, Relevance and Outline

Journalism is increasingly evaluated through **quantified measurement**, leading to a rationalization of news production (Petre, 2018). This quantified measurement potentially shifts the decision-making away from editors, restructuring the journalistic labor process and devaluing news judgement (Cohen, 2015). While journalism has always worked under economic, cultural and organizational constraints, the standardization of evaluating editorial output by means of quantified measurement bears increasing feedback loops between audiences and journalists raising concerns of a **new regime of labor discipline** in the profession limiting editorial freedom and creativity (Carlson, 2018; Petre, 2018).

Quantification, however, is by no means a novel phenomenon, nor does it exclusively apply to journalism. It marks a constitutive characteristic of modern science and organization and is regularly demanded in politics and society. This is undoubtedly due to their beneficial properties reducing complexity and offering a perspective that allows to control our environment and intervene in it productively. Numbers are essential for the generation of knowledge and serve a demand for impartiality and fairness (Espeland & Stevens, 2008; Porter, 1996). Numbers and measurement are essential in the realm of justice, government and knowledge. However, they may also impair the perception of value and give relevance to **easily measurable indicators** at the expense of other perceptions of value. Moreover, it may entice to create relationships between objects that are hardly comparable. In the case of journalism, topics would be compared according to certain measures such as click-performance instead of other means of comparison. Hence, numbers and measurement assign **authority and agency** through long-cherished – and in many cases not unjustified – association with objectivity and rationality (Daston, 1992; Espeland & Stevens, 2008; Weber, 1978). This reduced complexity along with an often undisputed equalization with objectivity also eases decision-making, or as Porter (1996) phrases it: “Quantification is a way of making decisions without seeming to decide.” This “calculative rationality” is, therefore, used to justify decisions in the presence of insecurities (Dreyfus & Dreyfus, 2005).

Since quantification involves measurable categories, it unites people and things under a shared cognitive system but it also offers to distinguish them by assigning comparable values within these categories (Espeland & Stevens, 2008). It thereby tends to create and reproduce social boundaries. Using the authority quantification entails, offers potential for discipline, where these

exact categories can be used not only for judgement, but for **surveillance and control**, especially in professional contexts. This concept of control can be found in the basic idea of management where production activities are mirrored by parallel management activities involving testing, checking, inspecting and recording usually involving quantification (Braverman, 1974). Weber, for instance, argues that academic careers often depended on the sheer number of listeners in lectures neglecting other important but difficult to measure academic qualities, such as the quality of teaching (Weber, 2024). Overreliance on calculative rationality or “**mechanical objectivity**” (Petre, 2018), however, endangers expertise by devaluing intuition based on accumulated knowledge (Dreyfus & Dreyfus, 2005). Contrariwise, Meyer and Rowan (1977) find that rationalized rules are often only pretended to be incorporated to gain legitimacy in professional contexts and, eventually, be replaced by “**a logic of confidence and good faith**” (p. 340). This would imply that professions set boundaries on quantification and pursue a more intuitive approach. Journalism used to be a prime example of the limitations of rationalizing labor (Ryan, 1992). Moreover, it stands out to other professions in terms of an inherent skepticism, also towards technology, and the means to express criticism to a wider public (Petre, 2018). Despite these unique features, technology enables quantification of content evaluation formerly considered a domain of the journalistic profession. Their restructuring impact on the labor process reflects what Braverman (1974) identified as the **separation of conception and execution** as a core principle of capitalist organization of labor (Cohen, 2015).

Quantification is, therefore, connected to commodification, another major trend across many professions. **Commodification** involves the market as the central organizing principle in satisfying needs, the realization of profit as inherent cornerstone and individual utility maximization of consumers regardless of potential societal needs (von Rimscha et al., 2025). For media markets, and especially journalism, this means an ever more increase in the relevance of economic principles in the organization, production and consumption of media goods, rendering them as dominant and rule-forming (W. A. Meier & Jarren, 2001; Zwicky, 2012). The fundamental idea of efficiently coordinating and allocating resources to satisfy needs can be desirable in many economic scenarios. It promotes competition, enables product improvement, and positions the consumer as the reference point, ensuring product quality and reducing resource waste – at least in theory. It is clear that journalism must to some degree take audiences into account since total

autonomy would mean losing touch with society (Zwicky, 2012). However, concerns have been raised about commodified media's ability to fulfil societal expectations, especially **deliberative capacities and diverse representation as well as problematization of political actions** (Altmeyden, 2024). A commodified journalism may involve precarious working conditions for journalists, restrictions of interpretative autonomy and fear of job loss as a form of control. Moreover, resources may be shifted toward non-journalistic tasks, favoring user data as a central evaluation mechanism (Zwicky, 2012). Another problem is that journalism's purpose and its **macro-level impact is difficult to measure** and can hardly be evaluated by individuals (Serong, 2011). Committing to commercial metrics and using them for performance evaluation may expose journalism to a neoliberal trap in which its success is compared to non-journalistic entities. Consequently, journalism participates in a competition it can hardly win if it sticks with journalistic standards. However, if purely commercial metrics are established as common evaluation pattern it **renders journalism vulnerable to legitimacy debates** about the modalities and extent of its existence – especially for Public Service Media (PSM) (Puppis & Ali, 2023). While ratings have always played an essential role in media industries and have an impact on the other two commodities audiences and content (Meehan, 1984), this is amplified by the instant availability of feedback offered by audience analytics systems (Anderson, 2011).

To avoid that measurement reduces the perception of value and relevance to easily measurable indicators, Espeland & Stevens (2008) advocate for **ethics of quantification** taking into account the limits of quantitative expressions of value. A prominent example is the gross domestic product (GDP), a powerful measurement indicating the monetary value of all goods and services produced and often informing policies. Despite its purely economic approach, it is often equated with the health of a society. For this reason, the European Union (European Union, 2023) as well as the International Monetary Fund (IMF) acknowledge that it **does neither necessarily capture the wellbeing** of a country, nor does it reflect external costs such as environmental and social impact sufficiently. Alternative measures like the Human Development Index (HDI) add life expectancy and education to economic wellbeing whereas the EU is developing sustainable and inclusive wellbeing metrics to complement the GDP (Callen, 2025; European Union, 2023; United Nations development Programme [UNDP]). Likewise, journalism is requested to invent and implement measurements capturing the profession's values and using these for assessment rather

than relying on commercially driven metrics only in order to be less dependent and vulnerable to legitimacy threats (Cherubini & Nielsen, 2016).

Given the **outstanding societal role of journalism** in terms of representation, problematization and in enabling deliberation (Altmeyden et al., 2022), its potential commodification through quantified performance evaluation must be scrutinized. The availability of audience analytics alone, however, does not necessarily lead to (negative) changes in the journalistic profession since journalism could also develop resilience strategies to uphold its professional boundaries. To address the potential impact of quantified performance evaluation and to represent the phenomenon of audience analytics broadly, **this work covers four thematic areas**: The basis for assessing impact is knowledge on **the use of audience analytics and its antecedents**. The second area covers **impact on the profession** to gauge how audience analytics as well as related roles in editorial offices affect the boundaries of the profession. The third area involves **effects on news production processes** and the final product since this becomes marks the transition from effects on the profession to potential effects on readers and society. Lastly, the **organizational perspective** is taken into consideration to evaluate **proprietary solutions** to performance evaluations based on organizational values instead of purely commercially driven metrics. To investigate these four areas, this research is subdivided into five projects.

The first project systematizes the organizational, technological and individual influences on audience analytics use among journalists by means of a literature review. It aims to give an **integrated overview and structure of factors** by gathering dispersed research on heterogeneous influences. Moreover, research on audience analytics use lacks complexity. To tackle the problem that audience analytics use is often depicted as uniform within editorial offices, this project uses the identified influences and varies them to establish a **conceptual typology of journalists** using these analytics. The relationship between these conceptual types within editorial offices is discussed to evaluate potential team dynamics, trouble spots and implications for media management as well as the journalistic profession.

The second project moves at the intersection of the areas use and profession. Although audience analytics systems produce a variety of metrics displaying different aspects of audience behavior and involving different degrees of commodification, **the use of specific metrics** among journalists is seldom investigated. Instead, these metrics are subsumed and thereby concealing

that different metrics with different purposes may have a different impact. Therefore, the second project employs the citizen vs. consumer dichotomy in journalistic role orientations to gauge correlations with various types of metrics. This sheds light on the **fit between traditional journalistic norms and specific audience metrics**, adding to the question whether the use of specific metrics is related to perceiving audiences as commodity. Moreover, the project evaluates if the use of metrics is reflected upon, potentially enabling a more differentiated approach.

The third project scrutinizes the **relationship between audience analytics experts and traditional journalists**. Many news organizations have developed novel, audience-related roles. However, the level of integration into editorial offices varies and with it the potential influences these roles enact on the production and evaluation of news products. Since these new roles often exhibit a non-journalistic background, for instance in IT, it is critical to analyze their approach to the journalistic profession and its products. A **focus on performance evaluation and optimization of content** for audience appeal could be seen as commodification attempts and, therefore, attack on journalistic integrity. This project employs the boundary work concept as well as journalistic role orientations to analyze the relationship between both roles and detect mutual influences that may result from their interaction. Analyzing this power dynamic is crucial to assess how audience analytics shape the boundaries of the journalistic profession. Moreover, novel roles must be characterized to see if they pursue own role orientations and try to integrate them into the processes at work. As a result, this project establishes a **typology of audience analytics experts** to demonstrate varying levels of potential influence on the news production process and discusses to what extent journalists adopt role orientations from their counterparts and vice versa.

The fourth project addresses the area of news production and contributes to research on the **role of audience analytics in news selection**. It shows whether the aspects of use and profession dealt with in the previous project translate into journalistic actions and actually change how information is processed into news. Moreover, it goes beyond the selection of news to analyze what happens to news pieces once they have been published and evaluated by audience analytics because for news to be discussed publicly not only the selection but also their placement and duration are of relevance. The post-publication-gatekeeping concept is employed to analyze the extent to which audience analytics shape deselection decisions and under which circumstances journalists decide to ignore audience analytics altogether. This problem is approached with a mixed-

method design to experimentally test whether performance in audience analytics has an impact on **content decisions after publication**. To explain the results and identify patterns of de-selection and underlying motives. The results demonstrate the significant yet cushioned role of audience analytics when deciding about the fortune of news pieces and explain these results by offering insights into alternative influences on this process contributing to the discussion about commercialized decision making in journalism.

The fifth project takes the organizational perspective into consideration and focuses on PSM's attempts to **establish proprietary measurement systems to evaluate aspects of their public-service remit**. Concerns for diminishing content quality, less diversity and PSM being lured into a "neoliberal trap" by using commercial audience metrics as standard of evaluation resulted in the claim that media organizations esp. journalistic media translate their values into measurable indicators. This project contributes to the to the discussion on measurement and evaluation of journalistic work by using the case of the German PSM *ZDF* to present **possible approaches to the shortcomings of commercial audience analytics**. It thereby enriches the debate on measurable journalism and the legitimacy of Public Service Media. Results show how commercial metrics are rather integrated into a comprehensive measurement instrument rather than being replaced entirely. While aspects of the public service remit are prominently represented in this measurement instrument, their evaluation suffers from less data availability and methodological problems. Despite these shortcomings the instrument can contribute to an emancipation from a purely commercial approach to performance evaluation. The possibilities for transferring the results to other media organizations and beyond the German context are discussed.

In order to contextualize the questions posed and the corresponding projects the more general role of **digital journalism in society** and its characteristics are defined. To set the profession apart from the companies it is often bound to, the relationship between journalism and media (organizations) is discussed, Moreover, the **economic conditions** journalism moves within and its **relationship to audiences** are explained as this is crucial to the central question of performance evaluation. To deepen the understanding of this relationship the role of market orientation is discussed. Since audience analytics mark the manifestation of quantitative performance evaluation in journalistic contexts, they are pivotal to this work. Therefore, their role in digital journalism is demonstrated by means of a literature review on their use, their relationship with role orientation

and their effects. This results in the **identification of blind spots**. To address these blind spots various theoretical approaches, established as well as some novel to the field, are discussed. This results in a contextualized selection of diverse theoretical approaches for the various projects of this research. Before the projects are presented in detail a **comprehensive research plan along with the central question** is pointed out and a **research design** is suggested to underscore the methodological diversity in the field as well as in this work.

2 Digital Journalism

This chapter aims to define digital journalism and its drivers. As a first step, journalism and its role for society is defined to lay the groundwork for a definition of digital journalism and its distinguishing characteristics. In a next step, the relationship between journalism as a profession and societal subsystem and media companies providing funding for it is discussed and tailored to the digital environment. In this regard, the relationship with platforms and associated obstacles are pointed out. Since the funding situation is formative for journalism, especially in digital environments, different sources are evaluated. Lastly, the pivotal relationship with audiences is scrutinized as digital technology enables **unprecedented monitoring of audience behavior and instant reactions** within production processes.

2.1 Journalism – Definition and Perspectives

According to Meier (2007, p. 13) journalism “creates publicity by means of observing society and making these observations available to mass audiences”. Consequently, on a macro level they construct a shared reality providing orientation in a complex world. Therefore, journalism is seen as a **key profession in liberal democracies** and it provides indispensable functions such as informing, criticizing and controlling rendering it a fourth estate (Fengler, 2023; K. Meier & Neuberger, 2023). On the level of the individual journalist, this reality is constructed by research, selection and presentation of new, factual and relevant topics.

Due to the mandate of factuality, this construction of reality is not to be confused with intended persuasion (Altmeppen et al., 2023). While covering societal as well as individual aspects, these definitions miss out on the **perspective of media organizations** where journalism acts upon professional standards following a specific set of rules within structures provided by the organization, such as editorial offices or standardized production routines (Donges, 2006; Haim, 2019). To conclude, journalistic messages distinguish from everyday communication and mark an institutionalized form of communication (Renner & Schupp, 2017; S. J. Schmidt & Zurstiege). Media organizations act as a hinge between individual journalists and the societal framework (Altmeppen et al., 2022). Beyond that, these perspectives are considered to recursively shape each other, for instance, media organizations define production routines for journalists but journalists also shape media organizations by means of their activities (Haim, 2019).

2.2 Journalism in Digital Environments

A constitutive characteristic of digital journalism is the ubiquity of technologies altering modes of social interaction, media use habits and structures of the public. Given these **social and societal components**, a purely technological approach falls short in capturing the transformation of journalism, which is still a cultural practice (Haim, 2019; Zelizer, 2019). However, Steensen et al. (2019) assert that while digital journalism still builds on the practice of selection, interpretation and distribution, the genres and formats in which they perform this practice are changing. Although journalism can shape technology at times, it is rather the technology that increasingly shapes journalism. Due to feedback mechanisms **the relationship with audiences** becomes symbiotic instead of passive. Entry barriers have been lowered enabling members of the audience to produce content themselves. This challenges the gatekeeper role journalists occupied for decades and **obscures the boundaries** between those who consume and those who produce journalism (Bruns, 2010; Neuberger & Quandt, 2010). Therefore, belonging to a journalistic organization still serves as distinguishing characteristic (Steensen et al., 2019). Digital journalism as a research field is committed to scrutinize “the interplay of digitization and journalism, continuity and change” (Eldridge et al., 2019, p. 394). This work adopts the assumption that the technological perspective alone, i. e. the availability of audience analytics for performance evaluation, is not sufficient but rather how journalists and media organizations deal with and interpret the outcomes of this technology.

The **emergence of audience analytics and with it an audience turn** is identified as one of **four structural premises** shaping journalism in digital environments (Costera Meijer, 2020; Steensen & Westlund, 2021). This is concomitant with a second premise: **Structural changes in advertising** leading to collapsing revenue models where less revenue is generated through advertising. On the one hand advertising prices online are comparably low and do seldom yield that of print, and on the other hand advertising budgets have been shifted to platforms (von Rimscha & Riemann, 2024). Therefore, reader revenue becomes even more important while a low willingness to pay for digital news content and a free mentality aggravates this situation (O’Brien, Wellbrock, & Kleer, 2020). The third premise deals with the fact that **journalism has lost a part of its distribution sovereignty** to platforms that follow a purely commercial distribution logic (Altmeppen

et al., 2023; Westlund & Ekström, 2018). These three developments have put journalism in a tenuous position paving the way for a fourth structural premise: The profession becomes more **susceptible to manipulation and political attacks** resulting in declining trust from its audiences (Puppis & Ali, 2023; Steensen & Westlund, 2021). This pressure creates an often **unreflected openness to innovation** regardless of their usefulness and compatibility with journalism's values believing that this alleviates the precarious funding situation (Creech & Nadler, 2018; Fürst, 2020). This lack of reflection is central to the use, profession and production perspective applied in this work.

2.3 Contextual Conditions in Digital Journalism

To further explore journalism's position in the digital landscape and expand on the four structural premises, this subchapter examines **key contextual factors shaping digital journalism and its media organizations**. From an economic perspective, limited willingness to pay for digital content and detrimental shifts in the advertising market constrain financial resources. Technological advancements reshape production and distribution rhythms, with intermediaries like content platforms playing a central role. Finally, the unique position of PSM in the digital environment is considered.

2.3.1 Economic Conditions

Since traditional business models of media organizations suffer from declining advertising and print circulation, paid digital content strategies are pursued. While marginal costs for reproducing and distributing content digitally are almost zero and give rise to digital first strategies, some scholars argue that **digital income cannot compensate sufficiently for the loss in print revenue** and are pennies on the dollar (Chyi & Ng, 2020). While characteristics of the digital product, like personalization and exclusiveness, and that of consumers, for instance interest in news, can boost willingness to pay or at least paying intent, the strongest individual effect is the price of digital content, demonstrating a **high price sensitivity** with many demonstrating no willingness to pay at all (Gundlach & Hofmann, 2017; Newman et al., 2017; O'Brien, Wellbrock, & Buschow, 2020). Low willingness to pay or reluctance to pay for digital equivalents originates from a **free-mentality online**, the belief that some goods or services should be freely available for everybody (Dou, 2004;

Goyanes et al., 2022; O'Brien, 2022). This belief can rest on alternative ways of paying such as with personal data or attention advertising or it can be ideologically based (Hüttel et al., 2018; Lin et al., 2013). Additionally, paying PSM fees drives the idea that journalistic content should be free of charge. Instead of the traditional mass approach, media companies can address this by focusing on the small audience that is willing to pay and target non-payers with differentiation beyond mere information (O'Brien, 2022). This exclusive approach, however, limits the deliberative potential of journalistic content.

Despite this low willingness to pay, the proportion of revenue from advertising and subscriptions has changed in favor of subscriptions: For the German newspaper industry the share of advertising revenue has dropped from 60 to 27 percent in the last two decades (Heinrich, 2001; Keller & Eggert, 2022). When it comes to assessing the importance of different revenue streams, advertising is also replaced by subscriptions while still holding a major position. Interestingly, alternative streams of revenue, such as events or e-commerce, are also frequently mentioned. Publishers also become more optimistic about their digital revenues with 59% reporting an increase in 2022, suggesting that at least some paid content strategies have matured and stabilized (Newman et al., 2022a). This also counts for the proportion of paying users for online news content, which is levelling at 17% across 20 markets after experiencing a rise during the Covid 19 pandemic. However, about half of subscribers (46% for Germany and the US) are paying less than the full monthly price due to discounts offered by media organizations. Furthermore, prominent news brands profit disproportionately – **displaying a “winner-takes-most” dynamic** (Newman et al., 2024).

While media have traditionally provided advertisers with the possibility to generate attention for their commercials, this is eroding in the digital sphere. The market is expanding and media organizations are only **one among many players offering audiences to advertisers** online. Together with the immateriality of online advertising this results in an abundance of advertising space and more competition between suppliers. Consequently, prices are dropping. The ability to better tailor advertising to consumers has further increased the efficacy of online advertising and renders the setting for commercial messages, such as journalistic content, less important. However, the data needed to effectively target online audiences with advertising or win them as subscribers is difficult to obtain for media organizations since the tracking is limited by regulations

such as the EU's General Data Protection Regulation and the Digital Services Act. Additionally, not only users but the advertisement itself can be tracked, allowing for a **performance-based payment instead of charging for potential contacts** (Greenwood et al., 2024; Haim, 2019; von Rimscha & Riemann, 2024). Hence, the losses in print advertising cannot be compensated sufficiently: In a phase of extensive change between 2005 and 2011 for every dollar increase in online advertising 22 dollars in print advertising have been lost for publishers (Sridhar & Sriram, 2015). These developments are reflected in novel advertising formats, such as programmatic, search engine, social media and native advertising. While some offer potential revenue streams, other formats are inaccessible for media organization (for a detailed overview see von Rimscha & Riemann, 2024). **Programmatic advertising** is based on tracking users and their characteristics to target specific groups. It accounts for a major share of the digital advertising spending (Shehu et al., 2021). Rather than purchasing advertising space from publishers directly, advertisers buy a number of contacts with desired characteristics. Their ads are potentially displayed on a multitude of websites, among them media organizations, using a real-time-bidding process. As soon as users with the desired characteristics enter a website, this contact is sold in an auction via a platform matching demand and offerings.

This **infrastructure is often run by global platforms** such as Alphabet with its demand-side-platform DV 360. On the one hand, it may be attractive for a media organization to market its contacts globally and reducing initiation costs with potential advertisers. The anonymity of the bidding process may also reduce interference of advertisers with editorial processes (Lauerer, 2021). On the other hand, **media organizations compete directly with other suppliers of advertising space** which are able to operate at lower costs. Moreover, valuable data about media organizations' own customers is given away to platform operators. Native advertising blends advertisements with editorial content by applying an editorial look and style to ads. In fact, editorial staff is often involved in producing this kind of advertising. The unobtrusive appearance is expected to counteract ad avoidance and involve potential customers more. Since the creation of content lies at the heart of media organizations and journalism, they have a competitive advantage. Hence, native advertising offers the opportunity to revive the meaning of editorial content as pleasant context for advertisers. However, its subliminal nature may lead to trust issues once the intention to persuade is uncovered. From a journalistic perspective, native advertising may be perceived as

a **sellout of the professions' abilities** and another impairment of the separation between editorial and business side (Carlson & Lewis, 2015).

While media organizations can participate in programmatic and native advertising, they are largely excluded from platform-specific formats like search engine and social media advertising. Search engine advertising offers to reach potential customers by paying for specific keywords. Within the search engine results the website of the advertiser is then placed prominently. This position is also determined in an auction process. This format's advantage is that potential customers are already involved and actively searching (Fahr & Bell, 2016). It addresses shortcomings of traditional media formats and is, therefore, popular among advertisers: Search engine advertising accounts for a considerable share of the online advertising volume (46,5% for Germany in 2017 and 25% for Switzerland in 2021) (PriceWaterhouseCoopers, 2018; von Rimscha & Riemann, 2022). This share is solely claimed by search engines and is, therefore, not available for media funding. Social media advertising uses existing formats, such as display or video advertising. It takes advantage of data richness on social media platforms to target audiences and can be combined with organic social media marketing, for instance a brand page in the platform. While some platforms offer opportunities for creators to participate from advertising revenue generated with their content (*e.g.*, YouTube Partner Program, TikTok Creator Fund), **media organizations are mostly cut off from this advertising format**, too (Alalwan et al., 2017; von Rimscha & Riemann, 2024).

The digital sphere has transformed long-cherished business models of media organizations enabling the funding of journalism. While media is still an attractive environment for advertising, many new players have entered the market and prices have dropped. While media organizations may profit from offering advertising space to multiple advertisers, their data collecting capacity is limited and the technological infrastructure is often run by platforms. Native advertising uses journalistic core competencies to be attractive for advertisers but it comes at the cost of diluting the professions boundaries into a further commodification. Notably, some of the most popular online advertising formats are inaccessible as they are platform exclusive. **Media organizations face a dilemma here:** Content platforms offer access to large audiences, but the monetization of these audiences is not shared with media. Hence, it is not available to fund journalism. Given that advertising markets are less reliable and shrinking for media companies, reader revenue becomes

more important. However, a low willingness to pay and discounts limit the potential of paid digital subscriptions. This often results in mixed approaches combining paid subscriptions and ad-supported content. Both **incentivize a close monitoring of audience behavior and performance evaluation based on quantitative metrics**. The competition with other media companies on the subscription market and platforms as well as other content providers on the advertising market potentially intensifies this focus on measurement.

2.3.2 Technological Conditions

Technology not only enables and amplifies structural changes in the advertising market, it also alters production and distribution of journalistic content. First, this creates ways of handling facts, such as data journalism. Second, by means of algorithms and automation, new publishing logics emerge. And third, technological solutions, **among them audience analytics, render audience observation and real-time performance evaluation possible**.

Data journalism as new format generally involves data analysis and the presentation of this analysis (Coddington, 2015). The term includes working with extensive datasets blending journalistic and computational approaches. Results are often visualized to make them more accessible for readers (Borges-Rey, 2020; Ramsälv et al., 2024). It represents a new format within journalism allowing for strong truth claims supported by data (Appelgren et al., 2019). Such formats potentially enable the journalistic profession to improve investigation and visualization processes. However, data journalism also requires different skillsets and workflows aggravating its integration into editorial processes. **It represents an extension to the journalistic profession rather than transforming it entirely** (Steensen & Westlund, 2021). Despite this limited impact, data journalism may raise awareness for the importance of quantitative data and performance measurement.

A second major technological area in the journalistic context involves **algorithms and automation**. Algorithms are sets of rules to process data and make decisions about content curation, including personalization. They can also be used in automated journalism to produce content. This, however, is predominantly used for standardized content formats, such as sports, stock market or fiscal reports. While clearly exhibiting a strong technological component, algorithms are also social constructions. As such they are not neutral but follow a certain logic that is not necessarily in line with journalistic values (Zamith, 2019). They may reflect biases inherent in society or

carried by the creators of such algorithms, for instance preferring men as sources (Thurman et al., 2016). Algorithmically induced personalization creates individual use experiences counteracting journalism's focus on a shared basis of information and its relevance. This lack of shared reality potentially impedes the public opinion formation and diversity in news content. However, journalism itself also impacts in-house curation algorithms by building editorial control into them or integrating deliberative elements. Moreover, the use **algorithms seems limited to certain areas of news pages** rather than curating the whole output (Helberger, 2019; Møller, 2022). The boundaries between algorithmically automated journalism and Artificial Intelligence are blurry: It can also be used as assistant to human editorial work from research, topic selection, production and distribution (Graßl et al., 2022). Major application are recommendations and workflow automation (Newman et al., 2022b). While the technology permeates editorial offices, **its impact is also limited**. Grimme & Zabel (2024), for instance, find that Artificial Intelligence (AI) is rather seen as technical assistant than as autonomous counterpart. Editorial control over algorithms can only account for proprietary algorithms while journalists have no control over external algorithmic curation, for instance on content platforms and news aggregators.

Audience analytics and metrics, the focus of this work, mark a third major technological area in digital journalism. As systems that collect and analyze user behavior to aggregate it into specific audience metrics, they can inform algorithms and AI applications. For instance, when popularity metrics are used to come up with ideas for topics or when click-through-rates inform the automatic placement of articles on a news page. **Yet, the terms should not be used interchangeably**: Audience analytics serve as aggregated data base about audience behavior but while algorithms have own (limited) agency, audience analytics' influence is more indirectly exerted by journalistic actions. They are often used by editorial staff in their day-to-day workflows, thereby impacting different stages of the news production process (Coddington et al., 2021; Lamot & Paulussen, 2020; Zamith, 2018). This does not mean, however, that they cannot be combined, e.g., using AI applications to present and prioritize certain audience metrics on dashboard. Use of analytics is amplified by the discussed economic constraints and an increasing focus on audiences (Ferrucci, 2020). **Audience analytics and the underlying popularity cues** may even be integrated into the set of news values guiding journalistic decisions (Harcup & O'Neill, 2017; Lamot et al., 2021). The rapid permeation into editorial offices raises **concerns about vanishing journalistic**

autonomy, the interchangeable perception of interest and public interest as well as romanticizing audiences. These concerns are associated with a loss in quality content and a “more of the same” approach to avoid low performance (Fürst, 2018). Analytics-related roles in editorial offices can also contribute to a shift in defining goals and, ultimately, to how quality is interpreted and how role orientations are enacted (Belair-Gagnon & Holton, 2019; Slaček Brlek et al., 2017). To deepen the understanding of audience analytics beyond the technological component, its definition, antecedents, and impacts are presented and discussed in a separate chapter.

While technology is certainly a main driver in creating digital ecosystems, its impact is not absolute but rather depends on how journalists integrate into their professional actions. They go hand in hand with economic shifts giving rise to a dominant focus on audiences. While journalists may selectively adopt technology and shape how it is applied, their agency over how the technology is designed is limited. Many media organizations rely on external solutions from intermediaries, like platform-specific algorithms and platform-based analysis tools, especially for distribution (Steensen & Westlund, 2021).

2.3.3 Intermediaries

Digital technologies enable convergence of formerly separated content types, facilitating a re-organization of the communication process between content producers and their audiences. This requires an intermediary infrastructure where both can meet. Content platforms provide the technology to aggregate content and distribute it to the widest audience possible on a global scale (Hess & Bründl, 2015; Stark & Stegmann, 2021). Other than media organizations they do not engage in building sequential value chains of content production but in **creating an ecosystem in which others provide content**. Apart from running this ecosystem they engage in attracting this content and facilitating exchange between users of the platform service. Not having the burden to produce content, **network effects and automation** by means of algorithmic content curation enable a fast growth (Berger et al., 2020; Hosseini & Schmidt, 2022). Media companies, on the contrary, mostly rely on human work. This offers the potential for high economies of scale and creates barriers for new entrants to the market. Hence, they can be described as “winner-takes-it-all” markets where platforms rather compete *for* the market than *in* the market. Once the technological infrastructure has been established, additional users can be served at **minimal marginal costs**. Consequently,

dominant platforms hold dominant market power – sometimes in monopoly-like structures, for instance in the search engine market. (Gökçe Dessemond, 2019; von Rimscha & Riemann, 2024).

2.4 A Lopsided Arrangement: The Relationship Between Journalism, Media Companies and Platforms

The outlined technological and communicative changes create a media environment with multiple players. To deepen the understanding of the different positions, journalism is analytically divided from the media organizations it often works for. In a second step, the role of platforms in shaping this relationship is discussed.

In light of the long-cherished relationship between media (organizations) and journalism both are often perceived as interchangeable. According to Kiefer (2010, 2011) **journalism as a profession must be divided from media organizations**. Journalism provides factual content that produces publicity and has a merit character. For journalism, the reference framework is, therefore, whether information is made publicly available or not (Altmeyden et al., 2023). In the context of a pro-innovation bias it is often demanded that journalism must adopt new business models if it wants to sustain (Lüders, 2020). However, journalism itself **is not a business model but a service for society**. Media organizations, on the other hand, provide **funding and organization for this service** (Kiefer, 2011). The core competence for media organizations is distribution of content produced by the journalistic profession as only with distribution content becomes a product that can be priced and compete against other products. However, to be able to facilitate this distribution, media organizations must engage in content sourcing and production. Their foremost objective is to sustain financially and, therefore, their reference framework is business. Generating publicity is an essential part of their business model (Altmeyden et al., 2022; von Rimscha et al., 2025). However, because of their close relationship with journalism, media organizations have become institutions themselves. The **mutual dependencies between both result in a co-orientation**: Media organizations are aware of journalism's professional values and needs, while journalism is aware of financial imperatives media organizations have to act in accordance with. Hence, a shared awareness about the societal function and relevance of journalism can be asserted. Despite this co-orientation, journalism resides in the weaker position since it does not have access to capital distribution. In light of the decreasing relevance of editorial content for advertising, especially in digital environments, this arrangement has been severely weakened and journalism is

often perceived as cost driver rather than as value contributor (Altmeyen, 2024; Kiefer, 2011; von Rimscha et al., 2025). This **shift in boundaries** also further weakens the separation of the journalistic and the business side and incentivizes journalists to take over non-journalistic tasks (Coddington, 2015; Tandoc & Ferrucci, 2014).

Platforms are new players in this ecosystem, shaping the relationship between journalism and media organizations and also building relationships with both. Regarding advertising, platforms create proprietary formats, such as search-engine or social media advertising, where media organizations are unable to participate. This means a loss of market share. Moreover, data-intensive programmatic advertising creates additional obstacles for media organizations: Although they can participate here by offering inventory to platform-operated services and may create a more attractive product for advertisers, they become more **dependent on platform services and lose authority over their own user data**. Media organizations traditionally provided a valuable environment for advertising, serving as their unique selling proposition. However, with the ability to target users directly, this contextual function has become less relevant (von Rimscha & Riemann, 2024). Platforms as intermediaries have grown to be part of the communicative infrastructure (Jarren & Fischer, 2022). Similar to media organizations (content) platforms such as social media and search engines focus on distribution. Platforms, however, do not engage in co-orientation with journalism and it is not in their foremost interest to provide merit goods **since their approach is purely commercial**. Instead of relying on sequential value chains and the production of content, platforms create ecosystems that attract external content (Berger et al., 2020). Journalistic content, in this respect, is **as good as any content** that creates attention and advertising revenue (Altmeyen et al., 2023).

Given the significant user base, media organizations may be willing to provide journalistic content on platforms since they rely on audience attention. An optimistic phase, the pressure to be innovative and address younger audiences led to herd behavior and in most media organizations building presence on content platforms. Platforms profit in three ways: Journalistic content is shared, attracting and engaging users. Second, it enables platforms to gather data about news consumption. Lastly, both attention and knowledge about users can be monetized by making them accessible to advertisers. Not only is content shared on platforms, many **media organiza-**

tions produce platform-specific content or customize existing content to platform logics. By doing so, content platforms and their affordances are normalized into journalistic production processes. For instance, strategies for search engine optimization are employed or publication on content platforms is planned according to algorithmic curation. Hence, content provided by media organizations serves as **catalyst for audience attention and engagement** on platforms (Steensen & Westlund, 2021; Westlund & Ekström, 2018). On the other hand, Hase et al. (2023) find limited evidence for an adoption of platform logics since content between social media profiles and proprietary news websites did not differ substantially.

Even if adaptation is on a low level, media organizations find themselves in a cooptation situation where they hardly gain monetary value in the platform ecosystem (Myllylahti, 2024). The platforms, like media organizations, provide infrastructure and distribution for journalistic content and profit from its reach, **but they are not willing to fund journalism in return** (Altmeppen et al., 2023). Moreover, by aggregating and distributing content with algorithms, platforms impose their proprietary rules on journalism demonstrating that **they cannot be seen as neutral intermediaries** but strongly shape mode and content (Dolata, 2019). Many media organizations acknowledge that they maneuvered themselves into a state of dependency on non-proprietary platforms and their inherent logics. Moreover, high-flying expectations of winning and retaining audiences and turning them into paying customers were not delivered on. Consequently, many media organizations engage in countermeasures to balance this dependency. This includes an increased awareness about which content to publish for free on platforms and a critical assessment of resources dedicated to tailoring content to platform needs (Chua & Westlund, 2019).

This **relationship triangle** and the resulting pressures on the journalistic profession create an environment in which quantitative performance evaluation gain relevance and jolt journalism's boundaries. Declining advertising revenue puts **the traditional tie between journalism and media organizations** into question. Platforms, meanwhile, provide access to potential audiences but have no interest in financing journalistic content. When it comes to measurement, they establish platform-specific performance metrics and maintain exclusive control over user data, shaping content evaluation standards that position **journalistic content in direct competition with all other types of content** on their platforms. However, a stronger focus on readers instead of adver-

tising offers the opportunity to serve demands more directly instead of creating ad-friendly environments. This may result in an increased customer sovereignty but only if sufficient willingness to pay is achieved (Altmeyden, 1996; Buschow & Wellbrock, 2019; von Rimscha & Riemann, 2024). However, audience metrics may also decoy into an unreflected optimization of audience size, potentially disregarding professional standards.

2.5 Public Service Media in Digital Environments

As any media organization, Public Service Media (PSM) adapt to the requirements of digitization. This entails the creation of entirely novel offerings and an uncoupling from traditionally analogous and channel-specific distribution. Consequently, PSM engages in online only productions and algorithmic-based curation of their offerings to make their content, especially the long tail, more accessible and to satisfy individualized user preferences (Raats, 2023). Moreover, PSM, like other media organizations, build platform presence. This, however, limits the control over what content is distributed to whom and raises concerns over **potential infringements of the public mandate**. Instead of providing content to platforms as a knee-jerk reaction, PSM is urged to critically assess how it can maintain and develop its values on these commercial platforms (Eichler, 2023). In light of new communication infrastructures, PSM's role is often challenged. For instance, publishers argue that this differentiation and expansion into the digital sphere attacks their business models and distorts competition online. However, it can also be argued that to fulfil its mandate, PSM has to build this presence to provide orientation online. Habermas (2021) asserts that in order to sustain a shared reality and to counteract an abundance of fake news, it is a **constitutional responsibility to uphold an inclusive media system** that ensures deliberation in public opinion formation. From a market perspective, the digital presence of public service content can be associated with **setting a standard** and working as complement to commercial media (Fehlmann, 2023; Gonser & Gundlach, 2022). Especially in digital media landscapes, PSM faces aggravated circumstances in legitimizing its public interest role. The legitimation discourse is often reduced to “market-dictated imperatives” (Pickard, 2015, p. 91) and PSM often **justifies its existence in terms of market value** – not only because of anticipated sanctions or the political climate, but also because neoliberal values have already been internalized into PSM. Puppis & Ali (2023, p. 12) call this a “**neoliberal trap**” since PSM competes on the basis of market fundamentalism

and, thereby limits its contribution to a narrowly defined market failure. This strategy is doomed to failure since PSM cannot compete under these circumstances and **neither can it demonstrate its contribution to society and its opponents**. A purely economic orientation would also involve to reduce PSM's contribution to measurable impact involving quantitative key performance indicators (KPIs) that render them comparable to commercial media and platforms. However, this approach would neglect areas of societal impact that cannot be measured sufficiently but constitute the public mandate, such as empowering citizens to engage in political opinion formation (Raats, 2023).

To conclude, PSM, like commercial media organizations, undergoes a digital transformation involving new formats, converging channels and presence on content platforms. The conflicting situation between journalism, media organizations and platforms intensify in the public service context, since PSM must stick to its public mandate but to so it is dependent on non-proprietary commercially-oriented platforms. Moreover, giving in to a neoliberal discourse and building legitimation according to market principles only, may be unsustainable since it potentially limits PSM's role in society. In the context of legitimation, **measurement plays a crucial role**. Hence, PSM is incentivized to use audience analytics. However, since commercial metrics fall short in quantifying major aspects of the public service mandate, PSM is either reduced to market KPIs or it must engage in establishing **proprietary measurements** reflecting its values (Cherubini & Nielsen, 2016).

2.6 The Relationship Between Journalism and the Audience

These changes in production and distribution along with possibilities for direct, real-time observation and feedback has not only changed the power relations in the media industry but also altered how journalism perceives and interacts with its audiences. Audience analytics reflect user behavior patterns and are often unreflectively equated with audience desires (Groot Kormelink & Costera Meijer, 2018; Riemann, 2024). This chapter gives a brief overview on digital news use before conceptualizing the relationship between journalism and its audiences on different levels (Haim, 2019). The resulting effects on journalistic role orientations are discussed to provide a basis for the underlying research questions and contextualize audience analytics use in journalism.

2.6.1 Audience Behavior

The way audiences, receive, consume and interact with news has tremendously changed with the advent of digital technologies. **Four major trends** with implications for news production can be identified: Mobile use, aggregators as news source, incidental and less directed news consumption as well as a decreasing interest in news online associated with a lack of trust and news avoidance.

Especially among younger audiences, digital channels dominate news consumption with smartphones as preferred devices for online news in the majority of countries. While mobile use increases in relevance, linear channels are still used demonstrating a multiplatform approach rather than resorting to a single channel only (Hölig et al., 2021; Molyneux, 2018; Newman et al., 2024). Except for ages above 70 more than 80 percent of Germans consume online articles at least weekly (Oehsen et al., 2025). Text is the dominant mode of news consumption, whereas modes diversify for ages 18-34 adding audio as relevant channel. Mobile use entails **more selective and flexible news consumption patterns** (Haim, 2019). Mobile news use patterns are often described as “snacking”: Episodes of use are shorter compared to other channels, while they happen more often and spread throughout the day rather than being bound to fixed times and locations (Molyneux, 2018; Westlund, 2015). Moreover, the access to news shifts from traditional gateways to new players: Entering news via a publisher’s app or website as preferred consumption mode has been decreased to 22% across markets, while **search engines (25%) and content platforms (29%) gained relevance as main gateways to news** (Newman et al., 2024). Especially younger audiences demonstrate weaker ties to news media’s own outlets. Instead, they prefer an intermediated access via content platforms, aggregators or search engines. This detachment from established news brands culminates in a more diverse set of sources for news including non-journalistic such as influencers or celebrities on platforms like Instagram (Newman et al., 2023). However, on content platforms like Facebook, Instagram, or X (formerly Twitter) news are only **one among many communication aspects** associated with smartphone use and it must compete with other types of content. It is, therefore, re-contextualized as part of a larger information flow and **loses its privileged position**: News use is driven by larger social media habits and not vice versa (Boczkowski et al., 2018). Algorithmic filtering further limits news diversity since it aligns with users’ interests, attitudes and past behavior rather than providing a balanced selection. Moreover, a social filter is

applied since platform users often rely on what their peers regard as newsworthy rather than turning to professional journalists (Boczkowski et al., 2018; Wojcieszak et al., 2022). However, it must be noted that algorithmic curation is not necessarily neutral or optimized to build communities but rather sticks **to economic imperatives** (Schäfer & Wessler, 2020). Meta, for instance, has been reducing the amount of news across its platforms and restricted its algorithmic from promoting political content. Meanwhile, intermediate news use becomes less concentrated and spreads among multiple platforms with short videos gaining popularity (Newman et al., 2024). News aggregators, on the contrary, feature a variety of sources and are found to present rather centrist coverage. While only making up for a small share of the news consumption online (8%), they may be more likely than content platforms to provide a basis for a shared reality (Newman et al., 2024; Wojcieszak et al., 2022). Yet, algorithmic changes may limit this potential.

This re-contextualized role of news on platforms competing with other types of content comes along with a less directed, passive and rather incidental news consumption – a **“news will find me”-perception**. It is associated with the feeling that one will receive all necessary information without actively looking for them (Gil de Zúñiga et al., 2017). This further detaches from regular news consumption habits. While the ‘news will find me’ perception raises concerns about declining political knowledge and reduced civic participation (Gil de Zúñiga & Diehl, 2019), its impact is mitigated by the fact that users of content platforms do not exclusively rely on incidental exposure. Instead, they frequently switch between incidental and intentional news consumption, often within the same day (Boczkowski et al., 2018).

More general developments point to a **decline in high news interest across media markets**, with national differences: While some countries like Finland display high and stable interest rates for news, they are declining in the US, the UK and Germany. However, in most of these countries a majority still states they are extremely or highly interested in news (Germany 55%, US 52%, UK 38%). On the other hand, **news avoidance has been rapidly increasing** within the five years, indicating that 41 percent of Germany sometimes feel worn out by the amount of news, whereas in 2019 this statement was supported by only 26%. News has also experienced a decline of trust over the last ten years. The share of Germans, for instance, who trust most news most of the time has been shrinking from 60% in 2015 to 43% in 2024. The level of trust is positively associated with the level of criticism news media face in a society and hinges on political as well as economic

developments. When it comes to building or restoring trust, transparency, journalistic standards and representation are among the primary factors mentioned (Newman et al., 2023; Newman et al., 2024).

These developments demonstrate how technological affordances on the one hand, but even more so everyday practices shape the consumption of journalistic content. Journalism is challenged by the loss of exclusive attention, dependence on third party algorithms as well as declining trust levels. It incentivizes **a close observation of audience behavior and adaptation to user needs**. This alters the relationship with audiences and ways of constructing journalistic role orientations.

2.6.2 Audience Orientation

Altered audience behavior patterns, data gathering techniques and financial constraints not only reshaped the relationship between journalism and its audiences but also how journalists act on this relationship and cater to their audiences. Audience orientation is not static but rather a reciprocal process in which **audience conceptions, anticipated audience needs and a willingness to satisfy these needs** shape journalistic production. Serving these audiences can be an active decision but also happen unconsciously as part of an established routine (Haim, 2019; Hohlfeld, 2005). While this audience orientation has consequences for journalistic work, it is rather a mental construction of journalists to anticipate the reactions to their offerings than an accurate representation of this audience and its desires (Hanitzsch & Vos, 2017a; Hanitzsch, Vos, et al., 2019). While audience orientation is self-evident in other industries and, from an economic perspective, seems applicable for media organizations as well, the journalistic profession has a special position in society with a proprietary set of values such as being factual and socially relevant (Altmepfen & Arnold, 2013; K. Meier & Neuberger, 2023).

Until the end of the 20th century journalists often **ignored dismissed or even resisted audience feedback** and rather relied on their professional expertise, their superiors or peers to decide about content and style of news stories (Tuchman, 1978). While audience research was conducted it was not acted upon on the editorial side, mainly because journalist assumed a discrepancy between topics they perceived as important, such as public affairs, and topics they thought the audience was interested in, such as weather and sports coverage (Boczkowski & Mitchelstein, 2013).

Journalists could afford this attitude because news was mostly a **bundled product** and readers had little options to buy only the components they actually used.

Digital technologies, however, paved the way for an increased audience orientation in a threefold way: First, because of the audiences themselves who are now able to resort to de-bundled units of content according to their preferences. Second, because technology enables to cater to audiences in a more flexible way, e.g. by changing topics on a news page. And third, because the **performance of these modifications can be measured in real time**. Additionally, **specific roles for audience orientation** such as engagement editors have been created in many media organizations (Ferrer-Conill & Tandoc, 2018).

The resulting audience orientation can be conceptualized on three different levels (Haim, 2019): On the societal level, it comprises of an **adjustment of professional norms with audience expectations** instead of a separation of both (Loosen, 2016). The distance between norms and expectations is usually higher when media organizations depend less on the market. On the organizational level, audience orientation entails **decision rules to drive audience appeal** both quantitatively and qualitatively. This would, for instance, involve optimizing specific metrics like clicks or recurrent users. On the individual level **audience orientation shapes routines in news production** by paying more attention to these metrics and anticipated user needs.

Despite the ubiquity of technological possibilities to observe audiences and gauge their needs, their use is not uniform and journalists display uncertainty on how to best integrate them into their routines. This points to a continuing knowledge gap despite new insights: User behavior can be observed but metrics often **lack the reasons for this behavior**. Moreover, there is **uncertainty on how to interpret metrics**, e.g. a click on the main article could indicate interest in the topic but just as well be habitual (Groot Kormelink & Costera Meijer, 2018). And while relying on audience analytics is associated with a loss in quality due to disregarding journalistic values (Fürst, 2020; Nelson, 2021), **this antagonism is not an automatism** as user expectations can but do not necessarily always contradict journalistic norms (Haim, 2019). This also points to differences in how journalists perceive their role towards their audience and how this, in turn, reflects their use of audience analytics.

2.7 Between Market Orientation and Professional Standards

Despite differentiated approaches to audiences and enduring professional standards it can be argued that journalists are more strongly **incentivized to incorporate a market orientation** – at least to some degree. First, a massive shift in business models due to losses in advertising revenues incentivizes to target readers and cater to their wants and needs to drive subscriptions (von Rimscha & Riemann, 2024). However, it can be argued that focusing on reader revenue rather than advertising is just a different kind of market orientation. Moreover, producing for readers instead of advertisers may build customer sovereignty. However and second, **willingness to pay for journalistic products online remains low** or digital content is even expected to be for free. Instead of approaching mass audiences and address the majority of society it seems more profitable to target smaller audiences that exhibit more willingness to pay (O’Brien, 2022). Third, journalistic media organizations have **lost part of their distribution sovereignty to content platforms** where they have to play by the rules of these platforms’ algorithms to gain visibility amidst the many types of content they compete with (Altmeppen, 2024; Steensen & Westlund, 2021). This further intensifies market orientation tendencies. Fourth, this brings about **new patterns of audience behavior** along with a less directed, passive and incidental news consumption, aggravating the competition with other types of media content and, thereby, putting forward market orientation (Gil de Zúñiga et al., 2017). Fifth, technological capabilities have the potential to drive market orientation in a twofold way: First and foremost, by enabling a **constant surveillance of audience behavior** by means of quantitative metrics and possibilities for interaction. Second, by enabling **instant reaction to this feedback**, such as adapting content to boost audience appeal (Lamot et al., 2021; Zamith, 2018). These developments should not hide the fact that journalism and media organizations have always contained economic elements and commodification has been criticized at least since the 1970s (von Rimscha et al., 2025). Moreover, market orientation is not necessarily expressed as such, but more mediated by not only turning to audiences but also a different perspective on them (Costera Meijer, 2020). This audience turn along with economic incentives and a loss of journalism’s gatekeeper position points to a shift in role orientations. Role orientations are the “discursive construction of institutional values, attitudes and beliefs with regards to the position of journalism in society and, consequently to the communicative ideals journalists are embracing in their work” (Hanitzsch & Vos, 2017b, p. 123).

The **degree of market orientation is a vital component** in how journalists perceive their audience and their institutional role. While a multitude of role orientations have been identified the distinction between **consumer and citizen orientation** serves to point out the role of market orientation (Hanitzsch, 2007). Citizen orientation represents a popular role orientation in Western countries and is rooted in a public service ideal. The audience is perceived as citizenry that needs to be provided with information to engage in debate and political decisions while market orientation hardly plays a role. Citizen orientation also entails the notion of journalists as watchdogs holding those in power accountable. Despite catering to democratic values, this normative approach is often criticized for being paternalistic. **Consumer orientation**, on the other hand, rather serves what audiences prefer and exhibits a strong market orientation. It aims at maximizing audience numbers and provides entertainment, relaxation and service, helping readers to get along in their everyday lives (Hanitzsch, 2011; Hanitzsch, Hanusch, et al., 2019; Hanitzsch & Vos, 2017a). In short, citizen orientation deals with **what the audience needs** (from a democratic point of view), whereas consumer orientation aims to fulfil **what the audience wants**. Rather than exclusively adopting one of these two, journalists often balance both orientations attempting to integrate democratic values with some degree of market orientation (van der Wurff & Schoenbach, 2014). That is not to say that both orientations necessarily always contradict each other since there are situations where wants and needs match (Haim, 2019), e.g. political measures during the Covid pandemic. Moreover, actual behavior may vary from role orientation. Alignment of both hinges on organizational and cultural prerequisites (Hanitzsch & Vos, 2017b; Hanitzsch, Vos, et al., 2019; Mellado & van Dalen, 2017). The ability to track audience behavior in real-time may also determine which orientation comes to the fore.

Market and audience orientation are deeply interwoven with audience analytics: Using audience analytics is associated with a stronger increased in perceived importance of both citizen and consumer orientation but the increase is significantly higher in consumer. While citizen orientation overall is still more important to journalists, audience analytics are perceived as more useful for achieving consumer orientation (Belair-Gagnon et al., 2020; Hanusch & Tandoc, 2017). **This allows for three assumptions:** First, audience analytics use generally raises awareness for the importance of audiences. Second, citizen orientation is still popular and a mainstay of journalistic

work. Third, audience analytics are more strongly associated with perceiving this audience as consumers. This relationship is also not unidirectional: More market-oriented news organizations show a stronger incorporation of audience analytics in their production routines and **a higher willingness to give the audience “what it wants”** (Beam, 1996; Ferrucci, 2020).

To conclude, technological capabilities, market conditions, audience behavior and a loss of the gatekeeper role clearly provide a strong incentive to perceive **the audience as commodity** and incorporate market orientation into production routines. Audience analytics potentially promote this by providing (real-time) insights into audience behavior. However, their influence seems to be shaped – though not necessarily constrained – by existing journalistic standards. To further elaborate on audience analytics’ impact on professional values and routines the following chapter provides a conceptual overview, outlining key definitions, technological enablers, and the prevalence of audience metrics. This is followed by a discussion of empirical research on audience analytics in digital journalism to inform the underlying research questions, pointing out gaps in existing research. Finally, various theoretical perspectives are outlined to demonstrate the value of diverse approaches in tackling blind spots and analyzing the interplay between quantitative audience measurement and the journalistic profession.

3 Audience Analytics in Digital Journalism

Against the backdrop of its industry-shaping character the emergence of audience analytics is one of the four structural premises of digital journalism (Steensen & Westlund, 2021). Using these systems has become a **superior standard when deciding about newsworthiness** (Ekström et al., 2022). After defining the term audience analytics and corresponding metrics, this chapter first focuses on the prevalence of audience analytics, usage patterns and their drivers. To avoid a one-sided view only from the demand side, a brief insight will be given into the role of the providers of audience analytics and how they make their product appealing to journalists. Following on from that the effects on journalists, and media organizations are discussed including new editorial roles. Before considering theoretical approaches, scholarly concerns in conjunction with audience analytics are presented as well as possible solutions.

3.1 Audience Analytics and Metrics: Context and Definition

Data-based construction of audiences is not a new phenomenon in the media industry and has been practiced for nearly a century. According to Napoli (2011) this **rationalization of audience understanding** and the corresponding use of quantitative measurement is driven by two technology-related processes: Changes in media consumption and changes in data gathering techniques as well as underlying economic and social developments. The emergence of audience analytics marks a third wave in this rationalization. The first wave comprises first systematic reader surveys in the 1930s to satisfy advertisers' needs for data on audiences and demonstrate the effectiveness of advertising. The second wave came up when computers rendered the collection and analysis of larger data amounts possible in the 1970s and publishers were aiming to attract larger audiences using this data (Napoli, 2011; Zamith, 2018). The above-mentioned structural developments facilitated a third wave of the rationalization of audiences which is facilitated by **low-cost, automated systems able to gather and analyze large amount of audience data** in digital environments. It distinguishes from the first two waves by the amount of data, its real-time availability and its extension to a more actors and activities. While data gathered in the previous waves was often ignored or rejected by journalists and predominantly used by the management and sales departments, audience analytics diffuse deeper into editorial offices. While being met with initial skepticism they have since gained acceptance and are used for multiple editorial purposes (Gans,

1979; Lamot et al., 2021; Zamith, 2018). The tipping points within the evolution of this third wave are described by Costera Meijer (2020) based on a long-term observation of Dutch journalists from 1995 until 2020. Four tipping points **transformed an initial focus on quality to a discourse about innovation**: The first phase represents the traditional approach that for producing quality news audiences play a subordinate role or are even obstructive. The second phase involved an upcoming obligation to enable an informed citizenship and counteractions to losing young readers in the first decade of the millennium. The third tipping point marked the transition into the digital sphere and a raised awareness for audiences as essential for the survival of print journalism. The emergence and dissemination of **audience analytics marks the last tipping point** to resolve the contradiction between quality and audience orientation. This also entails a **shift from quality to innovation and survival as anchoring narratives** in the journalistic profession (Costera Meijer, 2020). While possibilities for interaction like commenting or user generated content often dominate the debate on audience integration (Loosen & Schmidt, 2012), others suggest that specifically **audience analytics as passive feedback mechanism** mark the primary shift in the relationship of journalism and its audiences (Anderson, 2011; Costera Meijer, 2020)

Building on Zamith (2018, p. 421), audience analytics are defined as “systems and software that enable the measurement, collection, analysis, and reporting of digital data pertaining to how content is consumed and interacted with”. These systems not only capture and process this data into aggregates, they also **present outcomes of audience actions** in an interface, for instance a dashboard. Given that the use of these systems rather than mere technology is impactful, audience analytics can also be viewed as the social process connected to using them. However, for the sake of analytical clarity, this work separates the technology from how it is applied. System providers focusing on journalism have emerged, such as Chartbeat (Belair-Gagnon & Holton, 2018, 2019). Their products can be extended or replaced by custom-built systems specified to organizational needs. Moreover, content platforms provide tools for rudimentary analysis removing barriers for small outlets that would otherwise lack financial capabilities to invest in audience analytics. Accordingly, **different stages of integration** can be observed: **Rudimentary analytics** includes the use of some data sources incidentally but lacks organization and integration into workflows. **Generic analytics** rely on standard tools and are rather oriented towards short-term goals. **Editorial**

analytics, on the contrary, are tailored to an organization, anchored in organizational and cultural practices and inform short-term as well as long-term decisions (Cherubini & Nielsen, 2016)

Audience analytics systems produce several “quantified and aggregated measures of audience preferences and behaviors” called (audience) metrics (Zamith, 2016, 2018, p. 422). Hence, an audience analytics system can produce several metrics and the same metric can be produced by various systems. Internal metrics comprise data generated by the proprietary site or app of a news outlet, while external metrics provide information about audience behavior on content platforms (Nguyen, 2013). Since there is **no one-fits-all metric**, most editorial offices combine a variety of different metrics. A selection of the most commonly used metrics is presented in Table 1 (see also Cherubini & Nielsen, 2016, p. 34)

Table 1: Selection of Commonly Used Metrics

Metric	Explanation
Pageviews	Number of views on a page by any method, such as clicking or refreshing. Also called clicks and page impressions.
Conversion rate	Percentage of users who carry out a desired action, for instance sign buy a subscription, sign up for a newsletter or change from a content platform to the page of a media organization
Scroll depth	How far users scroll down a page, e.g., if they saw the full article or only a part of it
Unique users	Number of individual users who have visited a page in certain period of time by capturing their IP address. Multiple pageviews from the same user would just count as one unique user.
Engaged time	Amount of time users actively interact with content, e.g., reading, scrolling, watching.
Traffic source	Whether users enter a page directly or via external sources, such as news aggregators, search or content platforms.
Time spent	Amount of time users spent on a specific page while not capturing whether they are engaging with the content or doing something else.
Click-through-rate	Percentage of users who use links to other pages of the news website, e.g., getting from one article to another one that is linked below
Shares	Number of shares on content platforms, via email or direct messengers
Recirculation	Percentage of users who remains on the site after having engaged with content, e.g., reading another article

Note: Based on Cherubini and Nielsen (2016), p. 34.

Some metrics can have the same label but their operationalization **and meaning may vary** depending on the system used, for instance the engagement metric may consist of a different set of data types (Zamith, 2018). Moreover, metrics like pageviews are straightforward, whereas other metrics are notoriously difficult to measure, can capture different meanings and are open to interpretation. Impact, for instance, is neither explicitly defined nor are there agreed upon metrics. Even if these metrics existed, they would be less accessible and their level of abstraction would still be high. However, even comparatively clear **metrics are proxies** and hardly show the whole user journey. Scrolling down until the end of an article can be a habit and does not necessarily mean the article has been read, let alone appreciated. Clicking may not be confused with being interested and spent time gives little information about what user did in this period of time. In short, metrics display behavioral data from which thoughts, preferences and feelings of the audience **can only be inferred** (Groot Kormelink & Costera Meijer, 2018).

3.2 Influences on the Use of Audience Analytics

While it is both reasonable and desirable to examine journalists' engagement with specific metrics and their effects, much of the existing research initially focuses on the **factors influencing the use of audience analytics** more generally. To provide a fundamental understanding of these determinants, this section distinguishes between individual, organizational, and technological influences. However, in the long run, further differentiation is necessary, as the various metrics within an audience analytics system often pursue distinct, sometimes even opposing, objectives and therefore **cannot always be treated as a single entity**. Examining the factors influencing the use of audience analytics also aims to raise awareness that usage levels are not necessarily uniform, either between or within the same newsroom. Given a persistent journalistic autonomy and varying levels of technology acceptance within newsrooms, there may be **considerable variations** in how audience analytics are utilized (Bunce, 2017; Duffy et al., 2018; Nelson & Tandoc, 2018). While technological factors play a role in shaping the use of audience analytics, their influence is limited. Existing research primarily highlights **individual and organizational influences** as key drivers of adoption and integration. However, rather than offering a comprehensive picture, the literature presents a collection of factors that contribute to the use of analytics in varying ways.

3.2.1 Technological Influences

Technological influences stem from both the availability and the specific configuration of audience analytics systems, as well as their implementation and usability. A rudimentary setup with isolated, hard-to-access data sources is unlikely to promote frequent use, whereas custom-built systems tend to be more accessible and facilitate easier integration into workflows (Cherubini & Nielsen, 2016). Moreover, **access to relevant data** is an essential prerequisite: If audience analytics are not readily available to editorial teams due to technical barriers, their usage is likely to be significantly lower (Giomelakis et al., 2019). However, not only access to audience analytics systems but also how they are displayed can fuel their use, e.g. many editorial offices are equipped with screens constantly displaying audience metrics (Welbers et al., 2016). Moreover, how tools are configured is a relevant influence. Analytics companies aim at making the use both appealing and unobtrusive. Dashboards are often designed to demand a high level of attention and form habitual use. Gamification elements used in the dashboard even provoke almost addictive behavior for some journalists **constantly checking the quantitative performance** of their content. By providing content suggestions rather than instructions they defer to journalistic judgement, while at the same time **concealing managerial intentions** behind these dashboards (Petre, 2020). Analytics companies also introduce a social component that can influence the use of analytics: Their tools are often promoted and implemented in newsrooms by company representatives. To avoid being perceived as intruders in the journalistic profession, these representatives position themselves as **bridge-builders, framing economic success as journalistic success** (Belair-Gagnon & Holton, 2018, 2019; Petre, 2015). This also demonstrates again, that technological only considering technological capabilities is not sufficient since journalism is a cultural practice (Zelizer, 2019).

3.2.2 Organizational Influences

Access to audience analytics is not only a technological prerequisite but one that is also determined by organizational standards and managerial guidance (E.-J. Lee & Tandoc, 2017). While some media organizations encourage or oblige their journalists to engage in audience analytics, others limit access to editors them to chief editors and management to shield editorial staff (Belair-Gagnon et al., 2020; Hanusch, 2016). **Managerial guidance is an ambivalent influence**: Generally, managerial expectations increase analytics use (Tandoc & Ferrucci, 2017; Usher, 2013; Whipple

& Shermak, 2018). However, if exposure to analytics is imposed by management, it can adversely affect use (Lamot et al., 2021). This suggests a limit to managerial influence and a saturation point, which can be met with **reactance or even counteractions** among journalists. Given mutual intersection between economic constraints, technological possibilities and changes in audience behavior, **market orientation can be identified as a major influence** on analytics use. The more market oriented, the more audience analytics, especially external social media metrics, are used to determine what is news and how it is presented (Blanchett Neheli, 2018; Ferrucci, 2020; Fürst, 2020). Market orientation not only incentivizes increased usage but also favors quantitative metrics displaying audience size over alternative forms of user feedback (Nelson, 2018; Nelson & Tandoc, 2018). Due to their simplicity, their constant availability and their **association with advertising revenue** audience size metrics are prevalent and well-developed in editorial offices (Cherubini & Nielsen, 2016; Fürst, 2020; Giomelakis et al., 2019; Tandoc, 2014b; Tandoc & Vos, 2015). While it would be plausible that Public Service Media is excluded from this trend, Lamot et al. (2021) demonstrate that usage patterns do not differ significantly between commercial and PSM, suggesting that regarding analytics use they have adapted to a market logic.

Newsrooms cultures mark another organizational influence on audience analytics use: The less a newsroom culture is anchored in (traditional) professional standards, **journalistic autonomy, and citizen orientation** the more intensively audience analytics are integrated into editorial practices. Alignment with technology and audience engagement further increase incentives to use analytics (Petre, 2021; Welbers et al., 2016; Zamith, 2015, 2016). The size of a media organization along with the availability of financial and human resources also support the use of audience analytics. Larger organizations allow for task differentiation and streamlining of analytics tools while smaller organizations may be hampered by financial constraints as well as limited staff numbers and, therefore, remain at a rudimentary level of use (Cherubini & Nielsen, 2016; Giomelakis et al., 2019; MacGregor, 2007; McKenzie et al., 2011). Ultimately, a media organization's primary distribution channel also influences the use of audience analytics: Unsurprisingly, journalists in online-only outlets tend to use these tools more frequently and intensively than in legacy media (Hanusch, 2016). Given the increasing adoption of audience analytics in newsrooms and shifts in their configuration and prioritization – such as the transition from reach-based to subscription-based metrics as the dominant measurement – these influencing factors must be considered in the

context of the time in which they were observed. The strength and nature of these influences may evolve as implementation progresses, potentially intensifying or diminishing. For example, it is reasonable to expect that access to audience analytics systems will soon be **standard across most newsrooms**, which will likely flatten the differences between media organizations with different primary distribution channels (Ekström et al., 2022).

3.2.3 Individual Influences

While organizational influences establish the framework for the use of audience analytics, individual factors determine how they are adopted by newsroom members. It can be assumed that these two spheres of influence do not exist independently of each other but are instead interconnected. For example, detailed guidelines for the application of audience analytics could be issued. However, if these are largely ignored in daily practice due to time constraints, their impact would be significantly limited. Moreover, the relationship between individual influences and the use of audience analytics is often **not unidirectional but reciprocal**. For example, attitude toward audience analytics shapes their use: Journalists who perceive audience analytics as beneficial for their editorial decisions are more likely to incorporate them (Belair-Gagnon et al., 2020; Tandoc & Ferrucci, 2017). Conversely, those who are skeptical tend to avoid integrating them into their daily routines (Welbers et al., 2016). However, regular use and increased familiarity can, in turn, lead to a more positive attitude toward audience analytics – much like with many technological adoption processes.

As pointed out in the previous chapter, **role orientation is a major influence** in how journalists approach audience analytics and how they judge their usefulness. While audience are generally believed to enhance the fulfilment of audience orientations, they are more strongly correlated to achieving consumer orientation, i. e. serving audience preferences and maximizing audience numbers (Belair-Gagnon et al., 2020; Coddington et al., 2021). This also applies to external metrics from content platforms: In this context, sharing has been identified as beneficial for both citizen- and consumer-oriented approaches. Again, the **direction of influence is mutual**. For instance, perceiving audience analytics as effective also shapes role orientation into the direction of consumer orientation (Hanusch & Tandoc, 2017). Audience analytics come with novel tasks for journalists such as promoting content or alignment with platform-specific constraints. However,

these demands are rather integrated into existing role orientations and connected to traditional routines (Tandoc & Vos, 2015). Therefore, the adoption and use of audience analytics is **not absolute or static** but intertwines with existing standards (Lamot & van Aelst, 2020). This leads to situations where both journalistic quality and audience analytics are considered in assessing story success (Whipple & Shermak, 2018). However, mutual influence also implies that **existing norms are modified** (Agarwal & Barthel, 2013; Giomelakis et al., 2019; Tandoc, 2014a).

Furthermore, **perceived behavioral control** shapes use and adoption of audience analytics. In short, when journalists believe they have the abilities to handle audience analytics, they are more likely to do so (Tandoc & Ferrucci, 2017). Journalistic experience, on the contrary, seems to hamper audience analytics use (Belair-Gagnon et al., 2020; Bunce, 2015). **Experience may allow for a greater autonomy** or it may conflate with age and sticking to established routines. The same may hold true for journalistic education where diverging results regarding its influence on audience analytics use can be found. This may be due to changes in journalistic education: Contemporary journalistic education may cater to organizational needs more and include market knowledge as well as socialization with audience analytics while this may not be the case for journalists who were socialized decades ago (Lamot et al., 2021; Tandoc, 2019; Vu, 2014). Moreover, editorial members without any **journalistic background** are more likely to engage in audience analytics use – obviously because many of them have been hired for this exact purpose. Therefore, they also play a decisive role when it comes to defining the aims of audience analytics (Belair-Gagnon & Holton, 2018, 2019; Petre, 2018; Slaček Brlek et al., 2017). Likewise, a higher hierarchical position comes along with a more intensive use of audience analytics since for many editors in-chief tracking the success of content and constant performance evaluation is part of their job (Christin, 2018, 2020; Giomelakis et al., 2019; Hanusch, 2016; Zamith et al., 2020). This influence also illustrates the entanglement between organizational and individual influences. Moreover, it highlights how **audience analytics inform managerial decisions** in editorial offices.

Influences on the use of audience analytics address **the first thematic area** pointed out as guidance for this work. While technological influences determine what the interface looks like and how journalists are approached with functionalities, organizational and individual influences shape if and how they are used and integrated into daily production routines in journalism. Interestingly, audience analytics use also further shapes relevant variables such as how role orientations

are perceived. However, it must be noted that the identified **influences cannot be assessed in terms of their strength or interaction**, as many studies only examine individual or a few factors affecting the use of audience analytics. Consequently, it is likely that different newsrooms exhibit distinct organizational influence configurations, to which journalists then respond individually. Therefore, a uniform use of audience analytics cannot be assumed either across media markets or within a single newsroom. Moreover, the identified influences must always be considered in the **context of Western media systems**. In differently structured media systems, these influences may take on different forms and strengths, potentially leading to varying adoption and usage patterns of audience analytics. Dollah and Tandoc (2022) demonstrate for Singaporean editorial offices that journalists' adherence to social harmony limits audience analytics uses. In anticipatory obedience journalists were aiming at keeping a balance between market pressures, the social system and journalistic autonomy. Hence, they avoided certain topics even if audience analytics revealed their popularity among the audience. Likewise, in media systems with strong state intervention journalists working for government-supported media may refrain from using audience analytics although their audience is shrinking (Allam & Hollifield, 2023; Fang & Repnikova, 2022). Conversely, transitional media systems with precarious conditions and a high dominance of foreign content platforms facilitate an excessive use of audience analytics in private media companies and a **"metricization" of journalistic standards** (Dodds et al., 2023; Harlow et al., 2023; Moyo et al., 2019).

3.3 Effects of Audience Analytics on Journalism

The reciprocal influence between the use of audience analytics and journalistic role orientations, as well as the alignment of journalistic standards with metrics due to excessive use, demonstrates that usage and impact can be difficult to separate. The use of audience analytics affects not only journalists and their profession but also the news products they create. Given the market conditions outlined above, **resources within media organizations are increasingly reallocated** toward the implementation and management of audience analytics. Consequently, this often entails that fewer resources are available for actual editorial work, for instance when analytics-related job titles emerge (Belair-Gagnon et al., 2018; Ferrer-Conill & Tandoc, 2018; Fürst, 2020). While the domi-

nance of these roles in defining the objectives pursued with audience analytics has been demonstrated (Slaček Brlek et al., 2017), **the interplay between analytics-driven roles and traditional journalistic roles**, as well as the resulting newsroom dynamics, remain largely unexplored. It can be assumed that the interaction between these roles and their power relations constitutes a key factor in the integration of audience analytics into production routines. While existing research has established where journalists position themselves on the continuum of role orientations, this has not yet been clarified for emerging editorial roles in the analytics domain. These roles could adopt journalistic role orientations, such as consumer orientation, or introduce entirely new, non-journalistic role orientations into the field. To contextualize these blind spots, the following paragraphs briefly review existing research in the effects of audience analytics.

Effects on Selection and Placement

As previously discussed, the gatekeeping role of journalists is challenged by audience analytics and the resulting real-time **omnipresence of the audience** in editorial offices (Anderson, 2011). This primarily affects the **selection and placement** of content: While news selection and presentation were traditionally shaped by journalists' instincts, their superiors or peers, audience analytics are now part of this process. Short-term consequences are mostly promotional and involve a more prominent placement of performing news items: For instance, clicks affects subsequent placement of news, while placement does not necessarily affect the number of clicks (A. M. Lee et al., 2014; E.-J. Lee & Tandoc, 2017). Moreover, headlines and visual material are modified according to audience analytics performance (Tandoc, 2014a). Since space on news websites is limited, they are also used to **decide which topics to select** at all and they play major role when it comes to deciding which items to publish on content platforms. The focus is, however, not solely on the own news site: Journalists also track how competitors' content is performing, such as on content platforms where at least a few basic metrics are publicly displayed. These insights are then used to produce similar, slightly modified stories for their own outlet (Giomelakis et al., 2019; Lamot & Paulussen, 2020). In the long term, topics that have been performing in the past are selected more frequently and have a higher chance of **receiving follow-up coverage**. However, audience analytics not only shape what items pass the gate and where they are placed but **extend to the whole news lifecycle**: When deciding which items to remove and replace, called de-selection, audience analytics are regularly considered (Tandoc, 2014a).

Effects on Planning and Distribution

Given that breaking news is only a part of the coverage, audience analytics are also considered for **topic planning and long-term strategies** on which topics to cover (Blanchett Neheli, 2018; Lamot & Paulussen, 2020; MacGregor, 2007; Tandoc, 2014a). Optimizing audience analytics often involves constant updates and, therefore, a higher volume of content. To satisfy this need while facing resource constraints some journalists engage in “news aggregation” and the use of pre-packaged material rather than producing original content (Agarwal & Barthel, 2013; Molyneux & Codrington, 2020; Usher, 2016). This may eventually also include the production of “click hits” and an increase in soft news stories (Bright & Nicholls, 2014; Tandoc & Thomas, 2015). Hard news is associated with public affairs topics involving political relevance and societal consequences, while soft news mostly focuses on individuals, caters to emotions and encompasses less public affairs (Reinemann et al., 2012). This would suggest a **diminishing relevance of traditional selection criteria** and news values mostly oriented towards social relevance and hard news. However, journalists stress that professional judgement is still a priority (Chua & Westlund, 2019; Duffy et al., 2018; Karlsson & Clerwall, 2013). This is supported by Lamot and van Aelst (2020) who find that audience analytics had less impact on the ranking of hard news stories compared to soft news and state a **limited influence of audience analytics** compared to traditional selection criteria such as negativity.

Changes in Performance Evaluation and Audience Conception

Changes in selection, placement and planning not only affect digital outlets but also diffuse into decision making for other distribution channels like print where audience data is more difficult to obtain. This is partly due to the fact that audience analytics are used for performance evaluation both within editorial teams and at the management level. While this is usually applied only to content, in a few exceptional cases, journalists and their work performance are also assessed based on audience analytics which elicits competition between journalists (Blanchett, 2020; Bunce, 2017; E.-J. Lee & Tandoc, 2017; Moyo et al., 2019). Apart from the production, they are also impactful for the **audience conception** supporting findings on role orientation. Metrics build the foundation to construct images of the audience and they are mostly perceived as **valid equation of interest, emotions and opinions** (Lamot & Paulussen, 2020). Against the backdrop of the connection

between market orientation and the perceived importance of consumer orientation, this can lead to the audience and its (supposed) preferences becoming the **dominant benchmark for evaluation**. In some cases, this even results in an idealized or overly romanticized view of the audience that knows best (Duffy et al., 2018; Tandoc & Thomas, 2015). This dominance of the audience leaves little room for democratic ideals such as citizen orientation and instead focuses on satisfying short-term needs. However, these needs are themselves an interpretation based on audience analytics and do not necessarily align with the actual needs of the audience.

3.4 Concerns, Limiting Factors and Blind Spots

Due to the effects of audience analytics on news production, criticism has emerged. Fürst (2020), for instance, raises concerns over a worsening situation for journalism in an already precarious situation as **resources are diverted to audience analytics** and may not be available for editorial tasks anymore. This, in turn, may lead to less topic diversity and decreasing investigative projects. Since audience analytics do not distinguish between soft and hard news, it is suspected that sole reliance on performance will result in more soft news and, more generally, in **“more of the same” coverage**. All this leads to a reduced quality in the journalistic output, while the standard for evaluating quality has already moved into the direction of audience analytics and what “works” with the audience (Nelson & Tandoc, 2018; Tandoc & Thomas, 2015). These trends once again highlight the relevance of an analytical distinction between media organizations and journalism.: The implementation of audience analytics is largely driven by media organizations in the hope of gaining deeper insights into their audience and monetizing this knowledge. While the journalistic profession is initially subject to this development, it ultimately **retains some degree of autonomy** in deciding whether and how to integrate audience analytics into daily routines and how much influence these metrics should wield. Contrariwise, journalists may also proactively demand insights into audience analytics and use them for self-validation (Usher, 2013).

As with the factors influencing their use, the effects of audience analytics should not be viewed as absolute. For instance, their limiting impact on topic selection becomes evident when considering the different evaluations of hard and soft news. Journalists appear to **apply audience analytics selectively**, using them for certain topic areas while largely disregarding others (Lamot & van Aelst, 2020; Tandoc, 2014a). Moreover, opposite effects can also occur, such as removing

articles from a website because they have already garnered sufficient attention (A. M. Lee et al., 2014). It is also emphasized that the overall mix of news content often takes precedence over pure audience performance metrics, meaning that certain topics are covered because they are considered essential to the overall offering (Karlsson & Clerwall, 2013; Lamot et al., 2021). This suggests that journalistic routines and values persist, and that the use of audience analytics remains selective and situational. However, it is also important to note that journalists exhibit a **strong awareness of the tension between audience analytics and traditional journalistic values**.

Since many empirical findings are based on interviews and observations, there is reason to assume that journalists, due to social desirability bias, downplay their use of audience analytics or retrospectively portray their effects in a more positive light (Welbers et al., 2016). Additionally, they try to bridge this dilemma by developing strategies to harmonize both requirements, either by just **re-framing audience analytics as democratic feedback** or, conversely, by tailoring them to their organizational or journalistic needs (Christin & Petre, 2020; Chua & Westlund, 2019). These measures along with a shift in popular metrics, from traffic-driven to subscriptions, denotes a “new equilibrium” where audience analytics are matched with (traditional) journalistic standards (Tenor, 2024). However, it remains largely unclear how this alignment takes place and which editorial or organizational values can actually be reconciled with audience analytics. Furthermore, it is questionable whether this process merely conceals managerial intentions or genuinely takes journalistic professionalism into account. The question of **how journalism can emancipate itself from commercially driven metrics** thus remains unresolved. The demanded development of journalism-specific metrics is just as underexplored as the feasibility of such an endeavor - one that is fundamentally tied to the central question of **which journalistic values can be measured at all** and how they should be weighed against existing audience analytics (Cherubini & Nielsen, 2016).

Moreover, the exact influence on editorial processes is still vague: While there is extensive empirical research on the influence of audience analytics on content production, **experimental designs remain rare**, limiting the ability to isolate and precisely measure their impact (Lamot & van Aelst, 2020). Apart from the largely unknown weighting of contextual factors, **situational factors** that either drive or completely halt the use of audience analytics remain underexplored in terms of their role in the interplay between performance measurement and traditional journalistic values. In this context, it also seems appropriate to extend the analysis to the **entire lifecycle of a**

news item. While selection and placement are widely examined – albeit largely based on self-reported data – the impact of a news story also depends on how long it remains on a news site. In other words, what happens after a story has passed the gate, and what role do audience analytics play in this process (Tandoc, 2014a)?

To adequately address the blind spots identified here and the associated research questions, a theoretical framework is needed. Given the diverse aspects of the research questions – ranging from individual and professional dimensions to the concrete production of content, organizational values, and even public value – it seems appropriate to approach the topic using **multiple theoretical perspectives.** These should be combined in light of the overarching questions concerning the influence and limitations of quantification in journalism. To this end, the theoretical approaches commonly used in digital journalism research will first be outlined in broad terms and discussed in relation to their suitability for addressing the respective research questions. Ultimately, these approaches will also be used to inform the projects associated with answering the research questions and to place them within a context that connects to existing research.

4 Theoretical Approaches

Since the emergence of audience analytics is one of the four structural premises of digital journalism, theoretical approaches relevant to the more general field are presented as a first step: To gain an **overview of theoretical approaches, frameworks and related research fields in digital journalism studies**, this section relates to the work of Steensen and Westlund (2021), who analyzed 172 abstracts of scholarly publications on digital journalism between 2013 and 2019. Following on from this, relevant theoretical frameworks will be introduced and assessed regarding their suitability for addressing the four key areas of this study: (1) the use of audience analytics and its antecedents; (2) the effects on the journalistic profession and its boundaries; (3) the impact on news production processes and content and (4) the organizational perspective, focusing on proprietary performance measurement solutions based on internal values.

It is noteworthy that while a substantial body of research exists on various aspects of audience analytics, much of it remains phenomenon-driven rather than anchored in established theoretical frameworks. Furthermore, given the multi-perspective nature of this study, **no single overarching theory can fully capture the complexity of the subject**. Instead, it seems more reasonable to select appropriate theoretical approaches for each area and subsequently connect them using the accumulated knowledge to contextualize the broader research questions.

4.1 Theoretical Approaches to Digital Journalism

Similar to journalism research in general, many studies on digital journalism predominantly follow pragmatic approaches. Rather than being grounded in grand theory, assumptions are typically based on existing empirical research, seeking to build upon and connect with prior findings. This inductive approach aims to expand current knowledge and keep pace with the ongoing development of the field. This points to a rather **phenomenon-driven approach** that does not necessarily involve theoretical concepts to derive explanatory power. However, the other half of the analyzed abstracts contained various theories and concepts of which only 11 were mentioned more than twice. This suggests a **high diversity of theoretical perspectives** in the field and a pragmatic use of these approaches. Steensen and Westlund (2021) note that research in the field is primarily shaped by **sociological and political science perspectives**, which are often linked to a dominant technological perspective. This once again highlights the technology-driven nature of the research

landscape but also emphasizes that technology alone is not inherently impactful, it gains significance only when embedded in a sociological context. Hence, digital journalism can also be captured **as a socio-technical practice**. Other perspectives involve its role as a democratic force or, contrariwise, as simple business endeavor.

Since tendencies toward commodification (and resistance to them) are at the core of this work, the perspective that considers **digital journalism as a social system** is of primary interest among the identified theoretical approaches. This perspective not only conceptualizes journalism as a societal institution but also encompasses macro theories as well as middle-range theories frequently employed in communication research, making it particularly well-suited to addressing the four thematic areas of this study: The focus of macro-level theories is explaining how **journalism as an institution** functions and changes within society by analyzing how individual actions relate to structural conditions, especially economic and technological conditions. In this context, dominant approaches are **Luhmann's theory of social systems, Bourdieu's field theory and news institutionalism** (Bourdieu, 1998; DiMaggio & Powell, 1983; Luhmann, 1984, 1995). While social systems theory provides a basis to distinguish (digital) journalism from other systems and, thereby, shapes its boundaries, field theory takes journalists, their practices and the products into account to also contrast them with other fields that challenge or (try to) invade the journalistic profession. The question of boundaries is particularly relevant when it comes to new editorial roles related to audience analytics. New institutionalism deals with "the impact of macro-level forces on micro-level actions" (Ryfe, 2006, p. 137) and takes professional norms and knowledge into account to explain journalistic actions in digital environments. This is especially valuable when explaining why and how journalists adopt technologies such as audience analytics and how they are integrated with professional norms.

These macro-level theories provide a comprehensive view of the profession in relation to other subsystems and society. They offer an essential framework for understanding the dynamics of digital journalism and the various interests influencing the journalistic profession in both the short and long term. A key aspect here is the distinction from other, more technology-driven fields. However, when it comes to analyzing internal professional actions, particularly those related to **content production and audience construction**, these theories can sometimes be too broad and unwieldy. In such cases, middle-range theories offer a useful alternative. While they

still incorporate macro-level influences, they do not necessarily aim to position journalistic actions at the broader societal level. Here, **organizational theory**, for instance, covers aspects of how media organizations are configured and how they structure different kinds of labor (Steensen & Westlund, 2021). This can be helpful in illustrating **power relations within media organizations** which has been identified as driving force in adoption and use of technology. News production studies are particularly noteworthy here, as they focus on the core task of journalism. Two key traditional communication research approaches in this context are **gatekeeping theory and the news value concept**, both of which seek to explain why certain pieces of information become news while others do not make it past the gate (Eilders, 2006; Usher, 2013; Welbers et al., 2016). These theories are valuable from two perspectives: First, they **allow for a comparison with the pre-digital era**, rendering an assessment of the impact of technologies, such as audience analytics, possible. Second, they are **operationalizable and provide access to journalism**, albeit not always free from social desirability bias. Additionally, they provide indirect insights into **journalistic output**, helping to determine which information is ultimately made available to society from the journalistic profession and their respective media organizations.

While both the macro-level theories as well as the concepts using the organization as starting point provide valuable perspectives for exploring the thematic areas, the aim is to select **theoretical frameworks that best fit each research question** to achieve the highest possible explanatory power. It should be noted that while audience analytics represent one of the four structural premises of digital journalism, this does not necessarily mean that the theories commonly used in digital journalism research are equally suitable for in-depth studies on audience analytics. Therefore, the following chapter will compare theoretical approaches and concepts based on the research questions and thematic areas, evaluating their suitability in addressing the identified blind spots.

4.2 Thematic Area 1: Exploring the Use of Audience Analytics

As previously outlined, the use of audience analytics can be shaped by technological, organizational, and individual influences. A key aspect to consider is that while uniform usage across markets and even within newsrooms is often assumed, this oversimplifies news production reality. Instead, it is more plausible that **different constellations of influencing factors** result in varying

usage patterns. From a market perspective, organizational influences are particularly decisive, whereas within organizations, individual factors can lead to differing levels and contexts of usage. Additionally, the interaction between these influences, combined with technological prerequisites, warrants further examination.

From a broader perspective on journalism as a profession, **field theory and the associated concept of cultural capital** offer a compelling explanatory framework. The conceptualization refers to Bourdieu's field theory. The field of journalism is shaped by two kinds of capital: economic capital and cultural capital. Economic capital in the journalistic field refers to circulation or revenues whereas cultural capital takes prizes, education and skills into account (Benson, 2005). This capital can be accumulated by actors within the field. Those with a higher cultural capital have more power position in the newsroom. Relating to audience ratings in television Bourdieu – long before the advent of audience analytics in online journalism – asserted the growing influence of **economic pressures on the field of journalism** (Benson, 2005; Bourdieu, 1998). The establishment of audience analytics as an industry standard continues this development and internalization into journalistic routines may approximate economic and cultural capital (Ekström et al., 2022). Resulting changes in editorial management and altered priorities can lead to a **redistribution of cultural capital** to those affiliated with audience analytics. This entails conflicts not only between management and journalists but also between journalists (Bunce, 2017). In their desire to accumulate cultural capital, journalists may increasingly turn to audience analytics, effectively becoming facilitators in the maximization of economic capital. Based on the identified influences on usage, different degrees of this shift could be described and evaluated, allowing for an assessment of how the perception and accumulation of cultural capital, and with it the journalistic profession, have changed.

While field theory provides a valuable approach for systematizing influences on the use of audience analytics from a broader societal perspective – particularly in demonstrating changes in capital accumulation and how other fields approach journalism – it appears less suitable for explaining variations in individual usage and its relationship with organizational influences. To address this shortcoming, it seems reasonable to focus on individuals, their beliefs, and their positioning within professional organizations. This approach also accounts for the individual influences on the use of audience analytics, which would otherwise have to be broadly subsumed under

the pursuit of cultural capital in field theory. Therefore, **the Theory of Planned Behavior** serves as a suitable framework for examining which factors influence the use of audience analytics and how they interact. This approach predicts behavioral intentions and the strength of this intention functions as an indicator of how likely a certain behavior, in this case the use of audience analytics is carried out (Ajzen, 1991; Beck & Ajzen, 1991). For intention three basic antecedents are identified: **attitude toward a behavior, subjective norm(s), and perceived behavioral control** (Ajzen, 2005). It, thereby, connects personal considerations with normative components which makes it particularly applicable to journalism. Moreover, it can also depict conflicting influences and their respective strengths in forming behavior, and eventually habit, unveiling potential prioritizations among organizational requirements, role orientation, and attitudes.

Attitude marks a personal influence and involves the evaluation a behavior. Other than attitude, subjective norms is a social influence and deals with the perceived social pressure to perform (or abstain from) a certain behavior. This influence can be subdivided into **injunctive and descriptive norms**. Injunctive norms represent the perception of others' opinion, for instance what journalists think about how management evaluates audience analytics and whether they expect journalists to use them. Descriptive norms represent a more observable component and deal with how the behavior of others is perceived. This could, in the context of this work, be observations of how colleagues in the editorial office use audience analytics in their daily routines (Cialdini, 2003; Rossmann, 2021). **Perceived behavioral control refers to the perceived ease of performing** a certain behavior, and has also been identified as major individual influence in audience analytics use (Tandoc & Ferrucci, 2017). When journalists feel confident and competent in using audience analytics, they are more likely to continue using them. Perceived behavioral control is determined by past experience and anticipated advantages (or disadvantages) (Ajzen, 2005; Beck & Ajzen, 1991). This refers to both habit-forming and a (subconscious) cost-benefit assessment. For instance, journalists could decide not to use audience analytics when they perceive the application as too complicated for the benefit they may cause. By integrating this notion of perceived behavioral control, the Theory of Planned Behavior extends the Theory of Reasoned Action that initially only conceptualized attitudes and subjective norms as drivers for behavioral intentions (Fishbein & Ajzen, 1975).

The Theory of Reasoned Action not only directly incorporates several of the previously identified influences into its conceptualization, potentially providing a high explanatory value, but also allows **for the prioritization of these influences**. This makes it a valuable approach for identifying different usage patterns shaped by prior influences. Furthermore, it enables the separate and combined examination of both individual and normative influences. Within the realm of normative influences, **a key intersection with role orientations** – highly relevant to this work – becomes apparent. As a central component of consumer orientation, the influence of **market orientation** can thus be conveniently integrated into the model – both in descriptive and injunctive norms. Additionally, further factors affecting the key determinants can be integrated into the model. Notably, the determinants can be shaped by personal (personality traits, emotions), social (age, income, education) or informational (experience, knowledge) background factors (Ajzen, 2005; Rossmann, 2021). In summary, the Theory of Reasoned Action provides a suitable framework for systematizing the influences on the use of audience analytics and addressing the blind spots in the diversity of in-newsroom usage. Building on this, **different user types and their interactions can be derived** – allowing for greater complexity while also explaining variations between and within newsrooms through these interactions.

4.3 Thematic Area 2: Audience Analytics' Effects on the Boundaries of the Journalistic Profession

Regarding the influences on the journalistic profession, the primary focus often lies on the **tension – or balancing act – between journalistic norms and standards, and the demands of audience analytics**, which frequently encourage market orientation. In terms of resource allocation, research has shown that increasingly, non-journalistic activities are receiving more attention, sometimes at the expense of core journalistic tasks. This is evident not only in the acquisition of analytics systems but, more importantly, in the hiring of personnel whose primary expertise is not journalism but audience analytics. Beyond the fact that these analytics experts are employed and play a key role in shaping the objectives of audience analytics, little is known about **how they are integrated into newsrooms**, how they interact with journalists, and, most importantly, how power dynamics within the newsroom are affected (Fürst, 2020; Moyo et al., 2019; Slaček Brlek et al., 2017).

To contextualize this phenomenon-driven question, several theoretical concepts come into consideration. Once again, the question operates at the intersection of the micro and meso level. On the one hand, it concerns interpersonal dynamics within newsrooms, affecting both individual journalists and the media organization as a whole. On the other hand, it more broadly touches upon the journalistic profession and its **continuous negotiation of boundaries with other professions**. A possible approach could be the concept of dominant logic. It originates from strategic management and was first coined by Prahalad and Bettis (1986), who define it as the cognitive framework through which managers interpret information and make resource allocation decisions. Over time, **this dominant logic becomes embedded in an organization's structures, routines, and decision-making processes** (Bettis et al., 2012). However, this logic is not simply enforced top down but also contains a feedback loop: Employees' beliefs and actions in turn influence strategic choices and organizational behavior.

In media organizations, dominant logic is shaped by the interplay between journalistic and business-oriented considerations. Key elements influencing dominant logic include the **company's mission, audience relationships, content strategies, and technology adoption** (Majanen, 2015). This makes it a valuable approach since audience analytics may shape a dominant logic that prioritizes market-driven decision-making over traditional journalistic values. On the other hand, journalists could exert pressure on the management via the feedback loop. Moreover, **dominant logic also functions as a filter** that determines which information is deemed relevant for decision-making (Prahalad & Bettis, 1986). In the case of audience analytics, this could point to the relevance of available quantitative data (*e.g.*, clicks, engagement metrics) over harder-to-measure journalistic impact. The concept of dominant logic offers significant advantages in answering the question to what extent audience analytics redefine journalistic autonomy in favor of managerial and technological imperatives. It also considers organizational goals, the role of the audience, and the interaction between management and journalists. However, it falls short in adequately addressing the boundaries of the journalistic profession. While dominant logic can help reveal power dynamics between journalists and management, it **only indirectly accounts for the relationship between journalists and analytics experts**. Journalistic ideals and professional norms are, at best, incorporated within the feedback loop but are not explicitly conceptualized as part of the profession itself.

For this reason, the **boundary work approach** appears more suitable. Unlike dominant logic, it not only conceptualizes the unique characteristics of journalism as a profession but also accounts for newcomers or “intruders” entering the field. While management plays a less central role in this framework, its influence on shaping the profession’s boundaries can still be incorporated as contextual factor. The boundary work concept deals with the question how professionals can differentiate from non-professionals and, thereby, define and control their area of expertise (Gieryn, 1983). It can be defined as “purposeful individual and collective effort to influence the social, symbolic, material and temporal boundaries, demarcations and distinctions affecting groups, occupations and organizations” (Langley et al., 2019, p. 3). The term was first coined by Gieryn (1983) describing scientists’ practice of attributing certain characteristics to science exclusively in order to build a social boundary and thereby distinguish themselves from non-scientists that may also engage in intellectual activities. Boundary work is also applied as **a means to protect and maintain professional autonomy** against external influences *e.g.*, regulators or management (Gieryn, 1999; Lamont & Molnár, 2002). This makes it a valuable approach for analyzing the integration analytics experts into editorial offices and the journalistic profession. However, a key challenge is that while the journalistic profession often follows certain principles, these are neither legally enshrined nor strictly enforced by professional associations. As a result, **access to the profession is not restricted**, making its boundaries less tangible. Journalism is, therefore, seen as an “uninsulated profession” (Schudson, 1978). Moreover, constant technological shifts and economic constraints aggravate the establishment of a stable profession (Carlson, 2015; Ryfe, 2012). Despite these insecurities journalism strives for professionalization by employing role orientations containing, for instance, the commitment to factual information and a watchdog mentality emphasizing its relevance for society (Lewis, 2012; Singer, 2015).

Gieryn’s framework identifies three goals of boundary work: **expansion, expulsion, and protection of autonomy**. *Expansion* refers to including new areas and thereby extending the field’s boundaries. Conversely, *expulsion* tightens journalism’s boundaries by labeling certain activities as non-journalistic to protect one’s position, potentially leading to the rejection of analytics experts by journalists. Protection of autonomy involves resisting external influences, such as advertisers wishing to impact coverage. To deepen understanding of how journalism’s boundaries are shaped by internal and external forces, **the first aspect expansion is nuanced into boundary**

spanning, boundary blurring and boundary breaching (Langley et al., 2019; Lindberg et al., 2017). Boundary spanning involves finding common ground between groups (Bechky, 2003; Evans & Scarbrough, 2014). Blurring occurs when professions intertwine and boundaries become obscured. Breaching refers to demolishing existing boundaries to create new ones (Zietsma & Lawrence, 2010).

To adequately address the research interest posed in this thematic area, it is essential to also consider the perspective of analytics experts, **the newcomers to the field**, in the concept of boundary work, as they exert external influence on the journalistic profession. Within the expansion dimension, **these actors may actively seek to extend the boundaries of journalism** to include their own areas of expertise, blurring or even challenging the profession's established limits in an effort to redefine them. This is particularly relevant in light of market orientation and its potential integration into the professional norms of journalism (Cohen, 2015; Espeland & Stevens, 2008; Ferrucci, 2020; Petre, 2018). In addition, this integration allows to evaluate whether analytics experts establish their own professional boundaries and are themselves driven by distinct role orientations. This approach facilitates the identification of potential points of convergence with the journalistic profession. Journalists may, for example, willingly expand their professional boundaries to incorporate the expectations or practices introduced by analytics experts. However, such interactions cannot be fully understood without considering the contextual conditions under which they occur.

Integrating a strong professional perspective with the perspective of newcomers the boundary work concept offers a promising approach to exploring the relationship between both groups and assessing potential consequences. Furthermore, it provides numerous points of connection to incorporate the previously introduced continuum between citizen and consumer orientation, thereby contributing to the broader discussion on commodification.

4.4 Thematic Area 3: Audience Analytics' Impact on Production and Content

The focus on production broadens the perspective of the two former projects: While individual and professional considerations remain relevant for decision-making, the output and its creation now come into focus as well. This raises the question of **which content is made available to au-**

diences and, consequently, to society. For a theoretical framework, established middle-range theories from communication research are particularly suitable, including **gatekeeping theory and the concept of news values** (Steensen & Westlund, 2021). However, a challenge with these approaches is that they are partly based on outdated assumptions and conditions. Distribution channels and opportunities have evolved, leading to the **loss of journalists' relative monopoly** on selecting and preparing news (Vos, 2015). However, they have been successfully applied and tailored to digital environments. Therefore, modified versions of these approaches must be considered, while also acknowledging that audience analytics themselves have the potential to reshape these theoretical concepts.

News selection shapes perceptions of social reality and has long been dominated by journalists and their judgements (Wallace, 2018). Given that there is more information available than can be actively perceived, gatekeeping approaches the fundamental question why some information is selected to be news while others are not (Shoemaker & Vos, 2009; White, 1950). This does not mean, however, that the decision rests entirely with the individual journalist. **The individual level is just one of five levels of analysis**, primarily considering journalists' demographic characteristics to explain news production. The second level encompasses routines, referring to industry-wide processes and values that guide news production. At the organizational level, the focus shifts to ownership structures and strategic decision-making. The fourth level includes institutional influences – traditionally, this refers to the advertising industry, but in the context of audience analytics, it could also extend to the companies that develop these systems. The fifth and final level of analysis addresses the broader social system and cultural context, including societal expectations of journalism and how news selection should be conducted (Ferrucci & Hopp, 2024; Shoemaker & Reese, 2014; Shoemaker & Vos, 2009; Vos, 2015). The role of the audience in this process remained marginal until the turn of the millennium: Although audience data was available, insights were limited, less frequent and often met with skepticism or even rejected (Gans, 1979; Schultz, 2007). **Journalists rather turned to their peers, their superiors or their gut feeling** when deciding about what information to pick for the news (Schlesinger, 1987). Commonly shared news values informed the production process. These news values did account to some extent for what might interest users, but this was not made explicit, leaving considerable room for

interpretation. Instead, the prevailing belief was that topics of interest to journalists should also be of interest to the audience (Boczkowski & Peer, 2011).

Kepplinger & Ehmig (2006) analytically distinguish between news factors and news values: while news factors describe inherent characteristics of events that influence selection processes, news values refer to how journalists assess the relevance of these characteristics. These news factors are embedded in journalistic routines at both the organizational and professional levels. **They serve to reduce complexity** by directing audience attention toward stories perceived as socially relevant or particularly striking (Eilders, 1999; Shoemaker & Reese, 2014). They typically fall into two dimensions: deviance and social significance (Eilders, 2006). The deviance dimension includes characteristics such as conflict, controversy, and unexpectedness, while the social significance dimension encompasses factors like impact, national involvement, and damage (Shoemaker & Cohen, 2006; Wendelin et al., 2017). The concept is rooted in the psychology of perception and involves **selective attention due to limited cognitive resources** (Galtung & Ruge, 1965). Beyond this psychologically driven distinction, additional news factors such as geographical or cultural proximity can play a role in shaping news selection (Eilders, 1997; Staab, 1990).

The gatekeeping concept, along with associated news factors and its relationship with the audience, is challenged by the technological and economic influences previously discussed: With audience analytics available in real time, the “missing link” (Schlesinger, 1987) between audiences and journalists has been replaced by a **permanent connection** (Wendelin et al., 2017). Additionally, space and outlets are no longer scarce. Therefore, news production loses its unidirectional character transitioning the traditional gatekeeping concept (Vos, 2015). Regarding the identified blind spot, which highlights that while the selection and processing of news are frequently examined, the entire lifecycle of a news item is often overlooked, a modification also seems necessary. To contextualize this concern, two aspects are required: an adaptation to current conditions and an expansion of the original concept toward a more holistic understanding of news production. To meet these requirements, **the post publication gatekeeping concept is employed** (Salonen et al., 2023). It argues that gatekeeping power after publication is shared among journalists, audiences, platforms and regulation. Building on Hermida’s (2020) framework of the four Ps – publics, platforms, practices, and paraphernalia – slightly modified influences on news production after publication are identified: **Audiences** as the first dimension refers to aggregates of audience

groups but also to social system and institutional dimensions. Hence, societal expectations are also incorporated in this dimension. However, this audience is **not necessarily an active one as most users lack the time and skills to engage in active gatekeeping** (Bruns, 2018; Heinderyckx, 2015). Therefore, audience analytics as proxy for collective audience behavior become influential. Platforms as a second dimension represent the content platforms that serve as institutionalized spaces for news. The third dimension involves **practices and integrates journalistic routines with audience usage patterns**. Lastly, regulation such as the European General Data Protection Regulation, is included as influence. This regulatory aspect also encompasses **self-regulatory features like journalistic ethics**, thus addressing organizational and social institutional levels (Shoemaker & Vos, 2009; Vos, 2015). However, these influences do not operate in isolation; they can overlap and interact with each other. In this context, **news topics** are often decisive, as they affect both journalistic practices and the audience dimension, structuring the work of journalists as well as audience engagement. Therefore, the concept is particularly suited to addressing the question of whether, similar to the selection process, audience analytics in the post-publication phase are primarily applied to soft news rather than hard news (Lamot & van Aelst, 2020).

The post-publication gatekeeping framework allows for an analysis that extends beyond the initial selection of content, addressing the role of audience analytics in the lifecycle of a news item. The underlying premise is that **selection alone does not necessarily ensure (long-term) visibility** for a topic. Content may be quickly de-selected, significantly reducing its chances of contributing to public discourse. While this issue primarily pertains to the production perspective, it also carries broader societal implications. Additionally, the post-publication framework incorporates contemporary influences on the gatekeeping process beyond journalistic routines and values, which still play a crucial role. In particular, it accounts for an, albeit aggregated, audience. Through this approach, **the role of audience analytics in shaping gatekeeping decisions can be effectively modeled** (Salonen et al., 2023). Moreover, it provides an opportunity to understand gatekeeping not only in the context of production and processes but also to examine its normative role in managing an overwhelming volume of information and countering fake news (Adams, 2020).

4.5 Thematic Area 4: Establishment of Proprietary Audience Analytics

Audience analytics and the metrics they generate are often taken for granted. While the focus may shift between different types of metrics – such as the transition from audience size measurements to metrics that capture engagement or subscriptions – **the underlying economic rationale remains dominant**. Although adaptation processes occur through harmonization strategies, these typically rely on existing metric sets (Tenor, 2024). From both a normative and professional perspective, this reveals a blind spot, raising the question of whether and how **journalistic and media organization-specific goals can be made measurable** – that is, translated into metrics. While the production perspective is still considered when evaluating the implementation of such metrics, the primary focus lies on the organizational perspective – particularly on Public Service Media (PSM), where **distinguishing journalistic performance from commercial metrics** appears most urgent given their public mandate. Legitimacy as approach to analyze PSM’s attempts to operationalize components of their public service remit seems promising, particularly against the backdrop of changing usage pattern and political parties openly questioning the existence of PSM (Puppis & Ali, 2023; Rodríguez-Castro & Campos Freire, 2023). This places the research question at the **intersection of organizational, professional, and societal perspectives**. To explore the background and motivations for developing organization-specific metrics, legitimacy serves as a suitable theoretical approach, as it is pursued both by media organizations and journalism as an institution within and in relation to society. Evaluating performance solely through commercial standards can undermine legitimacy by failing to assess the actual goals of journalism. To enable a media and PSM-specific evaluation of legitimacy efforts, the **concept of public value** is incorporated. This particularly allows for the consideration of the measurability of value-based and public interest-oriented aspects.

In times of stability the process of gaining legitimacy follows a top-down approach and the social order recursively reproduces itself (Giddens, 1984). However, institutional changes such as the technological and economic developments already depicted can result in competing judgements about organizations like PSM (Bitektine & Haack, 2015). These competing judgements affect their position in society and weaken an organization’s legitimacy. Organizations, especially PSM, depend on legitimacy from its stakeholders if they want to secure their long-term existence

in society (Fehlmann, 2023; Walgenbach & Meyer, 2008). Legitimacy can be defined as “a generalized 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” (Suchman, 1995, p. 574). To make the concept of legitimacy applicable to the present research question and to contextualize it in the realm of PSM, it is further differentiated into **three types: pragmatic, moral and cognitive legitimacy**. Pragmatic legitimacy pertains to an organization’s **ability to achieve desired outcomes** in its immediate environment. For PSM, this encompasses both the direct users of its content and stakeholders involved in governance, such as advisory boards or politicians. The desired outcome can be variable and may include, for instance, both reaching audiences and producing specific types of content. Moral legitimacy, on the other hand, involves a **normative evaluation of an organization and its activities**. Rather than referring to satisfying certain stakeholders, moral legitimacy is based on judgements about commonly shared values or societal welfare (Scott, 1995; Suchman, 1995; Suddaby et al., 2017). For PSM perceptions of their moral legitimacy are essential. It is often bound to the public service remit with core values such as independence and diversity (Rodríguez-Castro & Campos Freire, 2023). Cognitive legitimacy refers to the **perception that an organization is taken for granted** or simply necessary. In this case, evaluations may be positive, negative, or even non-existent, but the organization’s existence is not typically questioned (Suchman, 1995; Suddaby et al., 2017). Notably, citizens differentiate between their individual benefit and benefit for society. Hence, even non-users may see the contribution to society or do not question it and, therefore, take the organization for granted (Scherer, 2011). PSM may profit from this type of legitimacy – however, only in times of stability – due to its long-standing tradition in many countries (Bitektine & Haack, 2015).

Although the mentioned types also consider political stakeholders and potentially legislative bodies, this only indirectly reflects the situation of PSM as a public service organization. To capture PSM’s special role between their audiences, advisory boards, and politics, but above all in relation to their public mandate, Suchman’s typology is extended by including the notion of **regulative legitimacy**. It represents the organization’s alignment with regulations including rule setting, monitoring and sanctions (Scott, 1995; Suddaby et al., 2017). For PSM, navigating within and between the types of legitimacy is often a balancing act: While maximizing audiences (*e.g.*, striving

for more clicks) is often perceived as undesirable, it may also be necessary to ensure the accessibility of content aimed as demanded in the public mandate (Andersson Schwarz, 2016).

Public value and showcasing its creation can be an effective way of achieving legitimacy. However, this applies not only to the obvious regulative and moral types of legitimacy. In the medium term, this can also lead to pragmatic legitimacy – at least among certain stakeholders – and in the long run, demonstrating public value could help establish PSM as a given part of societal perception. Public value can be understood as a **countermodel to approaches of New Public Management**, in which public organizations are aligned with market principles and primarily focus on easily measurable KPIs such as average costs or the number of persons served. However, demand and supply of public services cannot be solely defined by market principles. Their extent and quality are rather publicly negotiated (Karmasin, 2011). As a management approach, public value, therefore, focuses on organizational actions that contribute to public welfare (Gonser & Gundlach, 2022; Moore, 1995). Opportunity costs are a pivotal aspect here, raising the question: **What is society willing to (financially) sacrifice for a public service?** For this reason, public managers not only have to showcase the ability to create valuable outcomes but also demonstrate that these outcomes justify the costs incurred by society (Moore, 1995; Neumüller, 2011).

To be successful, public managers have to **operate within a “strategic triangle” consisting of legitimation, public values and operational capabilities**. Legitimation encompasses the support from an “authoritative environment”, *i.e.*, politicians and their voters. Public values refer to the values that are put into effect by means of concrete actions, displaying both a normative and an operative dimension. However, while public value includes public goods, it must not be reduced to the compensation of market failure. Operational capabilities are the resources needed to accomplish the goals set for a public organization. This includes, for instance, the self-conception of public service employees or the ability to promote innovations (Moore & Khagram, 2004; Neumüller, 2011). Horner et al. (2006) extend this by adding **measurement as a critical component** in creating public value. Measurement is critical to ensure both efficient goal attainment but also legitimacy by verifiably catering to citizen needs.

In the context of PSM, public value was initially introduced by the BBC and became a significant regulatory criterion for the BBC. Regarding the evaluation of its service, BBC adopted

four output-oriented indicators: **Reach, Quality, Impact, and Value for Money**, aiming to address users both as consumers and citizens. These indicators are operationalized to approximate whether public value is created efficiently and effectively (Mazzucato et al., 2020). However, **inappropriate measurement methods can endanger or even undermine public value**. Therefore, PSM's value should not be reduced to measurable impact alone, as not everything meaningful can be precisely measured (Raats, 2023). Moreover, easy-to-measure aspects may be prioritized while difficult-to-measure aspects are neglected despite their societal relevance. For PSM, seeking authorization solely from its users may also not be desirable. Firstly, PSM must maintain independence and self-authority. Secondly, **the audience may not always accurately assess its own needs and interests** (Collins, 2007). Here, connections can be made to the concept of journalistic role orientations, which distinguishes between addressing the audience as citizens or as consumers. In the context of the public value debate, the focus is primarily on citizen orientation. However, relying on audience analytics may incentivize interpreting consumer orientation as compliant with public value (Raats, 2023).

Despite its potentially far-reaching scope, the public value concept is primarily used to evaluate new offerings before their introduction – in both the German and British context (Three-Step-Test and Public Value Test) (Latzl, 2011; Neumüller, 2011). Its application is thus **limited to ex-ante tests** and is not widely used for assessing existing programming, let alone individual pieces of content. This leaves an evaluative gap that is often filled by commercially driven audience analytics. Therefore, these existing measurement systems must be incorporated into the discussion on the measurement of organizational and editorial goals. Since the question of how PSM can make aspects of their public service remit measurable – thereby emancipating themselves from commercial metrics – is both exploratory and inherently normative, legitimacy and its subtypes appear to be a fruitful approach (Murschetz et al., 2024). In particular, the aspect of measurability also ties into the overarching theme of commodification and **limits of quantification**. Combining this with the public value concept highlights current challenges related to economic and political pressures while also providing a way to approach the research question normatively – without relying solely on broadly formulated legal texts regarding the public service mandate.

The theories and concepts outlined in this chapter will be revisited in the respective projects to provide a more detailed contextualization of the research questions and to interpret and assess

the findings. The following section offers a concise overview of how each project contributes to answering the research questions and addressing the blind spots that emerged from the literature review. Following on from that, the methodological approaches of each project will also be explained and discussed.

5 Interim Conclusion and Research Questions

Against the backdrop of an increasing quantification of the journalistic profession and the associated potential influence that measurement exerts on content production, media professionals, and society as a whole, a closer examination of the effects and limitations of quantification in journalism seems appropriate. The growing emphasis on measurement can be seen as a **symptom of advancing commodification and rationalization**, which subordinates journalistic standards to economic principles and potentially undermines them (Cohen, 2015; Espeland & Stevens, 2008). This “calculative rationality” also serves as a justification for decision-making and functions as a control mechanism over journalistic production. This poses the risk of devaluing genuinely journalistic experience and fosters a form of “mechanical objectivity”, which, however, is often only pretended – since any quantification inherently involves selection and only represents a narrow part of reality (Dreyfus & Dreyfus, 2005; Petre, 2018).

Moreover, journalistic goals – let alone their societal impact – are often difficult to operationalize and are hardly assessable by individuals (Serong, 2011). At the same time, empirical findings demonstrate that rationalized rules in newsrooms are frequently circumvented, with professional logics and intuitive decision-making determining a large part of workflows. Journalism is therefore often considered a prime example of **the limits of a rationalized work culture** (Meyer & Rowan, 1977; Ryan, 1992). This raises the overarching question of the extent to which journalism and its products are subject to commodification through measurability and quantification, how the profession navigates these developments, and what solutions might emerge from organizational, professional, and societal perspectives.

These developments are driven by digitalization-induced economic changes that render traditional media business models obsolete, thereby also **challenging the relationship between journalism and media organizations**. Established arrangements – where journalism provides media organizations with journalistic content, while media organizations, in return, ensure its financing and distribution – no longer function without limitations (Altmeppen et al., 2023; Kiefer, 2011). Increasing competition in the advertising market, leading to declining ad revenues, a low to non-existent willingness to pay for digital journalistic content, and the loss of distribution control – accompanied by growing dependency on globally operating content platforms that regard jour-

nalism as equivalent to other types of content as long as it generates attention – have further contributed to this shift (Ekström et al., 2022; O'Brien, Wellbrock, & Buschow, 2020; von Rimscha & Riemann, 2024). Moreover, media consumption patterns are changing: Journalistic content can no longer rely on exclusive audience attention but is often consumed incidentally or even randomly. These drastic transformations have led to an increased focus on users and their (perceived) needs, with technological advancements – such as the rise of audience analytics – enabling **real-time observation of audience behavior** for the first time (Steensen & Westlund, 2021).

The increased integration of the audience supports a stronger market orientation. This shift is also reflected in journalistic role orientations: Audience analytics are perceived as a useful tool for addressing the **audience as consumers rather than as citizens** (Hanusch & Tandoc, 2017; Zamith et al., 2020). Despite numerous insights into the use and effects of audience analytics, critical blind spots remain – yet these are essential for assessing commodification tendencies. To investigate these gaps, **four thematic areas** are conceptualized: (1) the use of audience analytics and its driving factors; (2) the effects of audience analytics on the journalistic profession and its boundaries; (3) their impact on news production processes and content; and (4) the development of proprietary performance measurement solutions based on professional values. **Within these thematic areas five guiding research questions are derived, each structuring an individual project.**

Within the **first thematic area**, it remains unclear how the use of audience analytics differs both between and within newsrooms (Bunce, 2017; Duffy et al., 2018; Nelson & Tandoc, 2018). A comprehensive overview of the various influencing factors identified in previous studies is lacking. This leads to the overarching question of the first project:

RQ 1: What technological, organizational, and individual factors influence the use of audience analytics?

Using the **Theory of Planned Behavior** (Ajzen, 1991), this study focuses on individual journalists to draw conclusions about the impact of different influencing factors. Since the interplay of these factors can vary depending on organizational context, the following question arises:

RQ 1.1: How do different combinations and intensities of influencing factors affect the use of audience analytics?

To account for the existence of different usage patterns and allow for more complexity, the study also examines how these patterns interact within newsrooms:

RQ 1.2: How do different usage types interact with each other, and what implications does this have for newsroom dynamics and media management?

Building on the issue of an often overly simplistic representation of audience analytics usage, it is also evident that this applies to individual metrics. The term audience analytics merely refers to the systems themselves, yet these systems can encompass a variety of metrics with distinct and sometimes diverging objectives (Cherubini & Nielsen, 2016). Instead of assuming a generalized use, it seems promising to examine **the use of individual metrics and relate them to journalistic role orientations** (Hanitzsch & Vos, 2017b). This approach could also help refine existing findings on the use of audience analytics (Belair-Gagnon et al., 2020; Hanusch & Tandoc, 2017). Thus, the second guiding research question is:

RQ 2: How does the use of individual metrics relate to journalists' role orientations?

In order to not only differentiate the concept of audience analytics through the lens of various metrics, but also to develop a more nuanced understanding of usage beyond frequency and application fields, it is also of interest to examine **the extent to which this use is reflective** and whether it is accepted by journalists (Fürst, 2020). Furthermore, the sub-project seeks to explore how these modes of use relate to journalistic role orientations.

RQ 2.1: How are reflection and voluntariness of audience analytics related to journalistic role orientations?

The second thematic area examines the impact of audience analytics on the journalistic profession and its boundaries. While existing research has explored how audience analytics companies interact with the journalistic profession and noted the shift of resources toward analytics specialists within newsrooms, it remains unclear **how this emerging group interacts with existing editorial staff** and what influence they have on the boundaries of journalism (Belair-Gagnon & Holton, 2018; Petre, 2018; Slaček Brlek et al., 2017). Therefore, the third guiding research question is posed:

RQ 3: *How does the emergence of analytics expert roles impact patterns of boundary work within journalism?*

In this context, it is also important to consider whether analytics experts establish **distinct role orientations** or align themselves with existing journalistic role perceptions (Carlson & Lewis, 2015). Furthermore, their influence on the news production process must be examined.

RQ 3.1: *How does the relationship between journalists and analytics experts manifest, and what are its impacts on journalistic practices and role orientations?*

Building on these insights into internal newsroom dynamics, **the third thematic area** further explores the influence of audience analytics on news content. While existing research on news selection has provided valuable insights, it needs to be expanded to provide a more comprehensive **perspective on the entire news lifecycle** (Lamot & van Aelst, 2020). A key aspect here is that while selection often involves trade-off and audience analytics are primarily applied to soft news, it remains unclear how these dynamics unfold throughout the later stages of a news item's lifecycle. For the democratic impact of news, selection alone is not the only relevant factor, whether a story has the opportunity to be widely received also matters. Using the post-publication gatekeeping framework, the fourth guiding research question is examined (Salonen et al., 2023; Vos, 2015):

RQ 4: *To what extent do audience analytics influence post-publication gatekeeping processes?*

Given that **topics serve as a structuring** element both for journalists and for the audience, their role in this process is also analyzed (Lamot & van Aelst, 2020; Tandoc, 2014a).

RQ 4.1: *What role does the topic play in the influence of audience analytics on post-publication gatekeeping processes?*

To further refine the conceptualization of audience analytics, this study also investigates the influence of individual metrics and aims to identify **distinct post-publication gatekeeping patterns**:

RQ 4.2: *How are deselection decisions made, and what role do individual metrics play in this process?*

Based on the insights gained, **the fourth thematic area** demonstrates potential solutions to how media organizations can (better) handle quantification and make their own goals measurable,

thereby reducing dependency on commercially driven audience analytics. In this context, PSM serves as a case study, given that ongoing legitimacy challenges require an evaluation framework that does not rely solely on commercial metrics (Fehlmann, 2023; Puppis & Ali, 2023; Raats, 2023). The primary focus is on understanding **how and under what circumstances an organization-specific set of metrics can be developed**. The fifth guiding research question is, therefore:

RQ 5: How do public service media translate their organizational objectives into measurable indicators?

Building on this, the **relationship between these newly developed indicators and traditional audience metrics** is analyzed, as well as their **integration into editorial workflows**.

RQ 5.1: How do newly developed indicators relate to established audience metrics?

RQ 5.2: How are proprietary metrics implemented at the editorial level?

To ensure the broader applicability of these insights beyond the PSM context, their transferability to other media organizations is discussed within the framework of public value (Moore, 1995; Neumüller, 2011). The methodological approaches to address the issues raised will be discussed in the following subchapter, while the exact implementation and presentation of the respective operationalizations and instruments will be provided in the individual project chapters.

6 Research Design

As with the theoretical approaches, no universal methodological approach can be applied due to the diversity of research questions and their respective objectives. Instead, it is advisable to use a **variety of methodological approaches**, each tailored to the specific research questions. Moreover, even within a single research question, it may be beneficial to apply methodological combinations to address it from different perspectives.

Mixed-methods approaches are generally desirable but require significant integration efforts, as qualitative and quantitative methods follow different paradigms. Social science, in principle, aims to explore social phenomena and elements of observable experiential reality. It is therefore (largely) an empirical discipline, with knowledge derived from the collection and analysis of empirical data – information rooted **in experiential reality** (Döring, 2023). This knowledge gain is not an end in itself but is intended to contribute to problem-solving and is often used as a **basis for legitimization and decision-making**. Empirical data are not collected arbitrarily but obtained and documented using established methods.

6.1 Quantitative Approaches

Quantitative and qualitative research approaches can be distinguished, each following different paradigms. These paradigms encompass assumptions about the nature of social science – how reality is perceived – as well as the ways in which it can be understood, such as whether a highly structured or more open approach should be used to capture it: Quantitative research relies on standardized data collection methods, such as surveys, and is strongly influenced by natural sciences. The **data collected are usually numerical and analyzed statistically** to generate insights about the subject of investigation. This paradigm is based on Critical Rationalism (Popper, 1934/1989). Knowledge is gained by formulating theories and testing them through hypotheses. To achieve this, **experiential reality is broken down into individual attributes**, which are then translated into (measurable) variables that can take on different values (Häder, 2019). The relationships between these variables are examined using hypotheses and large samples. In simple terms, a few selected characteristics are represented by numerical data and tested across many cases (Brosius et al., 2016; Döring, 2023). The key advantages of this approach lie in measuring

relationships and handling large datasets, which can facilitate **representativeness and generalizability**. However, its main weakness is this very reduction of complex realities to a few measurable attributes. This process of translation can lead to the loss of context and deeper interconnections (Patton, 2015)

6.2 Qualitative Approaches

Proponents of the qualitative research paradigm criticize the idea that an objectively observable experiential reality can be broken down into variables. Instead, they **assume the coexistence of multiple social realities**, which cannot be reduced to isolated elements but must be understood holistically and contextually from the perspective of individual actors. This approach follows a social constructivist perspective and places greater emphasis on the researcher's role and background. As a result, its origins are rooted in the humanities. The research process and data collection are less standardized than in quantitative research, for example, in field observations, and do not aim to produce numerical data. Accordingly, analysis is not statistical but interpretative and often involves multiple stages. Data collection focuses on a small number of cases, **seeking to describe and explain phenomena in their complexity**. The objective is not merely to test hypotheses but to develop theories and new hypotheses. The strengths of qualitative research lie in its depth, openness, and ability to capture complexity. However, its limitations include a restricted ability to generalize findings due to small sample sizes, as well as a research process that can be less transparent and harder to replicate (Brosius et al., 2016; Döring, 2023; Patton, 2015). Although many social science disciplines have engaged in so-called **paradigm wars** due to differing epistemological assumptions – often highlighting the respective weaknesses of each approach – this debate has been less pronounced in communication science, a relatively young discipline (Luger, 1984; Meyen et al., 2011, 2019).

6.3 Mixed-Methods Approaches

A less dogmatic stance, however, acknowledges the strengths of both approaches and recognizes the **potential of their combination** to enhance both knowledge gain and research quality. Qualitative research can provide systematization and typologies, while quantitative research can validate these findings based on larger sample sizes (Mayring, 2001). Mixed-methods approaches,

therefore, integrate and combine both paradigms (Kuckartz, 2014). Although sometimes deemed unnecessary, philosophical pragmatism can serve as an epistemological foundation for mixed-methods research. In this view, knowledge generation is neither strictly deductive – driven by theoretical preconceptions, nor purely inductive – relying solely on perceptions of reality. Instead, a pragmatic approach prioritizes the usefulness and applicability of research methods (Cornish & Gillespie, 2009; Döring, 2023). However, this does not imply that research methods can be arbitrarily combined; rather, it suggests that the previously outlined limitations of each approach are not insurmountable. Moreover, mixed-methods research has a coordinating function between different perspectives, aiming to highlight their differences and reveal potential weaknesses, which can then be addressed through alternative perspectives (Schoonenboom, 2023). Triangulation, often used synonymously with mixed methods, is classified by Lüdemann and Otto (2019) as belonging to the qualitative spectrum – that is, the combination of multiple qualitative approaches. Despite this distinction, both strategies share the same goal of **incorporating multiple viewpoints**. For instance, interview data may be supplemented with an analysis of an organization’s publications to contextualize and interpret the interview findings (Flick, 2004).

6.4 Application to the Thematic Areas and Research Questions

To leverage the advantages of a mixed-methods approach, this work adopts such a strategy. Since most research questions focus on the **meaning-making realities of individual journalists, media managers, and analytics experts**, qualitative methods, particularly qualitative interviews, are primarily employed. These interviews, along with collected documents, undergo qualitative analysis. A key aspect of this approach is its openness, which aligns with the **exploratory nature** of many research questions. The goal is to structure and systematize the qualitative data to identify overarching patterns. However, to make more specific claims about relationships, quantitative methods complement the qualitative approach. Here, the focus is less on the entirety of influencing factors and their interplay and more on demonstrating the impact of individual factors- For instance, interviews can be combined with experiments or quantitative surveys, the latter reveal statistical correlations, while the former provide insights into the underlying reasons and motivations behind these relationships. This interplay can uncover weaknesses in the research design while

also **offering deeper explanations for the studied phenomena**. For example, experimental designs can isolate the influence of audience analytics on news production decisions, mitigating issues such as social desirability bias that may arise in interviews. Conversely, experimental settings may appear artificial and diverge significantly from actual behavior under real-world conditions. This is where interviews come into play, as respondents can describe concrete situations in which specific behavioral patterns occur in connection with audience analytics.

6.4.1 Analytics Use: Literature Review and Survey

In the first thematic area, this very disclosure of potential research questions and the combination of methodological approaches prove to be particularly valuable. To begin with, the primary focus here is on the factors influencing the use of audience analytics. This is not an entirely exploratory research field, as previous individual studies have already provided insights. However, a comprehensive perspective on these influencing factors, along with a **more differentiated understanding of the concept of usage itself**, is still lacking. Hence, a **systematic literature review** serves as an appropriate first step to gain an overview, compile various influencing factors, and structure them based on the Theory of Planned Behavior. Over the past decades, systematic literature reviews have become an established approach in both communication and management research (Kraus et al., 2020). They facilitate the **condensation and synthesis of large volumes of information** within a thematic field, thereby identifying research gaps and weaknesses in existing literature while also contributing to theory development (Sauer & Seuring, 2023). Additionally, they can be employed to address specific research questions. Systematic reviews can follow either a quantitative or qualitative orientation, or they may integrate studies from both traditions (Wetterich & Plänitz, 2021).

This approach has been chosen for the present project because restricting the study to a single methodological framework would significantly limit its potential for generating insights. Moreover, given the project's inherent mixed-methods orientation, such a restriction would not be appropriate. A systematic approach is essential for several reasons: **to prevent arbitrary study selection, to assess the quality of the included studies, and to ensure maximum transparency and replicability**. To achieve this, six steps are necessary. First, the research question must be

clearly defined to ensure that a systematic literature review is an appropriate method for addressing it. In the case of *RQ 1: What technological, organizational, and individual factors influence the use of audience analytics?*, a structured review is particularly suitable. Second, relevant criteria must be defined, specifying the disciplinary and thematic scope. Third, both the data sources and search terms need to be established. Fourth, a selection process follows, ensuring that only studies meeting the predefined criteria are included. In the fifth step, the synthesis of findings takes place, involving the extraction and compilation of relevant information while maintaining quality control. Finally, the results must be presented in a structured manner, rather than simply listing the insights found (Paul et al., 2021; Sauer & Seuring, 2023). To avoid treating influencing factors as isolated elements, *RQ 1.1* will examine **different combinations and intensities of these factors**. The insights gained from both research questions will be used to develop a **conceptual typology** of audience analytics users in newsrooms and their interactions. To enable this, the factors identified in the systematic literature review will be varied in an ideal-typical manner, forming plausible combinations. The goal is not to create an exact representation of newsroom practices. This would not be feasible based solely on a literature review. Instead, the study aims to facilitate future research and provide practically relevant recommendations.

The second sub-project within this thematic field of audience analytics usage loosely builds on the previous approach and delves deeper into a specific influence – namely, the **relationship between role orientation and the use of specific metrics**. This serves two purposes: first, to further examine the role orientation factor, which is highly relevant to the overall project, and second, to help break down the often overly broad concept of audience analytics into distinct metrics (Cherubini & Nielsen, 2016). The focus on a single key influence, along with the aim of identifying relationships, suggests a quantitative approach. Another advantage lies in the fact that this sub-study is less exploratory in nature: The influence of role orientation on the use of audience analytics is already well-documented (Belair-Gagnon et al., 2020; Hanusch & Tandoc, 2017), and its operationalization is largely established (Hanitzsch, 2011). Moreover, the use of individual metrics can be relatively easily assessed. While there is still a risk of socially desirable response behavior, this can be mitigated by structuring the survey in a way that first asks about analytics usage before addressing role orientation.

A standardized survey allows for capturing subjective experiences and past behaviors on a large scale. Both open and closed question formats can be incorporated, enabling the collection of data at different levels. In this case, the survey represents a suitable approach for reaching journalists nationwide, allowing for conclusions that extend beyond individual case studies – though the sample remains limited by self-selection (Brosius et al., 2016; Döring, 2023). Given the non-experimental nature of the study, it is only possible to determine whether and to what extent the use of specific metrics is associated with role orientations, rather than to establish a causal relationship. However, since **reciprocal influences** at the levels of audience analytics usage and market orientation have already been suggested (Ferrucci, 2020; Tandoc & Ferrucci, 2017), it is likely that usage and role orientation interact in a mutually influential way, **making a strictly causal conceptualization less appropriate**. Ultimately, based on the conceptual typology developed in the first sub-project, the study will also assess how different types of journalists use specific metrics, thereby contextualizing the findings within the overarching research question.

6.4.2 Relationship Between Analytics Experts and Journalists: Semi-Structured Expert Interviews

The second thematic field focuses on the emerging group of analytics experts in newsrooms. While their presence and areas of responsibility have been partially studied, less is known about how they are integrated into newsrooms, how they interact with journalists, and, most importantly, how they influence the profession. **This calls for an exploratory approach** (Belair-Gagnon & Holton, 2018; Fürst, 2020; Petre, 2018; Slaček Brlek et al., 2017). Both journalists and analytics experts possess exclusive knowledge and insights, making **semi-structured expert interviews** the chosen method of data collection (Kaiser, 2021). The interview guide structures the conversation without strictly predetermining it and can be seen as a translation of the research questions and theoretical framework into the lived experiences of the interviewees. A direct reference to the concept of boundary work is inappropriate for several reasons: First, it is highly unlikely that the respondents are familiar with the concept; second, framing the questions explicitly around this concept would limit their responses and contradict the principle of openness. By being only partially structured, the interview guide allows for flexibility, enabling the conversation to adapt dynamically and remain open to unexpected insights (Helfferich, 2022).

Expert interviews serve to reconstruct social processes (Gläser & Laudel, 2009) and are, therefore, an appropriate method for examining the relationship between the two groups. Key quality criteria include a theory-driven approach, maximum transparency to ensure intersubjective traceability, and openness (Kaiser, 2021). The goal of the analysis is not merely to summarize interview statements but rather to **reveal overarching structures and behavioral patterns** as well as to identify influencing factors (Meyen et al., 2019). The analysis follows an initial content structuring phase, which is then followed by a typology development process, identifying distinct characteristics and classifying them based both on pre-defined coded categories and those emerging from the data. Ideally, this process is iterative: first, the interviews are reviewed and primary categories are coded, after which new main and subcategories that emerge from the material are continuously integrated. In a final coding round, all categories are considered together. Summarizing each category allows for **identifying patterns** and relating them across different categories (Mayring, 2019). This ensures that potential differences in the relationship between journalists and analytics experts become visible and that their impact on content production is systematically examined. The analysis is conducted using MaxQDA software, which facilitates easier access to relevant text segments when presenting the results.

6.4.3 Impact on News Production: Experimental Setting and Expert Interviews

The third thematic area explores how these insights into the use and significance of audience analytics in newsrooms translate into production decisions. This builds on existing research, which has primarily focused on selection and placement. The aim is to expand this perspective by considering the entire lifecycle of a news item and the role of audience analytics within it. A key gap in the literature is the **lack of quantitative research**, as most findings are based on interviews and observational studies. While these provide nuanced insights into how audience analytics is used, they are less effective in assessing the extent of its influence (Lamot & van Aelst, 2020; Tandoc, 2014a; Welbers et al., 2016). An experimental approach is particularly suitable for addressing this gap, as it allows for **controlled variation of audience analytics performance levels** while systematically combining it with different topics. However, an experiment is not a method of data collection but rather a research design used to test causal assumptions. This design relies on group comparisons, examining the influence of one or more independent variables – for example, the level of audience analytics performance – on a dependent variable, such as the removal of an article

from the homepage. It is crucial that only the independent variables are manipulated while all other factors remain constant. This ensures that any changes in the dependent variable can be attributed solely to the manipulation of the independent variable (Brosius et al., 2016). Manipulation in this context refers to a **systematic and active alteration of the independent variable(s)**, which is introduced via a stimulus.

Depending on the characteristics of the independent variables, different factor levels emerge – for instance, below-average, above-average, and average audience analytics performance. When combined with another independent variable that also has numerous factor levels, all possible combinations must be represented in the experimental groups. Otherwise, the individual effects of each factor would be indistinguishable (Döring, 2023). The relationships between independent and dependent variables can be positive – where deviations from the mean move in the same direction – or negative, where deviations occur in opposite directions. Additionally, the strength of the influence can be determined (Koch et al., 2019).

Controlled conditions apply not only to the research design itself but also to the participants, which is why their **assignment to groups must be random**. In this study, a between-subjects design will be used, where multiple groups and a single measurement point are typical. Repeated measurement of the dependent variable is less feasible in this context, as it could reveal the research objective and might lead participants to respond in a socially desirable manner. The quality criteria for measurement, as in quantitative surveys, include validity, whether the measurement accurately reflects the theoretical construct – and reliability, whether the measurement process functions consistently and produces the same results when applied multiple times. Controlling for potential confounding variables enhances the **internal validity** of the study, ensuring that only the manipulated variable(s) exert an influence. **External validity**, on the other hand, refers to the generalizability of the findings to real-world settings. While the manipulation may be successful, participants might perceive it as artificial, limiting its applicability to their professional environment. High internal validity often comes at the expense of lower external validity, necessitating a trade-off (Brosius et al., 2016; Döring, 2023; Koch et al., 2019).

To better contextualize the experimental results and expand them with a broader analytical framework, they will be combined with a more in-depth analysis of interviews with journalists. To address *RQ 4.2 How are deselection decisions made, and what role do individual metrics play in this*

process?, the interviews focused on news production in general. The analysis was conducted based on theoretically grounded categories, primarily derived from the post-publication gatekeeping concept and previous research. Additionally, categories emerging from the material were taken into account. However, it is important to note that **categories do not simply “emerge” from the data but rather result from an active decision by the researcher** (Braun & Clarke, 2006). Consequently, these categories were interpreted in light of the experimental study’s findings while also ensuring that contradicting findings were not excluded. However, the primary focus was not on identifying types as in the second thematic area but rather on uncovering patterns in the use of audience analytics for deselection decisions, as well as potential situational influences. This shall deepen the knowledge on the circumstances of analytics use and expand the explanatory power of the experiment.

6.4.4 Proprietary Metric Systems: Case Study Approach

The fourth thematic area differs from the previous ones in that it not only aims to assess the current state of proprietary metric system implementation but also provides an **outlook on possible solutions** for handling audience analytics within media organizations. While calls for journalism-specific metrics have existed for some time, and commonly used metrics are often adapted to organizational needs in their combination and application (Cherubini & Nielsen, 2016; Petre, 2020), there is still a lack of insights into the creation and implementation of new, organization-specific metrics. This makes the approach inherently exploratory. As a result, the project cannot draw on a large set of cases. Instead, a case study approach best fits the prerequisites of the research interest. Case studies allow for **an in-depth examination of the characteristics and functions of a single case** but do not represent a data collection method in themselves. Rather, they typically integrate various data collection techniques within the framework of a specific case. These cases may involve individuals or, as in this project, organizations (Döring, 2023; von Rimscha & Sommer, 2016; Yin, 2018). However, this level of detail also necessitates accepting certain limitations from the outset and proceeding selectively.

As with qualitative methods in general, there is no uniform definition or standardized approach to case studies. Even the objectives of a case study can vary – some focus purely on in-

depth analysis, while others aim for transferability to other cases. In this project, while acknowledging that PSM operate under specific financial and regulatory constraints, an effort is made to discuss and, with due consideration of limitations, **explore the potential for transferability**, as well as to derive broader implications for the industry and profession. The central research question guiding this project is: *How do public service media translate their organizational objectives into measurable indicators?* This investigation is thus confined to PSM and, within that, to a single organization, the *ZDF*. As a result, any broader applicability of the findings must be carefully considered in light of contextual factors. Nevertheless, this approach is appropriate here, as a quantitative field study would not be feasible, and much of the **relevant information exists solely within the organization**. The project therefore relies heavily on statements from organizational members, making it essential to first establish trust. *ZDF* was selected as a case because, at the time of data collection, a corresponding instrument was in development and its implementation was in a testing phase. This presented a valuable opportunity to interview respondents while they were still under the impression of the ongoing project, **leaving less space for post-hoc-rationalization**. The case was therefore considered to have revelatory potential (Yin, 2009). The interviews were complemented by non-reactive materials, including publicly available documents, such as official communications regarding the instrument, as well as documents provided by respondents, such as internal presentations. This approach aimed to **enable triangulation within the case**, helping to balance and mitigate the weaknesses of the individual data sources.

Both data types were analyzed qualitatively using categories derived from the public value concept and legitimacy types. However, in line with the previous methodological approach, inductive categories were also considered (Braun & Clarke, 2006; Mayring, 2019). While single-case studies often yield predominantly descriptive results, this limitation is accepted in light of the novelty of the topic and the nature of the research question. However, the study goes beyond mere description by **identifying patterns in behavior**, such as how organizational values are translated into metrics – and potential explanations for these behaviors, including normative motives, organizational requirements, or simply technical constraints (von Rimscha & Sommer, 2016; Yin, 2009). This is particularly relevant for the sub-questions concerning the relationship between new and existing metrics and the potential implementation of the instrument. Furthermore, an evalu-

ation will be conducted to assess the instrument's alignment with the organization's core principles. Beyond the immediate case, the study potentially carries broader implications for the fundamental challenge posed by the commodification-driven quantification of journalism as a societal domain. It highlights both the limitations of such quantification and possible pathways toward a **more sustainable approach to performance evaluation.**

The previous sections have laid the foundation for the five projects that address the research questions. First, the overarching issue was outlined, followed by a fundamental introduction to the characteristics and contextual conditions of digital journalism. The dominance of market orientation in digital journalism underscores the relevance of audience analytics, which were defined, and the state of empirical research on their use and impact was reviewed. Subsequently, various theoretical approaches were discussed to situate the research questions and the overall research interest. Finally, appropriate methodological approaches for investigating these questions were presented and tailored to the respective problem areas. In the following, the five projects will be presented, along with their contribution to answering the individual research questions and the overarching research question of this work.

7 Getting Used to It? Developing a Conceptual Typology of Audience Analytics Use Drawing from a Literature Review

This project builds on the Theory of Planned Behavior and journalistic role orientations to explore the multiple influences on the use of audience analytics while acknowledging their complex interplay (Ajzen, 1991; Hanusch & Tandoc, 2017). Drawing from a comprehensive literature review, it identifies **individual and organizational factors as dominant influences** shaping analytics adoption in newsrooms. Based on these insights, a conceptual typology of audience analytics users is inferred. Each type is characterized by specific traits, providing a nuanced understanding of their relationships and roles within newsroom structures. This project pursues two main objectives: First, it aims to provide a holistic view of the various influences and **discuss their combined effects**. Second, it seeks to **refine the frequently simplified view** on audience analytics by accounting for internal newsroom dynamics. In doing so, it not only contributes to understanding diverse approaches to audience analytics adoption but also holds potential to inform media management decisions.

7.1 Problem Statement and Contextualization

Audience analytics are an integral part of journalists' work establishing a superior standard of news provision (Ekström et al., 2022; Tandoc, 2019) and are considered a priority among publishers (Newman, 2016). Analytics companies, in turn, design tools with deference to journalistic standards, aiming to create habit-forming user experiences to increase use (Petre, 2018). These developments represent **a new turn in journalism** often involving a reallocation of resources toward technology and innovations, sometimes at the expense of traditional journalistic tasks (Coster Meijer, 2020). From an organizational perspective, the integration of audience analytics offers a means to quantify performance. Moreover, they can be employed for motivational and disciplinary purposes, altering the dynamics of newsroom management (Bunce, 2017; Cherubini & Nielsen, 2016; Moyo et al., 2019).

Hence, some scholars argue that the use of audience analytics risks **compromising the journalistic purpose** by catering solely to audience preferences, potentially neglecting essential information from a democratic standpoint: Editors striving for the broadest audience may gravitate toward the lowest common denominator, emphasizing soft news (Ferrucci, 2020; Fürst, 2018;

Groot Kormelink & Costera Meijer, 2018; MacGregor, 2007; Nguyen, 2013; Tandoc & Thomas, 2015; Zamith, 2018). Subsequently, this may lead to a potential **decline in the quality** of news content (Fürst, 2020). Conversely, others perceive audience analytics as an enhancement and an opportunity to inform decisions with data while advocating for a nuanced approach emphasizing the **absence of one universal metric** for all purposes (Cherubini & Nielsen, 2016). Regarding the application in editorial routines, it is suggested that audience analytics are frequently employed without sufficient reflection, such as assuming that clicks directly indicate audience interest while neglecting the limitations of quantified analytics (Fürst, 2018; Petre, 2021).

7.2 Blind Spots and Research Questions

In connection with the (negative) consequences of audience analytics, usage is often assumed to be homogeneous, if not unrestricted. However, this assumption is problematic, as various influencing factors suggest a more **heterogeneous adoption**. While news organizations may strongly encourage the use of audience analytics for content modification and idea generation, actual utilization is expected to vary among journalists. Given the significance of journalistic autonomy and the diverse attitudes toward technology within newsrooms, the integration of analytics is unlikely to be uniform (Duffy et al., 2018; Nelson & Tandoc, 2018). Nevertheless, the nuanced **dynamics between individual approaches** to analytics within the newsroom remain relatively unexplored.

Existing research on audience analytics also underscores this issue and calls for a more in-depth examination. Nelson and Tandoc (2018) note that the adoption of audience analytics is less universal than often assumed, as many journalists struggle to allocate time for engaging with analytics. Lamot et al. (2021) reveal that while a significant proportion of journalists is exposed to audience analytics, half of them never interact with these tools directly. Coddington et al. (2021) argue that constructing audiences involves multiple approaches beyond audience data alone. Scholars further highlight a **nuanced continuum of responses to audience analytics**, ranging from immediate responsiveness to outright disregard (Anderson, 2011; Belair-Gagnon et al., 2020). Bunce (2017) emphasizes the importance of recognizing differences among journalists rather than treating them as a homogeneous group, while Steensen and Westlund (2021) point out that little is known about how individual journalists are affected by metrics. To effectively capture

these diverse usage patterns, it is essential to consider the varying editorial roles and journalistic types within newsrooms (Ferrer-Conill & Tandoc, 2018; Hanusch, 2016).

To address these shortcomings and develop a more differentiated understanding of audience analytics usage, it is first necessary to systematically categorize the influencing factors. Based on their combination and weighting, a **conceptual typology** will then be derived, taking into account the interactions between different types of users. To achieve this, one overarching research question and two sub-questions are formulated:

RQ 1: What technological, organizational, and individual factors influence the use of audience analytics?

RQ 1.1: How do different combinations and intensities of influencing factors affect the use of audience analytics?

RQ 1.2: How do different usage types interact with each other, and what implications does this have for newsroom dynamics and media management?

These questions aim at understanding the utilization of audience analytics by offering a differentiated perspective on internal organizational variations and dynamics. Examining how journalists navigate audience analytics and adapt to new tasks associated with them is crucial, as it directly impacts their journalistic work and the resulting media products. Additionally, this issue is relevant for media management, as variations in analytics use can lead to conflicts within the newsroom, potentially resulting in an inefficient and exhausting implementation process. Recognizing diverse perspectives within the newsroom, media managers can make more **informed decisions about resource allocation** and foster a more reflective and strategic use of audience analytics. Moreover, the project contributes to the broader academic discourse on performance evaluation in journalism and its conditions as well as limitations.

7.3 Applying the Theory of Planned Behavior and Journalistic Role Orientations

To comprehensively address the diverse applications of audience analytics in journalism and systematize its antecedents, this project builds on the Theory of Planned Behavior. Within this framework the aspect of subjective norms is emphasized and integrated with journalistic role orientations, thereby providing a tailored application of the approach to the realm of journalism.

As outlined in the theoretical discussion, the Theory of Planned Behavior predicts behavioral intentions by assessing the strength of intention as an indicator of the likelihood that a specific behavior – in this case, audience analytics use – will be performed (Ajzen, 1991). Intention is considered an antecedent of behavior and is in turn shaped by three fundamental determinants: **attitude toward a behavior, subjective norm(s), and perceived behavioral control** (Ajzen, 2005).

Attitude as an individual influence involves the personal evaluation of a behavior, for instance if audience analytics are in accordance with own values.

Subjective norm, a social influence, deals with the perceived social pressure to perform (or abstain from) a certain behavior, distinguishing between **injunctive norms** (perceptions of others' opinions) and **descriptive norms** (perceptions of actual behavior by others) (Cialdini, 2003; Rossmann, 2021). Injunctive norms also apply to journalistic values as prescribed rules of the profession. Deviant behavior may be connected to (social) sanctions (Tandoc & Ferrucci, 2017).

Perceived behavioral control concerns the perceived ease of performing a certain behavior, influenced by past experience and anticipated advantages (or disadvantages) (Ajzen, 2005; Beck & Ajzen, 1991).

However, these determinants do not always align with one another or contribute equally to behavioral intention. When they diverge, the behavioral intention depends on how individuals prioritize them – some journalists, for example, may give more weight to subjective norms than to personal attitudes (Ajzen & Fishbein, 1980; Rossmann, 2021). This is particularly relevant in the context of audience analytics use, as it highlights potential conflicts between organizational expectations, journalistic role orientations, and individual attitudes. Beyond potential discrepancies in weighting, other factors can also influence the impact of each determinant: the determinants themselves can, in turn, be shaped by personal (*e.g.*, personality traits, emotions), social (*e.g.*,

age, income, education), or informational (*e.g.*, experience, knowledge) background factors (Ajzen, 2005; Rossmann, 2021).

In applying the framework to the context of audience analytics use in journalism, Tandoc & Ferrucci (2017) demonstrate that attitude, injunctive norms and perceived behavioral control positively influence the intention to use audience feedback, in turn predicting the intention to use audience analytics. Notably, descriptive norms, operationalized as the perception of how widespread the incorporation of audience feedback is, did not have a significant impact on the intention to use it. While Tandoc and Ferrucci (2017) conceptualize injunctive norms primarily as organizational expectations to use audience analytics, this project argues for a **broader perspective on injunctive norms**. Specifically, journalistic role orientations must be integrated into this dimension, as they not only represent norms inherent in the profession but also shape journalists' attitudes toward analytics. However, these two elements, professional and organizational expectations, may also conflict, requiring journalists to consider within the dimension of injunctive norms.

Role orientations encapsulate the construction of institutional values and are expressed in ideals embraced by journalists (Hanitzsch & Vos, 2017b). Since market orientation has been identified as a key characteristic of digital journalism, the previously introduced **conceptualization of consumer and citizen orientation**, along with their underlying values, serves as a further theoretical foundation for this project. This is particularly relevant as the seamless integration of role orientation into the injunctive norms of the Theory of Planned Behavior appears both plausible and necessary. Consequently, role orientations are conceptualized as a **central influence in developing the typology** and are examined in detail as an individual factor.

7.4 Identification of Relevant Literature

To systematically identify pertinent research, this project conducted a **systematic literature review**. This approach was primarily chosen due to the available existing research on various influencing factors, which, however, are often examined in isolation. The project's research question, therefore, aims to provide an integrated perspective and a joint consideration of these influences. As a second step, the review focused on academic publications that examine **any factors influenc-**

ing the use of audience analytics in journalism. Given this scope, databases rooted in both communication (Communication Abstracts) and business (Business Source Premier) were particularly relevant. These two disciplines were selected to account for both the dominant journalistic dimension, which is primarily addressed in communication research, and the economic background, which is central to digital journalism and therefore also relevant to this project. In contrast, highly technological aspects, such as the precise functioning of data collection and processing, were deliberately excluded to avoid overloading the results and because these processes are developed in the background rather than within newsrooms. The **search criteria** encompassed empirical findings and original concepts related to the influences on audience analytics use in journalistic contexts. **The inclusion criteria** covered journal articles, book chapters, and research reports. A conscious decision was made not to restrict the selection to peer-reviewed journal articles only, as research on the topic clearly exists, but the volume was often limited for some factors, and applying such a criterion would have excluded many factors a priori.

Building on Fürst (2020), the **search terms** employed were “web metrics”, “audience metrics”, and “web analytics”, alongside the primary term “audience analytics” to cover a wide array of possible denominations since this is also not homogenous in the field. These were combined with “use”, “usage”, or “utilization” and “journalism”. The search yielded 403 results from Communication Abstracts and 1777 results from Business Source Premier. Following the selection process, **27 relevant publications were initially identified**, with three later excluded due to misalignment with the project’s focus. The significant discrepancy between the initial sample and the final selection is primarily due to many results addressing data and analytics in various forms, but predominantly in advertising contexts, which did not align with the actual focus on journalism. Predominantly sourced from scientific journals, the chosen publications served as a foundation to uncover **additional relevant literature**, culminating in a comprehensive analysis of 47 publications addressing audience analytics use in journalism. The database search was conducted in April 2022; since then, additional relevant sources have been integrated into the corpus where appropriate (see *Appendix 1* for an extended set of literature). Articles were first scanned for patterns of analytics use and their respective influencing factors. From this, the specific influences were analyzed in greater detail, compared, and contradictory findings were discussed to ensure a thorough

examination of the field. The identified influences were then aggregated and systematically categorized into individual and organizational factors. This resulted in an **overall model** that, where possible, also represents the identified direction of influence. However, the project goes beyond merely compiling identified influences. The relationship between these factors and how they interact in varying intensities is further explored in the typology, which outlines different combinations of influences.

7.5 Results: Influences on Audience Analytics Use

The conceptualization initially aims to distill relevant influences on analytics utilization based on the identified sources from the systematic literature review. Focusing on determinants outlined in the Theory of Planned Behavior, this project primarily delves into **individual and organizational influences**. Individual influences on the use of audience analytics are rooted in journalists' attitudes, orientations, and experiences and may, therefore, encapsulate all three dimensions of the Theory of Planned Behavior, attitude, subjective norms and perceived behavioral control. On the other hand, organizational influences arise from superiors' expectations, identified as one component of injunctive norms, newsroom culture, and broader contextual factors, serving as background and sources for subjective norms. While acknowledging that some influences, such as newsrooms culture, can straddle both the individual and organizational realms, this dichotomy provides a nuanced lens, aligning with the theoretical framework and offering a comprehensive understanding of the various forces shaping analytics utilization.

However, it is noteworthy that **technological aspects** also play a role in shaping audience analytics use. Notably, some analytics companies' dashboards are designed to show deference to journalistic authority to boost their use, at times concealing underlying managerial intentions (Petre, 2018). In this project, however, it is assumed that such technological features are either organizational in nature – such as when they determine access to audience analytics – or shape individual attitudes, for example when a user-friendly design facilitates easier use and thereby strengthens perceived behavioral control. In a subsequent step, the distinct characteristics and significance of each influence for the typology are examined. To address interactions and potential trade-offs among these influences, they are combined in a final step, revealing different types of journalists based on their analytics use.

7.5.1 Individual Influences

In the realm of individual influences, the **(preexisting) attitude toward audience analytics** emerges as one of the paramount drivers of analytics use, aligning with the Theory of Planned Behavior. Journalists who perceive the incorporation of audience analytics as advantageous for their editorial decisions are more inclined to utilize them (Belair-Gagnon et al., 2020; Tandoc & Ferrucci, 2017; Zamith et al., 2020). Conversely, those holding skepticism toward audience analytics are less likely to integrate them into their daily routines (Welbers et al., 2016). Notably, this **relationship is not unidirectional**; consistent use of audience analytics can enhance one's attitude towards them.

The **journalistic role orientation** can be identified as another major influence on the use and perception of audience analytics (Belair-Gagnon et al., 2020; Hanusch, 2016), serving as an expression of both subjective and professional norms. In this project, it is considered an individual influence, particularly within the framework of injunctive norms. However, against this background, a social component also becomes apparent, as journalists may face sanctions from peers if their behavior deviates from prevailing norms. This dynamic can also be organization-specific, which is why organizational components are included as well. Primarily, however, role orientation represents a personal perspective on the audience and reflects a journalist's own professional values. Citizen orientation aligns with the public service ideal, advocating a watchdog role for journalism that holds those in power accountable and provides essential information for political decisions. The underlying aim is to motivate citizens to engage in public discourse, fostering a free exchange of opinions. Consumer orientation, on the other hand, targets the widest possible audience and is more influenced by market logic than journalistic criteria. In this context, economic considerations manifest in coverage that prioritizes entertainment, relaxation, advice for daily life, and emotional appeal (Deuze, 2005; Hanitzsch, 2011; Hanusch & Tandoc, 2017). Although citizen orientation remains highly valued among journalists, **consumer orientation is gaining prominence in many editorial offices**. However, its dichotomous nature is challenged suggesting that beyond the citizen perspective, service and infotainment approaches can be identified (Mellado & van Dalen, 2017). The latter two exhibit a higher tendency to cater to audience wishes and may, therefore, support analytics use. Moreover, journalists do not confine themselves to one orientation **but navigate between them** (Usher, 2013; van der Wurff & Schoenbach, 2014). Audience

analytics are considered more beneficial for achieving objectives aligned with a consumer-oriented role conception than a citizen-oriented one, although they can serve both purposes. Importantly, this relationship is not unidirectional, just as with attitudes toward audience analytics: Audience analytics can also serve as **tools for constructing audience perceptions**, and over time, may contribute to reshaping role orientations themselves (Lamot & Paulussen, 2020).

Another strand of literature separately deals with the influence of **news values** on audience analytics use: Strong adherence to traditional journalistic norms can suppress the use of audience analytics (Welbers et al., 2016). However, both journalistic quality and audience analytics are considered in assessing story success (Whipple & Shermak, 2018), indicating a **coexistence of journalistic values and audience analytics**. Both mutually shape each other, with existing norms being modified (Agarwal & Barthel, 2013; Giomelakis et al., 2019; Tandoc, 2014a). Moreover, journalists employ strategies to harmonize audience analytics with journalistic norms, for instance, by customizing them to their specific needs (Christin & Petre, 2020). Considering that **journalistic norms and respective news values are represented by role orientations**, they are treated as a unified influence for the typology. For instance, the news values, proximity, relevance, and controversy align with citizen orientation, fostering an informed citizenry essential for political decisions. Consumer orientation tends to prioritize audience maximization, often resulting in the production of soft news linked to news values such as celebrity and personalization (Eilders, 2006; Fürst, 2018; Hanusch, 2016; Magin, 2019).

Beyond attitude and role orientation, **perceived behavioral control** represents a significant factor, emphasizing the relevance of the Theory of Planned Behavior. In essence, when journalists believe they possess the necessary skills to handle audience analytics, they are more likely to use them (Tandoc & Ferrucci, 2017). Notably, **journalistic experience** as possible background factor hinders the adoption of audience analytics, potentially because experience allows for more autonomy (Belair-Gagnon et al., 2020; Bunce, 2017). Diverging results can be found for the role of journalistic education: Contemporary journalistic education, which also imparts market knowledge, may facilitate the integration of audience feedback into editorial work. However, this may not hold true for older newsroom members (Lamot et al., 2021; Tandoc, 2019; Vu, 2014). Acknowledging these disparities, this project assumes a **mixed influence of journalistic education**. Moreover, it is presumed that a **non-journalistic background**, such as that of analytics experts from outside

journalism, is more likely to support the use of audience analytics due to its divergence from traditional journalistic standards (Belair-Gagnon & Holton, 2018, 2019; Petre, 2015, 2018). Furthermore, one's **position in the hierarchy** influences analytics use, with journalists higher up in the editorial hierarchy exhibiting a greater propensity to engage with audience analytics (Christin, 2018; Giomelakis et al., 2019; Hanusch, 2016; Zamith et al., 2020).

However, it is crucial to note that **cultural differences** may shape the adoption of audience analytics. Dollah and Tandoc (2022) demonstrate in the case of Singapore how journalists' adherence to social harmony could override audience analytics. Journalists aimed at balancing market pressures, the social system and journalistic autonomy. However, this project's typology adopts an integrated approach while recognizing cultural differences in the attitudes of individual journalists.

7.5.2 Organizational Influences

Organizational factors embody both injunctive and descriptive norms in line with the Theory of Planned Behavior (Ajzen, 1991; Anderson, 2011). Injunctive norms may reflect **managerial expectations** but also that of peers, while descriptive norms encompass the perceived behavioral patterns that are common within the newsroom (Tandoc & Ferrucci, 2017). The mere availability of audience analytics does not necessarily lead to increased use – how this access is accompanied by managerial guidance is crucial (E.-J. Lee & Tandoc, 2017). Primarily, the expectations of superiors, thus injunctive norms, play a pivotal role in driving the adoption of audience analytics; when journalists perceive chief editors expecting their use, their likelihood of engagement increases (Tandoc, 2014b, 2019; Usher, 2013; Whipple & Shermak, 2018). However, if exposure to analytics is imposed by management, it may adversely affect their attitude (Lamot et al., 2021). This suggests **a limit to managerial influence**, possibly triggering reactance among journalists, a psychological state experienced when autonomy is limited by external forces causing resistance (Brehm, 1966; Hogg & Vaughan, 2018). This may even lead to counteractions against the use of audience analytics.

Market orientation has been identified as key characteristic of recent developments in digital journalism. Managerial incentives to use audience analytics are often intertwined with the market orientation of media organizations. Moreover, market orientation is a major component

of the consumer orientation with a focus on maximization of audience numbers (Beam, 1998). The higher the market orientation, the greater the reliance on audience analytics, especially social media metrics, in determining news content and presentation, potentially **reshaping perceptions of newsworthiness** (Blanchett Neheli, 2018; Ferrucci, 2020; Fürst, 2020). Market orientation not only correlates with increased usage but also favors quantitative metrics, particularly those related to audience size, over alternative forms of user feedback (Nelson, 2018; Nelson & Tandoc, 2018). These metrics are prevalent and well-developed in newsrooms, driven by their **association with advertising revenues** (Cherubini & Nielsen, 2016; Giomelakis et al., 2019; Tandoc, 2014b; Tandoc & Vos, 2015). However, these findings are not necessarily permanent and could shift if relevance is reassigned to other metrics, for instance, subscriptions (Ekström et al., 2022; von Rimscha & Riemann, 2024). This would merely represent a different form of market orientation, one that focuses less on advertisers and more on the actual users, potentially reinforcing consumer orientation even further.

As would be expected, the use of audience analytics should be higher in media organizations that are primarily or exclusively market-funded. Yet, Lamot et al. (2021) do not find that usage patterns differ significantly between commercial and PSM, which suggests that **even PSM eventually adapt to a market logic**, at least when it comes to evaluating the performance of their content. Many scholars fear that this market orientation jeopardizes the public service mission of journalism, leading to violations of occupational standards (Boczkowski, 2010; Ferrer-Conill & Tandoc, 2018; Fürst, 2020; Raats, 2023; Tandoc & Thomas, 2015).

Newsroom cultures may also impact audience analytics use: A newsroom culture aligned with technology and audience engagement may encourage the adoption of audience analytics, whereas newsrooms emphasizing journalistic autonomy and citizen orientation might resist their integration (Cherubini & Nielsen, 2016; Petre, 2015; Welbers et al., 2016; Zamith, 2016). Newsroom cultures, therefore, may be an injunctive norm of its own right, but also differ from injunctive norms of the journalistic profession. Other organizational factors, such as **size**, representing the number of employees, **resource levels**, and **task differentiation**, are likely to positively influence the adoption of audience analytics and may even give rise to **specialized roles associated with audience analytics**. Smaller organizations, constrained by limited resources, may find it challenging to implement sophisticated analytics tools, often remaining at a basic level of utilization

(Cherubini & Nielsen, 2016; Giomelakis et al., 2019; MacGregor, 2007; McKenzie et al., 2011). In the typology, the level of resources and task differentiation are incorporated into the size dimension, given their high correlation.

Additionally, the **type of organization** can exert influence on analytics use, with online-only media exhibiting more openness, while legacy media outlets are more reluctant to implement and use audience analytics (Cherubini & Nielsen, 2016; Hanusch, 2016). However, it is important to note that these findings represent a **snapshot in time**. As previously discussed, the field of audience analytics is marked by ongoing dynamism, and over time a convergence in the use of audience analytics across various types of organizations over time appears plausible, although the degree may differ (Newman et al., 2024).

7.6 Toward a Conceptual Typology: Aggregating Influences on Audience Analytics Use

This project employs the Theory of Planned Behavior to classify diverse influences on the utilization of audience analytics, emphasizing role orientation as subjective norm within this framework (Ajzen, 1991; Hanitzsch & Vos, 2017b; Hanusch & Tandoc, 2017). Drawing from a systematic literature review, a conceptual typology of journalists based on combinations of various influences and their corresponding values is constructed. Scholarly perspectives on the relevance of the identified influences vary: While some assert a predominant influence of organizational factors for the perceived usefulness of audience analytics, others emphasize the potential for reactance and underscore the significance of maintaining professional autonomy. Some influences, such as attitude towards use, role orientation, or perceived behavioral control, have been quantified in existing research (Belair-Gagnon et al., 2020; Lamot et al., 2021; Tandoc & Ferrucci, 2017). However, the multitude of **the identified influences have not been considered together**, complicating a precise measurement of their respective influence and a hierarchical ranking of their strength. Recognizing this, the project delves into the interplay between individual and organizational influences and illustrates **potential relationships between the types**.

It is crucial to note that the typology presented does not claim to represent empirically tested journalist types, nor does it strive to offer an exhaustive depiction of all possible variations. Instead, it showcases a **selection of plausible types that are distinguishable**, serving as illustrations of the different influences and their varying importance. While the literature demonstrated that mere

availability to analytics does not necessarily influence use, some form of access, such as through reports, is deemed essential. Hence, this project operates under the assumption that a minimum level of access to audience analytics is required to establish distinct types of users. Additionally, it is important to recognize that the typology is conceptual and of a preliminary nature, intended to provide a foundational understanding and inform further research. Thereby, this project contributes to the discourse – not only identifying these influences but also explicating how they interact. Through this differentiated approach, the typology seeks to elucidate the complex relationships and potential conflicts that can arise within newsroom environments.

This project distills and consolidates **twelve major influences** on the use of audience analytics from the existing literature (see Table 2 for an overview). It also incorporates **the level of reflection** on the use of analytics as thirteenth influence, a factor that has been relatively underexplored in previous research, with reported low levels of reflection (Cherubini & Nielsen, 2016; Fürst, 2018; Tandoc, 2014a; Tandoc & Thomas, 2015). Groot Kormelink & Costera Meijer (2018) argue that, for instance, clicks can encapsulate various user considerations and **should not be perceived as universal**. Hence, understanding the reflection becomes crucial in estimating the affordances of analytics, as overestimation may contribute to the neglect of journalistic values (Ekström et al., 2022; Fürst, 2020). Additionally, accompanying qualities have been listed with the influences to provide a nuanced understanding of their potential impact within the typology.

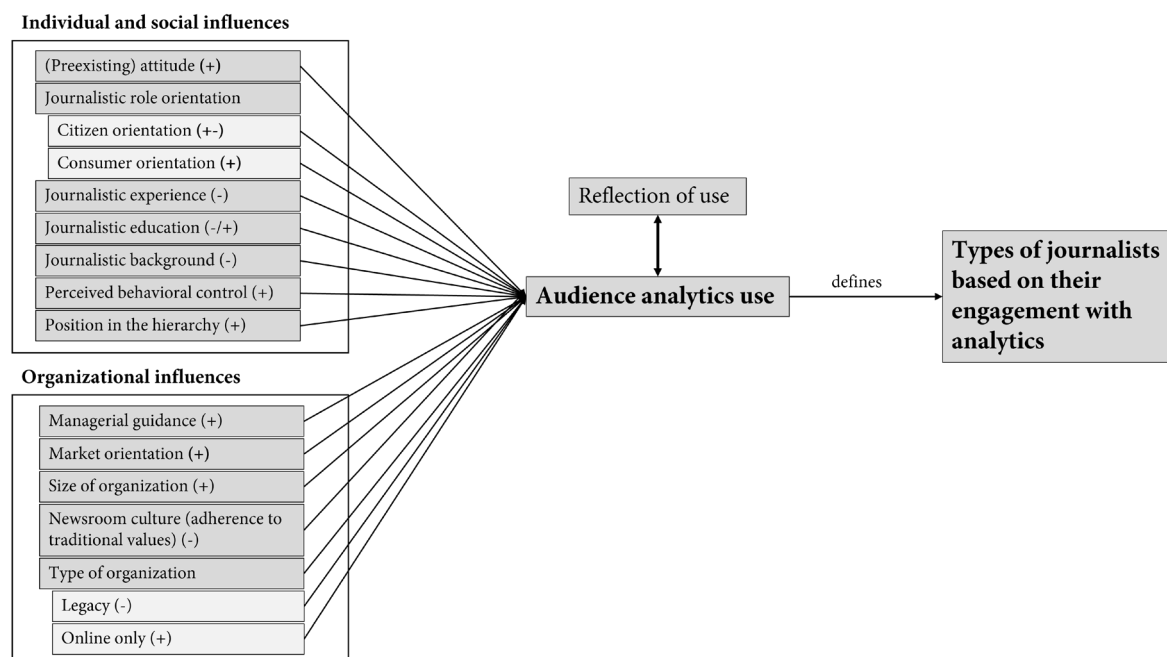
Table 2: Influences on Audience Analytics Use

#	Influence	Qualities	Key references
1	(Preexisting) attitude	Positive to negative	(Beck & Ajzen, 1991; Tandoc & Ferrucci, 2017)
2	Journalistic role orientation	consumer orientation vs. citizen orientation	(Belair-Gagnon et al., 2020; Hanitzsch & Vos, 2017a; Hanusch & Tandoc, 2017)
3	Journalistic experience	high to low	(Bunce, 2017; Lamot et al., 2021)
4	Journalistic education	contemporary vs. traditional education	(Belair-Gagnon et al., 2020; Lamot et al., 2021; Tandoc, 2019)
5	Professional background	journalistic vs. non-journalistic	(Belair-Gagnon & Holton, 2018; Petre, 2018)
6	Perceived behavioral control	high to low	(Tandoc & Ferrucci, 2017)
7	Position in the hierarchy	high to low level	(Belair-Gagnon et al., 2020; Christin, 2018; Giomelakis et al., 2019; Hanusch, 2016; Zamith et al., 2020)
8	Managerial guidance	Promoting vs. restraining analytics use or indifferent	(Tandoc & Ferrucci, 2017; Usher, 2013; Whipple & Shermak, 2018)
9	Market orientation	High to low	(Belair-Gagnon et al., 2020; Dollah & Tandoc, 2022; Ferrucci, 2020; Fürst, 2020; Nelson & Tandoc, 2018)
10	Newsroom culture	High to low adherence to traditional journalistic values	(Lamot & van Aelst, 2020; Welbers et al., 2016; Zamith, 2016)
10	Size of the organization	Small to large	(Cherubini & Nielsen, 2016; Giomelakis et al., 2019; McKenzie et al., 2011)
12	Type of organization	online only vs. legacy media	(Belair-Gagnon et al., 2020; Cherubini & Nielsen, 2016; Hanusch, 2016)
13	Additional: Reflection on the use of audience analytics	high to low	(Cherubini & Nielsen, 2016; Fürst, 2018; Tandoc, 2014a; Tandoc & Thomas, 2015)

Note: Table compiled by the author based on findings from various authors (mentioned in the table).

Certain influences, such as attitude and perceived behavioral control, directly align with the elements of the Theory of Planned Behavior. Journalistic role orientations, managerial guidance, education, newsroom culture, market orientation, and professional background contribute to the formation of subjective norms within the framework of the theory. Other factors like the type and size of an organization, journalistic experience, and position in the hierarchy may not have a direct correspondence but play crucial roles as contextual factors (Ajzen, 2005). Figure 1 provides a **summary of the identified influences**, using plus and minus symbols to indicate whether a positive or negative influence on analytics use is found in the existing literature, while inconsistent results are marked with both symbols. To improve clarity, both elements of the framework and contextual factors are presented on the same level, and interactions between the influences are not depicted.

Figure 1: Individual and Organizational Influences on Audience Analytics Use



Note: Figure created by the author. See also Appendix 1-02,

7.7 From Influences to Types: Deducing a Conceptual Typology

The types are distinguished by different combinations and specifications of influences, with a focus on key components of the Theory of Planned Behavior – **attitude, role orientation, market orientation and managerial guidance**, all serving as proxies for subjective norms, and perceived behavioral control. However, it is essential to note that other influences can also be impactful, and

their significance may vary across types. The following descriptions highlight the **most characteristic properties for each type**, including possible interactions between influences. Characteristics may be presented as a range rather than fixed, emphasizing their dynamic nature.

Moreover, different editorial roles are taken into account: Newsrooms teams encompass various functions and roles dealing with information gathering, editorial and presentation (Gade & Raviola, 2009). While this typology primarily focuses on journalists' utilization of audience analytics, it also recognizes the multifaceted nature of newsroom dynamics by including **non-journalistic positions** as long as they engage in the creation of journalistic products (Moyo et al., 2019; Slaček Brlek et al., 2017). This inclusive approach ensures a differentiated exploration of the complex interactions in the context of audience analytics. For a comprehensive overview. **Table 3 at the end of this project summarizes the types**, showcasing their specific set of characteristics based on identified influences on the use of audience analytics. The organizational influences presented in the table are considered most fitting for each type. However, as indicated in the descriptions, many types can, at least temporarily, manifest in other organizational settings as well.

7.7.1 The Analytics Expert

The Analytics Expert is characterized by a **positive attitude towards audience analytics**, positioning them as avid users employing audience analytics to give advice for content editing and publication decisions. Within the newsroom, Analytics Experts may serve in a **supportive and advisory capacity**, particularly in editorial offices with a high level of task differentiation and the resources to employ specialized staff dedicated to analytics. Possessing a strong technological competence and statistical literacy, Analytics Experts exhibit a **high perceived behavioral control** over the utilization of audience analytics.

However, it's important to note that the primary professional background and qualification of this type is **non-journalistic**, resulting in lower journalistic experience and adherence to traditional journalistic norms. This characteristic aligns them more closely with a **consumer orientation** and a high degree of market orientation, displaying injunctive norms driven more by organizational requirements than professional journalistic standards. Despite their tendency to reflect on the broader implications of audience analytics and to triangulate various metrics, they are likely to directly link them to audience needs. Staff dedicated to audience analytics has been found to be

an integral part of many newsrooms, often wielding extensive authority over content selection (Moyo et al., 2019).

While Analytics may offer valuable advice to editors engaged in core journalistic functions, they may also **lack awareness of journalistic norms**. In contexts where a strong traditional newsroom culture and citizen orientation prevail, they may encounter resistance and potential isolation due to their divergent approach to injunctive norms. Therefore, editorial managers need to exercise caution when introducing Analytics Experts to newsrooms, and it is essential to **define workflows that allow them to contribute effectively** to journalistic decisions while mitigating the risk of evoking reactance among other newsroom members.

7.7.2 The Integrator

The Integrator, distinct from the Analytics Expert, boasts a **journalistic background** and has acquired audience analytics skills through training or self-learning. While their initial attitude may have been mixed, it transforms over time into a positive perception, considering analytics as a valuable tool for journalistic work. Integrators align with **citizen orientation** and try to use audience in this sense. They exhibit a **high level of perceived behavioral control**, utilize diverse metrics, and engage in **regular reflection** on the limits of metrics. Integrators successfully balance audience demands dictated by market orientation with their commitment to journalistic values, embodying a bridge between the two, as well as between professional and organizational injunctive norms. **Combining editorial background with data expertise**, they have been demonstrated as crucial in implementing audience analytics tools (Cherubini & Nielsen, 2016). Found in medium to large organizations, Integrators can navigate various degrees of market orientation and organizational cultures. They are, for this reason, likely to be respected by other types and are more likely to have a **higher position** in the newsroom hierarchy where they support collaboration among different journalistic types. While they may face challenges in strictly market-oriented settings, Integrators typically **contribute to newsroom cohesion** rather than causing conflict. Managers play a pivotal role in fostering the position of this type within newsrooms: Recognizing the value of journalistic background and skills in using audience analytics, managers could encourage training and reflection for journalists promoting an organizational culture that uses analytics in accordance with journalistic standards.

7.7.3 The Enthusiast

Enthusiasts demonstrates a **highly positive attitude** toward audience analytics, leading to extensive use, and this inclination is further bolstered by a **strong consumer orientation**. While having a journalistic background, they prioritize audience analytics over traditional selection criteria, driven by an eagerness to cater to perceived audience preferences. Enthusiasts possess a **high perceived behavioral control** and confidence in using audience analytics but – in contrast to the Integrator – the scope of audience analytics is often overestimated and seldom reflected. Moreover, their competence is **confined to a few basic metrics**, offering a simple heuristic for decision-making, which can lead to an overestimation of metrics such as clicks and likes due to their prominence and accessibility. Found predominantly **in market-oriented organizations**, Enthusiasts thrive in environments where newsroom culture and managerial attitudes prioritize alignment with the audience. In environments promoting citizen orientation and traditional journalistic norms, Enthusiasts may either restrain their enthusiasm or **clash with colleagues** concerned about autonomy loss stemming from the Enthusiast’s approach, representing sanctions due to deviant behavior and neglect of professional injunctive norms. As outlined by Ferrer-Conill and Tandoc (2018), Enthusiasts may identify as voice of the user, leading to further conflicts. As a result, managers should closely monitor audience analytics use and proactively anticipate potential conflicts arising among different types. Depending on organizational needs, encouraging Enthusiasts to enhance their reflection on metric utilization could contribute to a more differentiated understanding of the audience.

7.7.4 The Follower

The Follower has a **mixed attitude toward audience analytics**, engaging with them primarily as a job requirement rather than intrinsic motivation. While relying on established journalistic routines and leaning towards citizen orientation, they **acknowledge market needs** to some extent. Their utilization of audience analytics is mostly prompted by management directives, reflecting a **limited competence in using metrics and a low perceived behavioral control**. While their degree of reflection is higher than that of Enthusiasts, it remains modest, with Followers being more **receptive to organizational norms and descriptive norms**, in other words: doing what everyone else is doing. This type reflects a moderate reorganization of routines and iterative adoption of

audience analytics rather than immediate acceptance or resistance (Belair-Gagnon et al., 2020; Duffy et al., 2018). It is adaptable across organizations of varying sizes and types, thriving best in an environment with an intermediate or low level of market orientation. However, conflicts may arise in highly market-oriented settings due to **their passive approach** to audience analytics. Managers should, therefore, engage Followers more in the process of using audience analytics while respecting their familiar routines. Establishing **detailed guidelines** can enhance Followers' use and reflection of audience analytics, whereas the connection with bridging elements, like the Integrator, may mitigate barriers of insecurity.

7.7.5 The Opportunist

Opportunists exhibit a **mixed attitude towards audience analytics**, but their approach differs significantly from that of other types. With a strong **journalistic background** and an **inclination towards citizen orientation**, Opportunists seek high autonomy in decision-making, avoiding significant market influences. While they pretend to acknowledge the importance of audience wishes to maintain their position, they use audience analytics **only selectively and instrumentally** to confirm decisions already made, disregarding analytics that do not align with their own assessment, thereby sticking to their own attitude rather than to descriptive norms. This refers to the notion of using audience-related tools to emphasize one's own legitimacy and **reinforce journalistic authority** (T. R. Schmidt & Lawrence, 2020). Although Opportunists may pretend to have a high perceived behavioral control, their actual knowledge and reflection on analytics remain low. When holding a higher hierarchical position, Opportunists may employ audience analytics to maintain their status.

In organizations following a strictly market-oriented approach, Opportunists may face challenges posed by guidelines favoring the use of audience analytics, **disrupting their autonomy**. This can lead to conflicts with superiors and other types of journalists, such as Experts, Integrators, and Enthusiasts. Managers should recognize and value the journalistic instincts of Opportunists while encouraging a more holistic utilization of analytics. This could be facilitated through training programs and collaborative reflections with the whole team, avoiding future conflicts.

7.7.6 The Skeptic

Skeptics hold a **highly negative attitude** toward audience analytics and resist their integration into editorial workflows. This type strongly aligns **with citizen orientation** and rejects market orientation, illustrating findings that metrics are perceived as less useful for enacting citizen orientation (Belair-Gagnon et al., 2020). They engage with audience analytics only on rare occasions and often under protest, displaying **strong compliance with professional injunctive norms**, while rejecting injunctive as well as descriptive norms posed by their organization and colleagues. Skeptics adamantly defend their resistance in editorial discussions and against superiors, leading to **inevitable conflicts** – also with Enthusiasts and Analytics Experts, both contradicting the Skeptic’s stance on audience analytics and journalism in general. Managerial guidance tends to evoke reactance rather than fostering audience analytics adoption in this type.

Skeptics exhibit a **high degree of reflection on audience analytics** but score **low on perceived behavioral control** due to their sporadic use. They thrive in organizational environments that uphold traditional values or provide a **high degree of task differentiation**, relieving them from the obligation to use audience analytics. In highly market-oriented newsrooms, Skeptics face challenging conditions and may become a source of tension, **potentially leading to withdrawal**. Unlike other types, Skeptics are more difficult to integrate into the implementation process due to their willingness to engage in conflicts, even with integrators. Managers should value the critical voice of Skeptics while emphasizing that a reflective use of audience analytics does not inherently contradict citizen orientation. Clear and transparent guidelines across the newsroom may help reduce insecurity and avoid providing Skeptics with a platform for resistance.

7.8 Critical Evaluation

Due to its conceptual nature, it is imperative to recognize several limitations inherent in the typology: First, it is important to recognize the **preliminary and dynamic nature** of the identified types. Over time and in different contexts, types may adapt and evolve, blurring the boundaries between them. Hence, types may not be rigid but involve a blend of characteristics: For instance, an Analytics Expert could pragmatically adopt a citizen orientation to better align with the descriptive norms observed in the newsroom. The extent to which journalists can transition between types remains an empirical question. Future research could employ the characteristics summarized in

Table 3 for a **combined approach**. Observations of newsroom interactions, such as content selection meetings and production processes, could cover organizational aspects. Meanwhile, interviews with journalists could capture non-observable individual characteristics, such as attitudes towards audience analytics and role orientations, enriching the ethnographic data. Here, the hybrid roles, such as that of the Analytics expert are highly relevant, yet rather unexplored. Second, the **prevalence of these types within newsrooms is uncertain**. Subsequent quantitative surveys, relying on factors identified in this study and integrating the findings from the qualitative approach, might reveal frequency and distribution of these types in newsrooms and their connection to organizational prerequisites. Additionally, the typology's scope, consisting of six types, **may not encapsulate the full spectrum of variations**. The interplay of influences could lead to a more nuanced portrayal, potentially encompassing additional types. While this project assumes that access to analytics is necessary for their utilization, it is important to acknowledge that in certain newsrooms, access may be restricted or denied to certain members, missing out on the basic requirement. Lastly, the **typology's applicability might be influenced by cultural, regulatory, or social factors**. These external influences can significantly shape how journalists adopt and integrate audience analytics into their workflows. With few exceptions (Dollah & Tandoc, 2022; Moyo et al., 2019), research on these influences has predominantly focused on Western contexts. Thus, even though the types are derived from usage influences grounded in the Theory of Planned Behavior and aim for universal relevance, their occurrence, interaction, and concrete manifestation may vary substantially in other cultural settings. Injunctive norms, for instance, might reflect different dominant understandings of journalism – such as a prevailing understanding of journalism that emphasizes support for state institutions. In contrast, highly commercialized media systems may increasingly foster types like the Enthusiast, who could **establish a new standard** as other types potentially exit the profession altogether.

7.9 Discussion and Implications

This project leverages the Theory of Planned Behavior and integrates it with journalistic role orientations as injunctive norms to discern and categorize both organizational and individual influences on audience analytics use within newsrooms. The **identification of six distinct types**, rooted in their interactions with audience analytics, contributes to a nuanced understanding of

the dynamics at play in newsroom environments building on Bunce (2017) and Belair-Gangon et al. (2020). Employing the Theory of Planned Behavior and journalistic role orientation has proven effective in structuring influences identified in the literature, focusing on core elements of the framework, while also considering background factors (Ajzen & Fishbein, 1980; Hanitzsch & Vos, 2017b). The conceptual typology draws on the components of the theoretical framework varying **the attitude toward audience analytics, role orientation and market orientation, both representing subjective norms, as well as the perceived behavioral control**, while using other influences to either support the components or as contextual factors building on Tandoc and Ferrucci (2017). The distinction between organizational and individual influences turned out to be valuable: Individual sentiments initiate the engagement with audience analytics, while organizational influences shape how this engagement is manifested. Accounting for the interplay between influences and **adding the reflection on the use**, further contributes to expand the understanding of audience analytics utilization in newsrooms.

7.9.1 Theoretical Implications

From a theoretical perspective, the findings can be linked to changes in role orientations, contributing to research on journalistic culture and enhancing the understanding of **how journalism reacts to economic pressures** and an increasing evaluation of their performance (Belair-Gagnon et al., 2020; Hanitzsch & Vos, 2017a). From both a journalistic and societal perspective, the implications for journalistic products and their quality become pertinent: The identified types and their combinations may be associated with varying levels of journalistic quality, challenging assumptions about the consequences of audience analytics use. Regarding the Theory of Planned Behavior, the **component of injunctive norms could be differentiated into those rooted in professional values and those imposed by organizational expectations**. This distinction helps explain why adherence to injunctive norms does not necessarily lead to uniform outcomes – these norms can, in fact, contradict one another. Therefore, maintaining this analytical distinction is valuable, as it exposes the **tension between professional ideals and potential market-oriented directives**. It also opens the possibility of capturing instances in which these conflicting value systems begin to converge. It is important to note, however, that the Theory of Planned Behavior assumes a directional effect, suggesting that behavioral intentions are shaped by attitudes, subjective norms,

and perceived behavioral control. Yet, both the literature review and the resulting typology indicate that while this direction of influence is plausible, it may also be **bidirectional** – particularly regarding attitudes and norms, as exemplified by role orientations. Consequently, it may be worthwhile in future analyses to initially assume correlational relationships, rather than causal ones. This would acknowledge the possibility that audience analytics do not merely result from these components but may in turn also influence them.

7.9.2 Implications for Journalism

In light of the journalistic profession and the overarching theme of quantification, several key implications emerge: The use of **audience analytics must be considered alongside journalists' role orientations**. This opens the opportunity for reflection on metrics and their limitations, as well as their ability, or inability, to provide an accurate representation of the audience. Metrics are not inherently accurate, and therefore, **editorial discussions are needed** to determine how journalists want to use audience analytics and what conceptualization of the audience this use entails. Such reflections help deconstruct the notion of “usage” and enable a more nuanced modeling of behavior shaped by analytics. These discussions may also reveal productive opportunities stemming from combinations of user types. At the same time, awareness is raised that usage is not uniform, and the profession itself is engaged in an **ongoing adaptation process**. This process may eventually establish new standards, which could, in some cases, lead individuals to leave the profession.

With regard to commodification, the typology illustrates that audience analytics can decisively **influence decisions, act as a heuristic, lend authority, and even be equated with objectivity** (Daston, 1992; Espeland & Stevens, 2008; Weber, 1978). However, it also shows that such behavior is not universal. Other standards – particularly learned routines and journalistic values – frequently dominate or at least coexist. The resulting market orientation is therefore confronted, depending on the user type, with alternative value systems. Of particular interest is the Analytics Expert type, which exemplifies the growing **detachment of content and quality assessment from the journalistic profession**. Although this role is typically not rooted in journalism, it often holds significant power in determining the value of journalistic content – frequently based on commercial criteria. Yet despite this authority, the Analytics Expert remains embedded within editorial structures and cannot operate effectively without collaboration from journalistic actors. In this

sense, mutual alignment and negotiation between roles become necessary. Since this network of relations is relevant from both a professional and a quantification perspective, a separate project within this work will address it.

7.9.3 Implications for Media Management

From a media management perspective, the insights derived from the typology offer valuable implications to guide newsroom strategies and workflows. The awareness of different types could facilitate the development of **tailored guidelines and training**, ensuring that journalists are equipped with the necessary skills and attitudes based on their role orientation. Fostering collaboration and communication among different types may lead to a more harmonious integration of audience analytics into decision-making processes. Ultimately, the typology empowers media managers to **develop targeted interventions** that address specific challenges associated with each type. From a management perspective, important questions arise regarding the extent to which organizational goals can meaningfully be pursued through audience analytics – and where **the limitations of such tools** lie. This includes reflecting on the potential cost of optimizing journalistic products based primarily on audience preferences, and whether such strategies are sustainable in the long term for the brand as well as for the reputation of the journalistic profession. Media managers, perhaps even more so than journalists themselves, are therefore called upon to **develop a reflective and critical approach to the use of audience analytics**. This also involves exploring ways to incorporate organizational values into performance assessments – either by finding suitable indicators or at least ensuring that such values are considered alongside commercial metrics.

Table 3: Typology of Journalists Using Audience Analytics and Respective Influence

	Individual Influences							Organizational Influences						Out- come
Type	(Preexist- ing) attitude	Journal- istic role orienta- tion	Journalistic experience	Journalistic education	Professional background	Perceived behavioral control	Position in the hierarchy	Managerial guidance	Market- orienta- tion	Newsroom culture)*	Size of or- ganization	Type of organization	Reflection on use	Use
Expert	Highly Positive	Consumer orienta- tion	Low	none	Non- journalistic	High	Mostly inter- mediate	Promotive	High	Low to moderate	Mainly large	Both	Medium	High (var- ious met- rics)
Integrator	Positive	Citizen orienta- tion/ mixed	High	Contemp.	Journalistic	High	Intermediate to high	Promotive	Moderate	Moderate to high	Medium to large	Legacy	High	High (var- ious met- rics)
Enthusiast	Highly positive	Consumer orienta- tion	Moderate	Contemp.	Journalistic	High	Low to inter- mediate	Promotive	High	Low	All sizes	Online only	Low	High (single metrics)
Follower	Mixed	Mixed	Moderate to high	Traditional	Journalistic	Low	Low to inter- mediate	Both	Moderate	Moderate to high	All sizes	Both	Low to medium	Low to moderate (single metrics)
Opportunist	Mixed	Citizen orienta- tion	High	Traditional	Journalistic	High	High	Restraining or indifferent	Low	Moderate to high	Small to medium	Legacy	Low	Selective (single metrics)
Skeptic	Highly negative	Citizen orienta- tion	High	Traditional	Journalistic	Low	Intermediate	Restraining	Low	High	All sizes	Legacy	High	Low

Note: Newsroom culture pertains to the degree of adherence to traditional journalistic standards, spanning from low to high adherence.

8 Cracking Open Audience Analytics: How Individual Metrics Relate to Role Orientations

This project is intended to complement the results of the first project. While the individual types will not be subjected to empirical testing, the overarching goal – to **break down the concept of audience analytics** by examining individual metrics – continues to guide this work. Moreover, role orientation was identified as a central construct for understanding the use of audience analytics. In a next step, and in light of existing research that suggests a stronger link between metrics and consumer orientation, this study aims to **correlate specific metrics with distinct role orientations**. This also offers potential to evaluate the degree of alignment or mismatch between them. In addition to further differentiating the term audience analytics, this project also addresses the use of analytics more broadly. Previous studies have primarily focused on the question whether or not audience analytics are used and the purposes of this use (Lamot & Paulussen, 2020; Tandoc & Ferrucci, 2017). **The mode of use remains rather unexplored though:** The typology highlighted the importance of reflection as a key dimension. Therefore, this project seeks to investigate whether role orientations are associated with more **reflective use of audience analytics** – and whether such use is based on **individual choice or shaped by organizational pressures**, again integrating subjective norms. To this end, journalists will be surveyed regarding their use of metrics and their role orientations. The resulting data will then be analyzed using correlation analyses to test the assumed relationships.

8.1 Problem Statement and Research Questions

Given the widespread use of audience analytics and the observation that market orientation primarily incentivizes the use of metrics related to audience size, **a more granular investigation of individual metrics** appears warranted. Previous findings indicate that the use of audience analytics is generally perceived as beneficial across different role orientations, but this association is notably stronger for those with a consumer orientation. Moreover, there is evidence that the use of analytics contributes to a perceived increase in the importance of consumer-oriented journalism (Hanusch & Tandoc, 2017). While metrics are often presented in aggregated dashboards, it is important to note that within these systems, **individual metrics are frequently used selectively**, as

there is no universal metric suitable for all editorial contexts (Cherubini & Nielsen, 2016). However, a blind spot remains regarding how well individual metrics align with the journalistic goals associated with specific role orientations. It is unclear whether metrics focused on audience size inherently support a consumer-oriented logic, or whether they are so widely used across the board that no meaningful distinction between role orientations can be observed (Ferrucci, 2020). This leads to the following research question:

RQ 2: How does the use of individual metrics relate to journalists' role orientations?

The typology developed in the previous project demonstrated **that reflection on the use of audience analytics** is a helpful dimension for understanding newsroom behavior. This is particularly relevant considering that metrics are merely proxies that capture behavioral traces. Yet, they often tempt users to infer viewers' thoughts, preferences, and feelings. However, one and the same metric can carry multiple meanings. For instance, Kormelink and Meijer (2018) identified **cognitive, affective, and pragmatic reasons** for the clicking metric alone. Cognitive reasons may include classic news values such as recency and geographical proximity, or even saturation with the topic. Affective reasons span both positive and negative emotions, including gleeful annoyance, where users deliberately seek out content that irritates them. Pragmatic reasons might involve not clicking simply because it would disrupt the flow of use or does not fit into the current routine – without necessarily indicating disinterest. Despite being one of the most commonly used indicators, the click is thus considered a **flawed instrument for assessing user interest**. This is especially relevant given that in everyday newsroom practice, reflection on the multiple meanings of metrics is often lacking (Fürst, 2018; Tandoc, 2014a; Tandoc & Thomas, 2015). A lack of critical engagement with metrics has frequently been linked to the marginalization of journalistic values (Ekström et al., 2022). Hence, the key question is not just whether and how metrics are used, but also **to what extent their use is accompanied by reflection**. Based on prior studies, it is expected that especially in consumer-oriented environments, metrics are used with less critical reflection (Nelson, 2018; Nelson & Tandoc, 2018). To explore these blind spots a second research question is derived:

RQ 2.1: How are reflection and voluntariness of audience analytics related to journalistic role orientations?

8.2 Literature and Hypotheses

This project is loosely based on the Theory of Planned Behavior, although, unlike in the previous project, the full model is not applied. Instead, the focus lies on a **more in-depth examination of injunctive norms**, continuing the **analytical distinction between organizational and professional components** that emerged as a result of the first project. Professional norms as central component is again represented through journalistic role orientations, located along a continuum between citizen and consumer orientations. This continuum is particularly useful for **capturing market orientation**, as it is a core element of consumer orientation. The characteristics of both orientations have already been sufficiently outlined in the previous sections. In short: Citizen orientation represents a public service ideal, with a watchdog role for journalism and the aim to provide information for political decisions and debate, enabling a free exchange of opinions. Consumer orientation aims for audience maximization and is driven by market requirements. It, therefore, prioritizes entertainment, relaxation, and everyday advice, and serves emotions (Deuze, 2005; Hanitzsch, 2011; Hanusch & Tandoc, 2017).

8.2.1 Selection of Metrics

These role orientations will be linked to individual metrics. While numerous metrics exist, not all of them could be considered in this project, making a pragmatic selection necessary. This selection is based on **three considerations**: First, metrics were chosen that are **widely used and commonly applied**. Second, to **ensure variance**, additional metrics were selected that follow a strongly quantitative-reductive logic and – in line with consumer orientation – focus primarily on audience size (Nelson, 2018; Nelson & Tandoc, 2018). In contrast, other popular metrics are included that deviate from this approach and reflect alternative usage behaviors – metrics that do not ask whether something was clicked, but how content was used and what behaviors it triggered. These are more closely aligned with citizen-oriented ideals. Third, the selected metrics should be clearly understood and **enjoy broad consensus regarding their meaning** – they should be relatively unambiguous (Zamith, 2018). This is also the reason why the otherwise highly relevant metric of conversions – which has become central in many newsrooms – unfortunately could not be included. The problem lies in the fact that a “conversion” can be defined differently across newsrooms, as it simply refers to a desired action by the user. A conversion can therefore refer to a subscription, a

newsletter signup, or a visit to the in-house media library. In short: the metric lacks clarity. Furthermore, it could exclude newsrooms that do not offer paid products and therefore may not use conversion metrics at all (Cherubini & Nielsen, 2016; Newman et al., 2024).

The selected metrics are **pageviews, traffic, time spent, and shares**. **Pageviews** refer to the number of views on a page by any method, such as clicking or refreshing. They are also commonly referred to as clicks or page impressions. Since they are closely tied to audience size, a positive relationship with consumer orientation is assumed (Ferrucci, 2020).

H1.1: Frequent use of pageviews is positively associated with consumer orientation.

Although **traffic** contains a qualitative component – that is, whether users access a page directly or via external sources such as news aggregators, search engines, or content platforms – it ultimately, like pageviews, targets audience size. It additionally accounts for external sources and is thus a suitable metric for optimizing audience reach in the sense of market orientation.

H1.2: Frequent use of traffic is positively associated with consumer orientation.

In contrast, the metric **shares** captures the number of times a piece of content is shared on content platforms, via email, or through direct messaging services. While it is technically an external metric associated with content platforms and can thus also contribute to expanding reach, the focus here lies more on **what users do with the content and whether it sparks debate**. As such, it is more closely associated with citizen orientation (Hanusch & Tandoc, 2017; Nguyen, 2013).

H1.3: Frequent use of shares is positively associated with citizen orientation.

This line of reasoning applies even more strongly to the **time spent** metric. Although it only reflects the amount of time users spend on a specific page – without capturing whether they are actively engaging with the content or possibly doing something else – it may **serve as a counterbalance to purely quantitative audience metrics**. It can thus provide an indication of whether users are meaningfully engaging with the content (Cherubini & Nielsen, 2016).

H1.4: Frequent use of time spent is positively associated with citizen orientation.

8.2.2 The Role of Reflection and Organizational Pressure

The second component of injunctive norms identified in the first project concerns organizational norms (Tandoc & Ferrucci, 2017). The typology developed earlier has shown that tensions can arise between organizational requirements and professional norms. However, these two can also overlap significantly – for instance, in cases of strong consumer orientation where organizational guidelines explicitly encourage the use of audience analytics for maximizing reach. To account for this ambivalence, this project investigates the extent to which the **perceived voluntariness of analytics use** is associated with journalists' role orientations. As previous research suggests, journalistic autonomy, as emphasized by the citizen orientation, often stands in tension with the use of audience analytics (Petre, 2015; Welbers et al., 2016; Zamith, 2016; Zwicky, 2012). In contrast, market-oriented approaches are more easily reconciled with the use of analytics. Therefore, the following assumptions are made:

H2.1: Voluntariness of audience analytics use is negatively associated with citizen orientation.

H2.2: Voluntariness of audience analytics use is positively associated with consumer orientation.

Reflection on the use of audience analytics was identified as a key dimension in developing the typology. According to Dewey (1933, p. 9), reflection can be defined as “active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends”. In the context of audience analytics in journalism, this implies a **critical examination of one's routines and editorial decisions**. Such reflection should address the significance, implications, and limitations of metrics, rather than applying them uncritically. It may also extend to journalism as a profession. For Pätzold (2012) reflection is an integral part of professional journalism, particularly regarding the (overarching) goals it serves.

Although prior research has emphasized the importance of reflection for a more differentiated handling of metrics and for maintaining journalistic values (Ekström et al., 2022; Fürst, 2020), **it remains unclear to what extent journalists actually reflect on their use of audience analytics and how this is related to their role orientations**. Since, for example, the click metric is often equated with user interest, although it can represent a wide range of user behaviors, it is reasonable to assume that role orientations emphasizing audience maximization, aligned with a market logic,

are associated with lower levels of reflection, as represented by the Enthusiast type (Groot Kormelink & Costera Meijer, 2018; Hanusch & Tandoc, 2017). In contrast, the citizen orientation emphasizes critical journalism and democratic values, which suggests a higher degree of reflection in this group, such as for the Integrator type.

H3.1: Citizen orientation is positively associated with reflection on audience analytics use.

H3.2: Consumer orientation is negatively associated with reflection on audience analytics use.

8.3 Methodological Approach

The research questions and related hypotheses lend themselves to a quantitative and standardized approach. Since the project aims to capture subjective experiences and past behaviors of journalists, a standardized survey is appropriate. This method allows for reaching a large number of participants while also enabling the **quantification of patterns** that emerged from the first part of the project. Given the connection between journalistic role orientations and normative ideals – which may be affected by social desirability bias – a more anonymous format is particularly suitable. Additionally, efforts were made to formulate survey items in a neutral and value-free manner (Brosius et al., 2016; Döring, 2023). Data collection was conducted online using SoSci Survey. Participants were required to be employed in online newsrooms. While journalists in print or analog newsrooms may also be affected by audience analytics, they typically encounter these metrics only indirectly. To simplify the sampling process, the focus was therefore placed on online journalists.

To **avoid post-hoc rationalizations** – that is, the risk that participants would link their responses too directly to audience analytics – the survey began with general questions about journalistic self-conception in order to measure role orientations. Established scales by Hanusch and Tandoc (2017, p. 705) as well as Mellado et al. (2013, p. 865) were used. To prevent overly obvious associations with specific role orientations, **items representing different orientations were presented in mixed order**. From the respective items, indices were formed, and their internal consistency was assessed using Cronbach's alpha. For the **citizen orientation**, the 6-item-scale yielded a value of $\alpha = 0.79$, indicating good internal consistency (Field, 2024). An example item for citizen orientation was: "As a journalist, I provide readers with the information they need to make polit-

ical decisions.” For **consumer orientation**, which was also based on six items, the internal consistency was lower, with $\alpha = 0.69$. This indicates questionable reliability, although the value borders on the acceptable threshold. Removing a single item would have led to only a marginal improvement in reliability. Therefore, the scale was retained in its original form – particularly to ensure comprehensive coverage of the theoretical dimensions. Nonetheless, it is important to **critically reflect** on whether some dimensions – such as attracting the largest possible audience, offering entertainment, or providing guidance – exclusively represent consumer orientation, or whether, for instance, the goal of offering guidance might also align with a citizen-oriented perspective. An item representing consumer orientation was: “As a journalist, I focus on news that attracts the broadest possible readership.” Agreement with these items was measured on a 7-point Likert scale.

The **use of individual metrics** was assessed via a frequency 8-point scale ranging from “never” to “constant use”. Each metric was explained using brief definitions and common synonyms to ensure inclusivity and understanding among all respondents. **Voluntariness** was measured with six items adapted from Fischer and Kohr (1997), including statements such as “I am strictly monitored in my daily work.” The internal consistency of the voluntariness scale was $\alpha = 0.83$, which is considered good and supports index formation. However, for the purpose of further analysis, the items were reverse-coded so that higher values would indicate higher levels of voluntariness. **Reflection** was captured through seven items based on Kember et al. (2000), adapted to the context of audience analytics. These included items such as “I want to understand how the results of individual metrics are generated and what they mean”. With an internal consistency of $\alpha = 0.92$, the scale can be rated as excellent, although this high value may also reflect item redundancy. Nevertheless, the scale was retained in its original form due to its **novelty and its essential relevance for the research aims** of this project. In addition, the survey measured acceptance of audience analytics, journalistic experience and standard sociodemographic variables.

The questionnaire underwent a technical pretest to assess item clarity and comprehensibility. Only minor adjustments to phrasing and spelling were required. For participant recruitment, newsrooms in German-speaking regions – including Germany, Austria, and the German-speaking part of Switzerland – were contacted to broaden the potential sample. Journalists were contacted via email, with an initial invitation followed by two reminder waves. Participants were also

encouraged to share the survey with colleagues (see Appendix 2-01). The survey was open from September 20, 2023, to November 14, 2023. In total, 434 responses were recorded. However, 77 cases had to be excluded after the initial screening question, which asked about employment in online journalism. An additional 66 participants dropped out after the first item battery, and three more cases were excluded for not using any of the four specified metrics. A check for patterned clicking and implausible responses revealed no grounds for further exclusions. This resulted in **288 valid cases for analysis**, although not all participants reported using every metric (see Appendix 2-02). The average age of respondents was 39. The gender distribution was roughly balanced, although gender data were missing in approximately 10% of the cases. Most participants had more than four years of professional experience and worked primarily in the private sector. As expected, the majority held academic degrees. The most frequently reported job title was “editor”, followed by managerial positions. The frequent selection of the “other” category suggests a wide **diversity of job titles within journalism**.

8.4 Analysis and Results: Metrics and Role Orientation

Addressing the first research question of this project – *RQ 2: How does the use of individual metrics relate to journalists’ role orientations?* – the relationship between the usage of various metrics and the role orientations of the surveyed journalists becomes central. Since no causal direction is postulated and a reciprocal relationship is assumed, correlation analyses are selected as the appropriate method. The indices measuring role orientation are treated as metric variables, while the metric usage is measured on an ordinal scale with non-equidistant intervals. Therefore, Pearson’s correlation is not suitable, and the non-parametric **Spearman’s rank-order correlation** is used instead (Table 4). This test is also more robust against outliers and violations of the normal distribution (Gehrau et al., 2022). Analyses were conducted using R version 4.3.2 (R Core Team, 2023).¹

With regard to the assumed positive relationship between consumer orientation and the frequency of pageviews use (*H1.1*), a statistically significant correlation is found (significance level set at 0.05), although the **strength of the association is weak** (Spearman’s $\rho = 0.159$, $p = .009$, $N = 267$). Thus, a higher degree of consumer orientation is associated with more frequent use of

¹ The following packages were used for data processing and analysis in R (R Core Team, 2023): *readxl* (Wickham & Bryan, 2025), *psych* (Revelle, 2025b), *dplyr* (Wickham et al., 2023), *Hmisc* (Harrell, 2024), and *ggplot2* (Wickham, 2023).

the pageviews metric, supporting *H1.1*. However, the weak strength of the relationship suggests that using pageviews does not automatically imply a strong market orientation. A similar association was hypothesized for the traffic metric (*H1.2*), as although it differentiates by source, it ultimately targets a core aspect of consumer orientation: maximizing audience size. **Again, a weak but statistically significant positive correlation is found** (Spearman's $\rho = 0.141$, $p = .022$, $N = 260$), thus *H1.2* is also supported. Given the similarity between both metrics, this result is unsurprising. Yet again, the weak relationship indicates that the use of strongly quantitatively focused metrics is not solely driven by consumer-oriented motivations. Whether this points to a more differentiated reasoning must be examined in relation to levels of reflection. Regarding the descriptive statistics of the page views and traffic metrics, it is evident that these are regularly used, with the most frequently mentioned value for Page Views being “multiple times a day” (*Median* = 5, *Mode* = 5, $N = 283$). The Traffic metric is used slightly less frequently, with the most common value being “at least once a day” (*Median* = 4, *Mode* = 4, $N = 274$).

For the metric shares, a positive correlation with citizen orientation was hypothesized (*H1.3*), based on its potential to support deliberative engagement. However, **no statistically significant correlation** is found, making Spearman's ρ uninterpretable in this case. As a result, *H1.3* must be rejected. Any expectations regarding the metric's contribution to reciprocal exchange or democratic debate – in line with citizen orientation – cannot be confirmed. It is also noteworthy that only 206 participants reported using the shares metric regularly, indicating **relatively limited dissemination**. Furthermore, the use of the metric is still relatively infrequent, with “never” being the most frequently reported value (*Median* = 3, *Mode* = 1). Compared to other metrics, shares appear to be of lesser importance in editorial routines. Regarding the hypothesized positive relationship between the time spent metric and citizen orientation (*H1.4*), **no significant correlation is identified either**, requiring *H1.4* to be rejected. Here too, the lower number of respondents ($N = 237$) suggests **reduced prevalence of the metric**. The use of this metric is somewhat more frequent than for shares, but still only moderate, with “at least once per week” being the most frequently reported value (*Median* = 3, *Mode* = 3). The initial rationale – that time spent may function as a proxy for engagement with content – could therefore not be substantiated. Further-

more, it remains possible that **the use of metrics in general is not – or is less likely to be – associated with citizen-oriented** journalistic values (Belair-Gagnon et al., 2020; Hanusch & Tandoc, 2017) (see Table 4 for overview of *H1.1* to *H1.4*).

Table 4: Spearman Correlation for Various Metrics

Hypothesis	Correlation (Spearman's rho)	<i>p</i> -Value	<i>N</i>	Outcome
<i>H1.1</i> : Frequent use of pageviews is positively associated with consumer orientation.	0.159	0.009	267	supported
<i>H1.2</i> : Frequent use of traffic is positively associated with consumer orientation.	0.141	0.023	260	supported
<i>H1.3</i> : Frequent use of shares is positively associated with citizen orientation.	0.026	0.719	198	rejected
<i>H1.4</i> : Frequent use of time spent is positively associated with citizen orientation.	-0.058	0.384	227	rejected

Note: Outcome indicates whether the hypothesis was supported based on $p < .05$.

8.4.1 Analysis and Results: Reflection on Use, Voluntariness and Role Orientations

The second research question of this project seeks to explore the context and conditions under which these metrics are used. The focus lies on two variables – **voluntariness and reflection**. Voluntariness addresses the organizational dimension within injunctive norms, aiming to assess whether there is any pressure or compulsion to use analytics. Reflection was identified as a central variable in the typology and is examined here in greater detail, also descriptively. This variable aims to uncover to what extent the use of audience analytics and their effects on working routines is critically reflected upon. In addition, the **relationship between these two usage modes and journalistic role orientations** is of particular interest. Role orientations reflect the professional component of injunctive norms within the Theory of Planned behavior. Specifically, the analysis

considers whether advocates of the citizen orientation feel more compelled to use metrics, and whether a consumer orientation – due to its stronger alignment with market-driven logic – is associated with lower levels of reflection. Since all the scales used in this part of the study are metric, Pearson correlation was chosen as the statistical method (Gehrau et al., 2022). Despite deviations from normal distribution, particularly for the reflection scale, this test was applied given **the sufficient sample size and the assumption of a linear relationship** (Field, 2024).

It was initially hypothesized that voluntariness in the use of audience analytics would be positively associated with a stronger consumer orientation (*H2.2*), and conversely, that it would be negatively associated with a citizen orientation (*H2.1*). This assumption was based on prior research indicating that audience analytics are generally perceived as more suitable for fulfilling consumer-oriented goals (Belair-Gagnon et al., 2020), while their use often appears to contradict the values associated with a citizen orientation – at least from the journalists’ perspective (Duffy et al., 2018). However, the analysis revealed the following findings (Table 5): **For the relationship between voluntariness in analytics use and consumer orientation, a statistically significant but weak positive correlation was found**, supporting *H2.2* ($r = 0.209$, $p < 0.01$, $N = 271$). This result aligns with the previously discussed compatibility and overarching market orientation of consumer-oriented journalism. In contrast, **no statistically significant relationship was found between citizen orientation and voluntariness**, leading to the rejection of *H2.1*. Journalists with a strong citizen orientation do not necessarily feel pressured to use audience analytics; rather, **the use of analytics appears to occur relatively independent of this role orientation**.

With regard to the central role of reflection in this project, it was hypothesized that a stronger consumer orientation would be associated with lower levels of reflection (*H3.2*), whereas a citizen orientation, due to the journalism’s inherent critical function, would correlate with higher levels of reflection (*H3.1*) (Fürst, 2018; Hanitzsch, 2007; Hanitzsch & Vos, 2017a; Tandoc, 2014a; Tandoc & Thomas, 2015). The analysis, however, provides **only partial support for these assumptions** (Table 5). While there is a statistically **highly significant relationship between reflection on audience analytics and citizen orientation** ($r = 0.212$, $p < 0.01$, $N = 271$), the strength of this relationship remains rather weak. Nonetheless, *H3.1* can be confirmed. Overall, it appears that a stronger citizen orientation is indeed associated with a more reflective use of metrics. Surpris-

ingly, no negative correlation was found for consumer orientation. On the contrary, a **highly significant and moderately strong positive relationship emerged** ($r = 0.367$, $p < 0.01$, $N = 271$), leading to the rejection of *H3.2* (see Table 5 for overview of *H2.1* to *H3.2*). This result **challenges the general assumption that consumer orientation necessarily corresponds to an uncritical use of audience analytics**. One possible explanation is that a stronger orientation toward audience needs may encourage a more thorough engagement with audience analytics, thereby increasing reflection on their usefulness. Furthermore, it is also conceivable, given the structure of the scale, that participants reflect on the functionality and interpretation of audience analytics **without necessarily questioning their coherence with journalistic values**, as the items were formulated in a rather general manner.

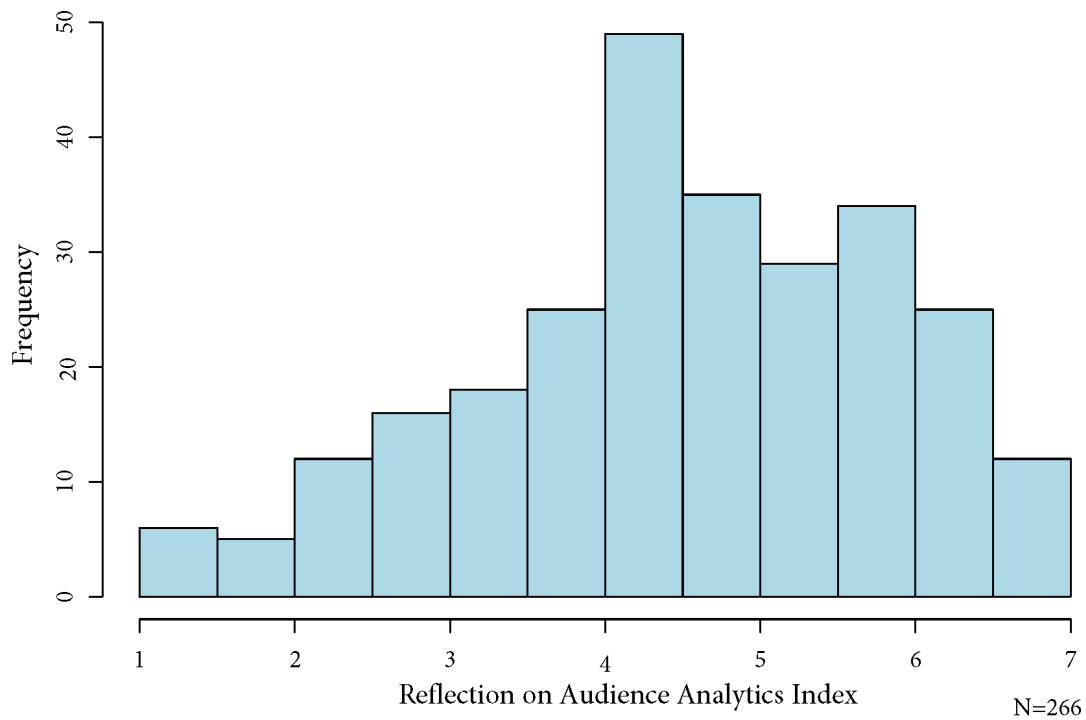
Table 5: Person correlation voluntariness, reflection and role orientations

Hypothesis	Correlation (Pearson's r)	p -value	N	Outcome
H2.1: Voluntariness of audience analytics use is negatively associated with citizen orientation.	0.107	0.079	271	rejected
H2.2: Voluntariness of audience analytics use is positively associated with consumer orientation.	0.209	< 0.01	271	supported
H3.1: Citizen orientation is positively associated with reflection on audience analytics use.	0.212	< 0.01	271	supported
H3.2: Consumer orientation is negatively associated with reflection on audience analytics use.	0.367	< 0.01	271	rejected

Note: Outcome indicates whether the hypothesis was supported based on $p < .05$.

A **descriptive examination of the reflection index** also yields interesting insights. With a mean of $M = 4.52$ on a 7-point Likert scale, the results indicate a **moderately high level of reflection**,

suggesting that journalists regularly reconsider their use of metrics. However, reflection does not appear to be a constant concern – implying that, in the day-to-day newsroom routine, it may receive less attention. The standard deviation of $SD = 1.57$ indicates moderate dispersion, meaning that there are journalists who reflect significantly more or less than the average. The distribution is not normal but right-skewed, with relatively few cases showing very low levels of reflection (Figure 2). Instead, the **distribution is concentrated in the medium to moderately high range**, indicating that a large share of respondents considers themselves reflective in their use of audience analytics. Overall, the voluntariness of analytics use is rated as moderate ($M = 4.18$; $SD = 1.33$; $N = 271$), indicating that there may be some organizational requirements to use audience analytics, but that it is not strictly enforced. Regarding role orientations, the results show a relatively strong tendency toward citizen orientation ($M = 5.04$; $SD = 1.16$; $N = 307$), supporting prior research that highlights the ongoing relevance of this normative framework. However, consumer orientation is only slightly lower ($M = 4.54$; $SD = 0.98$; $N = 307$), suggesting a **convergence in the perceived importance of both orientations** (for an overview of the analysis see Appendix 2-03).

Figure 2: Histogram for the Reflection on Audience Analytics Index

Note: The Index ranges from 1 (low reflection) to 7 (high reflection).

8.5 Conclusion and Implications

This project pursued two main objectives. First, it sought to move beyond the assumption of a uniform or undifferentiated use of audience analytics, as such an assumption fails to capture **the diversity of available metrics and their respective purposes**. Building on existing literature that suggests a close link between audience analytics use and consumer orientation (Belair-Gagnon et al., 2020; Ferrucci, 2020; Tandoc, 2014a), the project examined the relationship between individual metrics and journalistic role orientations. To ensure variance, a “most different metrics” design was applied. The second objective was to take a closer look at the component of subjective norms within the Theory of Planned Behavior. In doing so, the project applied an analytical distinction between injunctive norms: **organizational expectations, represented here by the voluntariness** of use, and professional norms, reflected in journalistic role orientations. Furthermore, the project aimed to **deepen the understanding of reflection** on audience analytics use by applying a newly developed scale, and to explore how this reflection relates to journalists’ role orientations.

8.5.1 Questioning Assumptions About Individual Metrics

With regard to the first objective, the expected result emerged: a positive, albeit weak, correlation between the metrics pageviews and traffic with consumer orientation. However, the assumption that less quantitatively driven metrics such as time spent and shares would correlate with citizen orientation, on the grounds that they might be used more for deliberative purposes, could not be confirmed. This opens up several possible explanations: Quantitative metrics may inherently lend themselves to the execution of a consumer orientation, or conversely, **consumer orientation may promote the use of such metrics**, even though the observed effect was small. This suggests that other factors might also be relevant, for instance, it may not primarily be the journalist's orientation that determines metric use, but rather whether these metrics are standard within a newsroom and, for example, regularly displayed or sent via email. As for the lack of association with citizen orientation, several explanations are also plausible. One possibility is a **disconnect between role orientation and actual metrics usage**: a form of pragmatic use in everyday editorial practice, whereas citizen orientation may instead represent more overarching professional ideals. Of course, the choice of metrics included in the study may also play a role here, as shares and time spent were used far less frequently, particularly in comparison to pageviews. Moreover, the difference between approval of the two role orientations was also smaller than expected.

8.5.2 Questioning Assumptions About Reflection and Role Orientations

In relation to the second objective, exploring the mode of analytics use in more detail and examining the role of reflection, the analysis revealed a positive correlation between voluntariness of use and consumer orientation. This finding is generally plausible, as journalists with a market-oriented perspective may be less troubled by the idea of audience analytics becoming a mandatory part of editorial routines. In contrast, no significant correlation was found between voluntariness and citizen orientation. This aligns with previous findings suggesting that these two aspects – voluntariness of use and citizen orientation – might be considered relatively independent of one another. From a descriptive standpoint, a moderate level of voluntariness was observed overall, **indicating that analytics use is not generally perceived as being forced upon journalists**. The relationship between reflection and citizen orientation was, as expected, positive. This fits the

broader picture, as citizen orientation inherently involves a more critical journalistic stance. However, the absence of a negative correlation between reflection and consumer orientation was somewhat surprising. Instead, a positive and even stronger correlation was observed. One possible explanation is that the user-centric nature of consumer orientation may actually encourage more frequent questioning of whether audience analytics are (still) appropriate tools to gauge audience needs. **This challenges the often-assumed notion that market-oriented journalists use audience analytics blindly or uncritically.**

That said, while the scale developed in this study is valuable for being the first to measure reflection in the context of audience analytics, it primarily captures whether journalists reflect and **not the purpose or direction of their reflection.** An alternative explanation is, therefore, that journalists with different role orientations **reflect on different aspects of analytics:** for example, consumer-oriented journalists may reflect on whether they are using the “right” metrics to maximize reach, not necessarily whether the use of metrics aligns with journalistic values. This means that both the quality and the objective of reflection need closer scrutiny. In light of the conceptual typology developed earlier, it becomes clear that types like the Enthusiast may indeed engage in reflection – but primarily to consider how to better use audience analytics appeal to emotions, rather than to preserve traditional journalistic values. Other types, such as the Integrator, may incorporate different considerations into their reflection processes.

8.5.3 Implications for the Overarching Questions

With regard to the broader question of quantification in the context of increasing commodification in journalism, several implications can be drawn. First, it appears that **highly quantitative metrics are indeed associated with a market orientation.** This suggests that making performance measurable may foster alignment with market logics – and vice versa. However, this effect is not absolute and leaves room for other motivations behind analytics use. The fact that pageviews are used multiple times per day by many respondents indicates that this metric has become widely embedded in editorial routines. Second, while the citizen orientation still receives considerable support among journalists, the gap to consumer orientation is relatively small. This suggests that **role orientations aligned with market principles are now well established** and may even coexist on nearly equal footing with deliberative ideals within newsrooms. Third, the assumption that

consumer orientation inevitably leads to uncritical behavior can no longer be upheld. On the contrary, the findings indicate that **consumer orientation is associated with heightened levels of reflection**, meaning that journalists actively engage with the functionality and application of metrics. However, this reflection may still be driven by commercial motives, such as optimizing products for market success. Fourth, the overall level of voluntariness in analytics use was moderate. This suggests that audience analytics have been integrated into newsroom routines by management but do not dominate them entirely. In turn, this indicates that the profession may still be able to draw boundaries and uphold its own evaluative standards, which are not entirely supplanted by audience analytics (Meyer & Rowan, 1977).

8.5.4 Limitations and Outlook

This project involves several limitations, both in terms of its methodological approach and its analytical scope. First, only a limited number of metrics were included, and the increasingly important “conversions” metric was excluded. This decision was necessary due to its ambiguity but also meant missing out on valuable insights that could have contributed to a broader understanding of analytics use (Cherubini & Nielsen, 2016; Newman et al., 2024). Regarding the scales, the internal consistency for consumer orientation proved to be relatively low. **This calls for a critical examination of whether its components, such as emotional appeal, service, and audience maximization, truly align with the same underlying orientation.** It is conceivable, for instance, that audience maximization is pursued independently of whether emotional content is emphasized. The reflection scale was used for the first time in this context and therefore represents a valuable step in measuring critical engagement with audience analytics. However, its very high internal consistency may indicate redundancy among items. Furthermore, the scale does not qualify the nature of reflection, leaving too much room for interpretation and failing to account for the benchmark informing reflective practices.

Regarding the hypotheses, it would have been possible to formulate assumptions for both role orientations across all metrics. For example, it could have been tested whether citizen orientation is also associated with the use of pageviews. However, this would have overloaded the study design and lacked a clear theoretical and empirical basis. Despite these limitations, the project’s

core objective – differentiating audience analytics use by metric – has proven to be a valuable approach. It revealed distinct and sometimes non-existent relationships with role orientations. Moreover, a closer examination of subjective norms, as conceptualized within the Theory of Planned Behavior, has shown to be fruitful. Both the descriptive and analytical results provided new insights into how these norms relate to reflection on metrics. The same applies to journalistic role orientations, which, although their binary structure may be questioned, nonetheless offer a **robust conceptual foundation**, particularly for capturing market orientation. Lastly, despite the acknowledged bidirectional relationship between use and norms, the integration of these components into a comprehensive model, one that also includes reflection, remains a desirable goal for future research.

However, in light of the increasing convergence between market-oriented and normatively grounded role orientations, it is worthwhile to take a step back and more closely examine the **shifting boundaries within the journalistic profession**. In the previous project, only journalistic personnel were surveyed. Yet, they no longer solely determine how editorial processes related to audience analytics are structured, nor how the resulting insights are handled (Fürst, 2020; Petre, 2018; Slaček Brlek et al., 2017). To better understand these potential shifts and the underlying developments, the next step incorporates the **perspective of analytics experts**. The aim is to explore their relationship with journalists and the resulting implications for journalistic production. Once again, journalistic role orientations can serve as a conceptual lens to assess the boundaries of the profession. It becomes particularly relevant to investigate how these boundaries characterize the **relationship between journalists and analytics experts**, whether the latter adopt journalistic role orientations themselves, or whether they seek to challenge and redefine professional boundaries in favor of establishing their own (new) role orientations.

9 Strangers in the Newsroom. How Analytics Experts Shape Journalism's Boundaries

Building on the previous projects, which focused on the use of audience analytics and how this is shaped by organizational, professional, and individual factors, this project shifts attention to a newsroom-centered perspective. It explores **the impact of audience analytics on the journalistic profession and its boundaries, the second thematic area**. While using the insights about audience analytics use, the focus here is placed on the emerging role of the analytics expert and their interaction with journalists within newsroom settings. Although existing research has examined the business strategies of analytics companies and their engagement with the boundaries of journalism, as well as the organizational shift of resources toward analytics specialists, it remains unclear **how this emerging group interacts with editorial staff and what influence it exerts on journalistic practices** (Belair-Gagnon & Holton, 2018; Costera Meijer, 2020; Petre, 2015; Slaček Brlek et al., 2017).

Analyzing this new role in isolation – either solely through the perspective of journalists or analytics experts – appears insufficient. Instead, their role must be understood as relational and context-dependent. Drawing on the **concepts of boundary work and journalistic role orientations**, this project explores the relationship between journalists and analytics experts across thirteen German news media organizations. Based on interviews conducted with both professional groups, the project investigates how the presence of analytics experts influences journalistic role orientations and news production processes. Moreover, this project critically examines the **convergence of both roles**, exploring the extent to which journalists internalize the logic of the analytics expert and thereby contribute to transforming the very boundaries of own their profession

9.1 Problem Statement

Audience analytics facilitate a closer integration of the audience into news production and fuel normative expectations that journalism should engage with audiences to overcome financial constraints (Costera Meijer, 2020; Ferrucci et al., 2020; Nelson & Schmidt, 2022). Hence, they mark a (novel) value system incentivizing to focus on the presentation of news rather than on original reporting. In numerous news organizations analytics have become a superior standard for determining the value of news, leading to the integration of specialized roles dedicated to analytics and

the audience perspective (Chua & Westlund, 2019; Ekström et al., 2022; Ferrer-Conill & Tandoc, 2018). Consequently, journalists now (have to) deal with analytics experts, at times inducing power transfers towards non-journalistic staff (Dodds et al., 2023; Dollah & Tandoc, 2022). Given this imposed collaboration, the key question arises of **how the relationship between journalists and analytics experts shape news production and the profession itself.**

In approaching this question, journalistic role orientations, however, may fall short in capturing the role held by analytics experts in newsrooms, challenging the established boundaries of journalism. Given concerns about an increasing market orientation and uncertainty of the journalistic profession concerning their audiences, it is critical to assess the dynamics between analysts and journalists and their impact on media production (Ferrucci, 2020; Nelson, 2018; Tandoc & Thomas, 2015). The potential erosion of journalistic standards poses a risk to journalism as a corrective force in politics and limits their scope for society. Therefore, the analysis extends beyond the well-explored territory of the impact of audience analytics on news production to scrutinize the role of analytics experts and their relation with journalists to shed light on **who holds authority in interpreting analytics and shaping editorial decisions.**

Regarding audience analytics, literature finds that many journalists exhibit hesitation in incorporating them into their daily routines while others try to match journalistic requirements with analytics (Christin & Petre, 2020; Hendrickx et al., 2021). This leads some scholars to advocate for closer integration of analytics experts, others assert a loss in quality and less original content due to targeting large audiences (Cherubini & Nielsen, 2016; Elsheikh et al., 2024; Fürst, 2020). The typology derived in the first project spans various reactions to audience analytics. However, it only displays one type without a journalistic background – **the Expert**. Hence, this project builds on this to provide a more detailed picture of the new role.

Audience analytics exert a multifaceted impact on media production. Lamot and Paulussen (2020) identify six areas impacted: **Story placement, story packaging** (adaptations to the original article), **story planning and story imitation** (monitoring successful competitor content and producing similar content), **performance evaluation** and **audience conception**. Moreover, audience analytics-related skills are highly valued, while original journalistic reporting is often taken for granted (Ekström et al., 2022; Wu et al., 2019). However, it remains largely unclear to what extent findings on the integration of audience analytics into journalistic practices can be transferred to

their human representatives, namely, analytics experts. Moreover, the mode of interaction between journalists and analytics experts remains underexplored, making it unclear whether audience analytics use is met with a confrontational stance – or whether these individuals, much like the Integrator type, may in fact help overcome reservations and contribute to a more reflective use of metrics.

To address these challenges, this project employs a combination of boundary work and journalistic role orientations as framework to refine the above-mentioned key question into theoretically grounded research questions. Drawing on a total of 26 in-depth interviews with journalists and analytics experts across 13 German media organizations, it aims to discern patterns in this relationship and explore how analytics experts redefine the boundaries of traditional journalistic roles. This investigation spans **various organizational contexts** to encompass diverse internal dynamics (Belair-Gagnon & Holton, 2018).

9.2 Using Role Orientations to Demarcate Journalism's Boundaries

Role orientations represent a key lens for analyzing the boundaries of the profession and for defining appropriate journalistic practices, as they capture the “discursive construction of institutional values, attitudes, and beliefs with regards to the position of journalism in society and, consequently, to the communicative ideals journalists are embracing in their work” (Carlson & Lewis, 2015; Hanitzsch & Vos, 2017a; Zelizer, 1993). Role orientations were already a central element of the previous projects and have been thoroughly presented in terms of their key characteristics. Additionally, based on the project's own survey data, questions were raised about whether the consumer orientation and its properties, as measured and conceptualized here, still constitutes a coherent role orientation. Given the centrality of the tension between professional norms and market orientation to this work, and the way this tension is aptly captured through role orientations, **they will again serve as an analytical framework in this project** – although their limitations will be acknowledged. Despite being dichotomous, and recognizing that journalists often balance both orientations (van der Wurff & Schoenbach, 2014), this classification provides a solid foundation for assessing the impact of audience-related roles on journalism, particularly given the commercial objectives associated with audience analytics.

Since this project addresses the internal fault lines within newsrooms and the often-conflicting demands placed on journalists, the analysis will not only consider role orientations as such,

but also examine how these orientations are enacted. This is particularly relevant in understanding how the boundaries of the profession are drawn, as these are shaped not only by internal attitudes, but – perhaps more crucially – by (journalistic) actions. Therefore, by acknowledging that **journalists may not always do what they say**, role performance as behavioral dimension is added to role orientation (Mellado & van Dalen, 2017). For role orientations to translate into behavior, and vice versa, for behavior to influence role orientations, several stages are involved. Starting from the **normative expectations of role orientations** (*what journalists should do*), **cognitive roles** emerge (*what they want to do*) through a selection of normative ideals that align with individual aims and organizational conditions. These cognitive roles, in turn, inform **practiced roles** (*what journalists actually do*) within role performance. Finally, these practices are reflected upon in **narrated roles** (*what they say they do*), forming a **feedback loop** to the normative level.

This analytical distinction shall not suggest that journalists' actions are fundamentally detached from their role orientation but rather demonstrate the **discursive nature of journalistic roles**. External factors, including national context and organizational prerequisites, wield a substantial influence on the alignment between role orientations and journalistic actions (Hanitzsch & Vos, 2017b; Shoemaker & Reese, 2014). **This conceptualization is valuable for two reasons:** Firstly, journalistic actions such as the integration of analytics experts into workflows and the discourse surrounding it may ultimately shape normative role orientations. Second, it highlights the importance of organizational contexts in shaping not only how existing journalistic roles are enacted, but also how new roles emerge and take shape within the newsroom.

9.3 Maintaining a Fuzzy Profession: Boundary Work in Journalism

Boundary work as “purposeful individual and collective effort to influence the social, symbolic, material and temporal boundaries, demarcations and distinctions affecting groups, occupations and organizations” (Langley et al., 2019, p. 2) provides a valuable lens for analyzing the integration of new roles into an existing profession like journalism. However, journalism as an “uninsulated profession” (Schudson, 1978) is hard to grasp which begs the question **what exactly needs to be protected by boundaries here**. Due to rather weak regulatory protection and constant technological shifts journalism struggles to establish a stable profession (Carlson, 2015; Ryfe, 2012). This amplified by economic constraints changing requirements and skillsets, *e.g.* journalists need to

market themselves and their content (Carlson, 2018; Tandoc & Vos, 2015). Despite these impediments **journalism strives for professionalization** by employing role orientations – such as citizen orientation – containing, for instance, the commitment to factual information and a watchdog mentality emphasizing its relevance for society (Lewis, 2012; Singer, 2015).

While Carlson (2015) successfully applies the concept to journalism, addressing the research question at hand requires extending it to **include the perspective of analytics experts**, who may either conform to the profession's boundaries or challenge them. Additionally, there is the possibility that journalists themselves expand the boundaries of their profession to integrate analytics colleagues. To capture these reactions the three distinct goals of boundary work have to be applied to both groups: **expansion, expulsion, and protection of autonomy**. **Expansion** refers to including new areas into a profession and thereby extending its boundaries. This encompasses integrating former non-journalists or adapting new practices such as the use of audience analytics. **Expulsion** serves as a means to maintain or even tighten the boundaries of the profession by excluding former members for their deviant behavior. This includes the public dismissal of journalists engaged in the fabrication of stories and, therefore, is also threatening gesture to insiders of the profession. While extension and expulsion deal with the enlargement or reduction of what journalism means, **protection of autonomy** addresses outside forces willing to influence the profession. These outside forces do not claim to belong to journalism but their intention is to change the profession of journalism as a whole *e.g.*, advertisers wishing to influence the coverage about them (Carlson & Lewis, 2015). Analytics companies, for instance, anticipate this desire for autonomy and potential expulsion by deferring to journalistic norms and disguising managerial intentions (Gieryn, 1983; Petre, 2018).

While analytics experts can only react to expulsion or attempts to protect journalistic autonomy, they can actively engage in the expansion of boundaries. Therefore, expansion is further nuanced into **boundary spanning, boundary blurring** and **boundary breaching** (Langley et al., 2019; Lindberg et al., 2017). **Boundary spanning** is about finding a common ground between the professionals and outsiders, *e.g.* by translating knowledge (Bechky, 2003; Evans & Scarbrough, 2014). **Blurring** indicates that professions become intertwined and their boundaries are obscured *e.g.* between journalism and public relations (Loosen, 2015). **Breaching** refers to the demolition of existing boundaries to create new ones (Zietsma & Lawrence, 2010). Audience analytics experts

could align analytics with journalistic goals (boundary spanning), claim that audience analytics are inherently journalistic (boundary blurring) or try to establish them as standard for selection at the expense of traditional standards (boundary breaching). Table 6 visualizes how types of boundary work may be performed by journalists and analytics experts.

Table 6: Types of Boundary Work by Journalists and Analytics Experts

	Journalists	Analytics Experts
Expansion	Including new areas and practices to extend the field.	Attempts to enter and shape the field.
Expansion: Boundary Spanning	Finding common ground with (formerly) non-journalistic roles and tasks. <i>Example:</i> Journalists incorporate audience analytics into journalistic workflows.	Approaching the field by emphasizing intersections <i>Example:</i> Analytics experts align audience analytics with journalistic goals.
Expansion: Boundary Blurring	Engaging in (formerly) non-journalistic tasks <i>Example:</i> Editors-in-chief closely observe audience analytics to inform the selection of stories.	Framing (formerly) non-journalistic tasks as journalistic and/or performing journalistic task. <i>Example:</i> Analytics experts engage in news production based on audience analytics.
Expansion: Boundary Breaching	Engaging in practices that fundamentally alter journalistic norms. <i>Example:</i> Journalists neglect traditional selection criteria to optimize audience appeal.	Challenging traditional journalistic norms by prioritizing data-driven approaches. <i>Example:</i> Analytics experts reframe success of news stories towards the number of clicks.
Expulsion	Defending traditional journalistic roles and practices by suspending certain practices. <i>Example:</i> Labelling audience analytics as commercial and non-journalistic.	Facing resistance and pushback from journalists. <i>Example:</i> Analytics experts and their expertise are neglected. Therefore, journalistic norms are anticipated.

	Journalists	Analytics Experts
Protection of Autonomy	Maintaining journalistic independence from external pressures. <i>Example:</i> Strategically utilizing analytics without allowing them to dominate editorial choices.	Navigating and potentially circumventing journalistic defenses. <i>Example:</i> Framing audience analytics in ways that align with journalistic values or obscuring their commercial nature.

Note: Framework adapted from Carlson (2015).

Regarding contextual factors, the relationship between journalists and analytics experts, as well as potential patterns of boundary work, can be shaped by **organizational prerequisites**, such as newsroom organization. Lischka (2015) finds greater cooperation between online and offline journalists when working with a central news desk, while Larrondo et al. (2016) emphasize the **importance of spatial proximity** for cooperation. By considering both internal and external perspectives of the profession, this framework presents a solid basis to explore the presence and impact of analytics experts within journalism, integrating traditional journalistic values with the unique approaches of analytics experts.

9.4 Research Questions

Building on the identified conceptualizations of boundary work and role orientations, this project seeks to scrutinize whether the relationship between journalists and analytics experts leads to an expansion of the profession or to defensive actions. This leads to the following overarching research question:

RQ 3: How does the emergence of analytics expert roles impact patterns of boundary work within journalism?

This project aims to establish a **relational typology of analytics experts** that reflects the patterns of boundary work mentioned in RQ 3. To inform this typology, the relational dynamics between journalists and analytics experts need to be characterized first. This involves analyzing the impact of analytics experts on production processes and (emerging) role orientations.

RQ 3.1: How does the relationship between journalists and analytics experts manifest, and what are its impacts on journalistic practices and role orientations?

9.5 Methodological Approach

To explore how the emergence of analytics experts generates patterns of boundary work and how these are reflected in their relationship with journalists, in-depth interviews were conducted with both journalists and their analytics expert counterparts – some of them working for the same organization. This **comparative approach** provided insights into everyday practices and mutual evaluations of both roles, potentially uncovering the reasoning behind these evaluations. Identifying analytics experts was challenging due to varying job titles – even within organizations. Therefore, “analytics experts” were defined as those whose primary work involves audience analytics tasks, such as analyzing audience data, providing reports, and making content suggestions based on audience analytics. Moreover, they had to work in a media organization that produces news content.

Data collection involved two phases. The first phase comprised 18 in-depth interviews with nine analytics experts and nine journalists across five media organizations, allowing the unique opportunity to contextualize their relationship within the same organizational environment. Learnings from the first interview and analysis phase were subsequently used to inform the second phase, which involved 8 additional interviews with four analytics experts and four journalists from additional media organizations. Despite lacking counterparts in this phase, it allowed to validate and expand upon the identified patterns across more diverse organizational contexts. Lastly, a combined analysis of all interviews from both phases facilitated a more aggregate level of identified types.

In total, **26 interviews across 13 media organizations in Germany** were conducted (see Appendix 3-02). Participants were recruited via email and LinkedIn, following a dual approach by targeting both journalists and analytics experts, ensuring that the latter spent at least half of their time on audience analytics-related tasks meeting the predefined criteria. Sampling aimed for diverse organizational settings regarding size, circulation area, and market orientation. The sample includes nationwide ‘quality news media’ as well as regional and local news outlets. Since most regional and some local outlets belong to larger publication groups, newsroom size may not accurately reflect market orientation, which was addressed in the interviews. Additionally, to reflect

Germany's dualist media system and provide a comparison for market orientation, we included two Public Service Media outlets. Positions for journalists included editors, chief editors and reporters, whereas analytics experts held a more varied range of roles. Most participants had been in their current position for one to five years, suggesting a medium level of experience, although some had been with the organization longer but in different roles.

To ensure confidentiality, participants' names and organizations were anonymized. Interviews, conducted via video calls from October 2021 to January 2022, lasted between 30 and 85 minutes depending on participants' schedules, with most interviews lasting approximately one hour. The interview guide included open-ended questions about **general practices in news production and audience analytics use**. Only after that cooperation with new roles, and journalists' general role orientation was addressed (see Appendix 3-01). This approach was chosen to avoid presuming causal relationships and to prevent socially desirable answers, given that audience analytics can be a sensitive issue for some journalists. For analytics experts, a slightly modified interview guide was used, focusing on **their role in the newsroom and associated news production routines**. In the second interview phase, participants were asked similar questions, but with a stronger focus on the relationship between journalists and analytics experts. Interviews were recorded via MS Teams and transcribed for analysis. Table 7 shows participants and their respective organizations from phase I, while Table 8 indicates the same characteristics for the participants of the second phase.

Table 7: Interview Participants from the First Phase

Code	Gender	Affiliation	Position	Years in position	Organization
PO1-1	female	Journalist	Editor	3-4	PO1: national quality news publisher
PO1-2	male	Journalist	Editor	4	PO1
PO1-3	female	Analytics expert	Audience Manager	1	PO1
PO1-4	male	Journalist	Online Editor	3	PO1

Code	Gender	Affiliation	Position	Years in position	Organization
PO1-5	female	Analytics expert	Audience Developer	4-5	PO1
PO1-6	male	Analytics expert	Business Correspondent	3	PO1
PO2-1	female	Journalist	Editor	15	PO2: national quality news publisher
PO2-2	female	Journalist	Head of Department	2	PO2
PO2-3	male	Analytics expert	Editorial Developer	4	PO2
PO3-1	female	Analytics expert	Editorial Developer	1	PO3: regional publisher
PO3-2	female	Analytics expert	Analyst	2	PO3
PO3-3	female	Journalist	Digital Reporter	< 1	PO3
PO3-4	male	Journalist	Digital Reporter	2	PO3
PO4-1	male	Journalist	Chief Editor	2	PO4: local publisher
PO4-2	male	Analytics expert	Audience Developer	3	PO4
PSM1-1	male	Journalist	Deputy Chief Editor	5	PSM1: regional public service media unit
PSM1-2	male	Analytics expert	Project Manager	17	PSM1
PSM1-3	male	Analytics expert	Product Owner	3	PSM1

Note: Participants are labeled PO for private media organizations and PSM for Public Service Media.

Table 8: Interview Participants from the Second Phase

Code	Gender	Affiliation	Position	Years in position	Organization
PO5-1	male	Analytics expert	Software Developer	4-5	PO5: national publisher
PO6-1	female	Analytics expert	Head of Audience Development	2	PO6: regional publisher
PO7-1	female	Analytics expert	Head of Digital	5	PO7: regional publisher
PO8-1	male	Analytics expert	Product Manager	< 1	PO8: national magazine publisher
PO9-1	male	Journalist	Chief Editor	6	PO9: local publisher
PO10-1	female	Journalist	Chief Editor Online	1	PO10: regional publisher
PO11-1	male	Journalist	Homepage Editor	< 1	PO11: national quality news publisher
PSM2-1	male	Journalist	Online Editor	3	PSM2: national public service unit

Note: Participants are labeled PO for private media organizations and PSM for Public Service Media.

Since this project builds upon conceptualizations of boundary work and role orientations in journalism, they formed the backbone of the qualitative analysis. The MaxQDA coding scheme encompassed **three fundamental categories** derived from the literature review: types of boundary work, characteristics of role orientations, and uses of audience analytics in news production. These were further refined by subcategories of varying orders. A **fourth major category** explored the relationship between analytics experts and journalists, identifying patterns such as cooperation, competition, or conflict, and coding reasons for these relationship dynamics (see Appendix 3-03).

After the initial content structuring, these the deductive main categories were extended by inductive sub-categories to capture more aspects than initially conceptualized, including the proprietary role orientation identified for analytics experts, which did not consistently align with the existing categories (Braun & Clarke, 2006; Mayring, 2019).

Coding rules for deductive categories relied on definitions from the literature, while inductive categories were grounded in anchoring examples noted in memos attached to each code. Entire sentences meeting the criteria were coded accordingly. Multiple codes could be assigned to a single fragment, highlighting possible intersections. Codes were reviewed when coded fragments provided more detailed insights than the original category, resulting in refined subcategories applied across all data through iterative coding rounds. This approach facilitated the generation of summaries for each category across all interviews, revealing overarching patterns (see Appendix 3-04). Additionally, the analysis aimed to uncover **links between categories**, such as how the relationship between both roles intersected with patterns of boundary work (Meyen et al., 2019).

9.6 Results: Identifying Relevant Context for an Analyst Expert Typology

Before the intended typology of analytics experts in relational terms to journalists can be developed, and before the overarching question on boundary work patterns can be fully addressed, the sub-question *RQ 3.1: How does the relationship between journalists and analytics experts manifest, and what are its impacts on journalistic practices and role orientations?* must be answered to provide sufficient context. Based on findings regarding their influence on content production and implications for role orientations – both for journalists and analytics experts – this more comprehensive understanding will serve as a **foundation for identifying different types of analytics experts** and examining their roles within editorial offices.

9.6.1 Selective Tolerance: Impact on News Production

Using the classification by Lamot and Paulussen (2020), this project identifies **story placement**, **story packaging** (adaptations to the original article), **story planning and performance evaluation** as frequent patterns of audience analytics use. Moreover, **audience conception** was a prevalent pattern. However, the most frequent pattern observed across all organizations was **performance**

evaluation, with both journalists and analytics experts closely monitoring analytics to assess audience success. This activity illustrates journalists' efforts at boundary spanning, incorporating performance evaluation into their professional skillset. However, a strong emphasis on performance metrics, such as the display of key figures on newsroom screens, was linked to **boundary blurring** and a stronger influence of analytics experts. This trend was particularly evident in media organizations that had recently undergone structural changes. This suggests a **threshold for performance evaluation**: it appears to be a widely accepted practice for which journalists are willing to expand the boundaries of their profession, especially if performance evaluation was already part of their work. However, in newsrooms undergoing transition, performance evaluation can become a dominant force, thereby strengthening the role of analytics experts within the editorial hierarchy but also that of journalists who advocate for a more intense performance evaluation based on audience analytics.

Yes, our new editor-in-chief for sure, numbers are very important to him. Well, in the past, you could sometimes start a project just like that, 'Yeah, sounds cool, let's do it.' Nowadays, everything has to at least have some rough goals. (PO6-1, analytics expert, regional publisher)

Topic placement varied across organizations: Using analytics experts' advice to decide on placements was common but some did so **only for certain topics**, especially in more prestigious quality news outlets. Here, prominent places were reserved for topics that were perceived as journalistically relevant, although the duration of articles in these positions often hinged on their performance. In terms of topic planning, analytics experts frequently suggested topics likely to perform well, prompting journalists to develop a keen sense for high-performing topics through regular analytics checks, thereby illustrating **boundary spanning** from both sides. However, certain topics were chosen regardless of performance, indicating a selective influence and **protection of autonomy**. This pattern of retaining control over some topics was evident across various organizational contexts.

But to do this work, to reflect. What is actually going on? And what can I do with it? That's a job that even audience analytics can't do for me. But how I implement it and whether I was right. (PO2-1, journalist, national quality news publisher)

Lastly, **story packaging** frequently involved requests from analytics experts for post-publication modifications when performance expectations were not met. However, compliance to those requests depended on **time constraints**. Often, the priority was on developing new topics rather than revising already published content, reflecting journalists' expulsion of certain analytics-related activities and the consultative role of analytics experts. It again becomes evident that the influence of analytics on news production is not absolute; other factors and established newsroom routines can override or outweigh analytics-driven considerations.

9.6.2 Walking on the Edge: Integrating Audience Analytics into Role Orientations

The previous part revealed the integration of audience analytics into news production and with it the expansion of boundaries by journalists but also the deliberate blurring of lines by analytics experts. Consequently, journalists develop **strategies to cope with the presence and demands of analytics experts**, leading to modifications or protective measures in their role orientations.

9.6.3 A Turn Towards Consumer Orientation?

One strategy identified comprises journalists rejecting or avoiding engagement with analytics experts to safeguard their autonomy, emphasizing their commitment to values of citizen orientation. However, this approach often **leads to conflicts, both with analytics experts and other journalists**. In many media organizations, where analytics experts are fully integrated into newsroom teams and hold authority over news selection granted by management, this strategy proves impractical. A second strategy involves a more **flexible approach** integrating audience analytics and the resulting audience conception into journalistic role orientations. Consumer orientation interlopes here since it already strongly incorporates audience desires via market orientation. While striving to balance boundary spanning and protection of autonomy, most journalists selectively **adjust their role orientations**, maintaining a watchdog mentality while incorporating expert feedback to enhance readership engagement, particularly for certain topics.

So ultimately, we can't let the readers completely dictate what topics we give them, but we just have to balance it out there, so maybe give the readers a little bit more of what they're interested

in, but still continue to do other topics that we think are important because of other things (PO1-1, journalist, national quality news publisher)

A third strategy involves **blurring or even breaching the boundaries between journalism and audience analytics by journalists themselves**. This can result in fully integrating analytics into role orientations. This approach assumes audience analytics accurately depict audience needs, often equating the analytical performance of content with its quality and relevance and thereby displaying **low reflection on the limitations of metrics**. It not only signifies a movement towards consumer orientation but also incorporates non-traditional journalistic elements into role orientations. This is especially prevalent in media organizations that have undergone regional consolidation and altered newsroom structures.

However, the impact of analytics experts varies based on journalists' prior role orientations, with some already leaning towards consumer orientation, particularly those new to their positions. In light of the broader question of commodification, this may indicate that an uncompromising focus on the audience **has already found its way into role orientations**, especially among journalists who have grown up in digital environments and are accustomed to continuous feedback mechanisms, potentially integrating these influences into their role orientations with little reflection or resistance. Managerial guidance also proves pivotal; while some managers enforce strict collaboration protocols between roles, others grant journalists more autonomy in their interactions. Lastly, some analytics experts have journalistic backgrounds and remain involved in news production, while some journalists participate in audience-related projects alongside their editorial tasks. Consequently, tensions can arise both between individuals and within when **both roles converge**.

9.6.4 Toward an Analyst Orientation

In address the blind spot of a potential analyst orientation, this project examined which characteristics of journalistic role orientations were adopted by analytics experts, revealing a **strong inclination toward consumer orientation** and catering especially to the market orientation dimension. They prioritize their organization's **financial viability**, ensuring that editorial content translates into revenue. While most engage in boundary spanning by acknowledging citizen orientation

and newsroom culture, they also **challenge journalistic assumptions** and advocate for a more prominent position in the newsroom, occasionally attempting to breach professional boundaries.

And there are many people who are real journalists, they want to write well, they try hard. But in the end, they are not read. They don't understand why. They don't understand why just writing good pieces is not enough. (PO5-1, audience analyst, national publisher)

However, most analytics experts aspire to empower journalists to work with audience analytics and produce “better” content (in the sense of performance evaluation), favoring data-informed rather than a data-driven approach. Drawing from these insights and acknowledging a mostly inadequate fit of existing journalistic role orientations, this project identifies **a distinct role orientation specific to analytics experts**. Key characteristics of this analyst orientation include the **belief in the objectivity of audience analytics, a focus on financial goals, providing guidance and service to journalists, and acknowledging, while also challenging journalistic norms**. Equating performance of articles with relevance underscores efforts to blur boundaries of the journalistic profession to establish a significant foothold within the field. This also involves to redefine what relevance actually means:

And journalism always means being relevant. And what we do basically means nothing other than measuring how relevant we are (PO3-2, audience analyst, regional publisher).

The manifestation of this analyst orientation and the varying degrees to which different aspects of it are pronounced depend significantly on organizational settings, particularly market orientation. In media organizations strongly focused on driving subscription numbers, analyst orientation was more dominant. The different roles that analytics experts adopt within newsrooms will be further explored in the typology developed in this project.

9.7 Towards a Typology of Analytics Experts: From Service Providers to Friendly Intruders

Building on previous findings regarding role orientations, news production and organizational context, distinct types of analytics experts are delineated and their influence on patterns of boundary work within journalism are explored (RQ 3). In addition to already considered organizational

factors, **spatial proximity** – whether journalists and analytics experts sit together or apart – emerges as pivotal aspect in this context.

Overall, the majority of relationships was described as **cooperative, routinized, and friendly**. However, analytics experts adopt varying approaches towards their journalistic counterparts, eliciting diverse reactions from journalists. This results in **three types**: the Friendly Intruder, the Demanding Reformer and the Distant Service Provider.

9.7.1 The Friendly Intruder

Analytics experts and journalists maintaining a close yet non-authoritative relationship was a frequent pattern. This type of analytics expert engages in boundary spanning by **aligning their efforts to journalists' interests and the company's tradition** to avoid expulsion from journalists. Despite advocating for greater prominence of audience analytics, they often lack authority to independently edit content. Instead, they actively collaborate with journalists by providing suggestions on topic selection and presentation. Thus, while the typical analyst orientation is evident, **its full implementation is constrained**.

You have to teach them a little bit [laughs] that we actually have the same goals and that we all really just want our stuff to be read. If that goes down well, then they come to me or us now and are happy to be advised. (PO1-5-, analytics expert, national quality news publisher)

Journalists on their part engage in boundary spanning by integrating analytics experts' advice into their routines, such as monitoring article performance and applying these insights to content production. However, **they maintain professional boundaries**, referring to the media brand's tradition and their role orientation, especially citizen orientation. They reject sole reliance on audience analytics to preserve their autonomy. This also involves covering topics despite low performance to uphold their role in informing the citizenry. Despite actions to protect the professional autonomy journalists **show a strong awareness of the company's mission and its financial situation**. While analytics experts' input in terms of attracting more readers is valued, journalists occasionally decline due to time constraints, reflecting their prioritization of core journalistic tasks and the notion that audience analytics are optional rather than directive.

So, I'm glad we have the numbers. I like working with them and looking at it. I'm also glad what role they have, which is that I have the opportunity to look at it, but I'm not forced to. (PO2-2, journalist, national quality news publisher)

This type is primarily observed in national quality news outlets with strong brands and traditional values, where managerial actions tend to protect journalistic autonomy rather than yield to analytics experts. Journalists benefit from the commitment to quality journalism and a nationwide audience, yet they are aware of their organizations' financial constraints and accept activities aligned with market orientation. Analytics experts in this context are often **situated separately from journalists**, facilitating easier rejection of their advice. While citizen orientation is popular among journalists and acknowledged by analytics experts, the Friendly Intruder facilitates **a closer integration of consumer orientation**, such as optimizing for audience numbers. This situation allows analytics experts to engage in boundary spanning asserting (and enlarging) their influence, while journalists selectively adjust boundaries to incorporate analytics insights, however, focusing on protecting their autonomy. In light of the overarching research question, this reflects a certain presence of commodification, in the sense that journalists are aware of their organization's financial situation and its market position. However, this awareness does not dominate their everyday routines. Particularly noteworthy is the role of the organization and its brand, which often includes a commitment to journalistic quality and, as such, cannot be entirely dictated by user preferences.

Despite PSM traditionally prioritizing public service values over consumer orientation, the Friendly Intruder can also be observed within PSM contexts. Analytics experts in PSM often possess journalistic experience or **hold hybrid roles**, again pointing to a convergence instead of a strict separation of roles. While analytics usage remains optional, these experts, like their counterparts in private media, aim to extend their influence. However, they encounter **strong resistance and inertia from some journalists**, pointing to expulsion and protection of autonomy. The growing role of consumer orientation reflects concerns that neglecting audience interests could undermine the public service mission, compelling them to substantiate their institution's relevance. Accordingly, analytics experts engage in boundary blurring by developing **justification strategies**. For instance, they argue that only through the use of audience analytics can the societal mission

of PSM truly be fulfilled, suggesting that relying solely on journalistic judgment might result in content that is detached and inaccessible to the broader public.

Yeah, so I just know a lot more. So, I can make informed, data informed decisions. It's much easier for me to really fulfill the mission of public service, namely to offer something for the whole of society and not just for an information elite, for example. (PSM1-3, analytics expert, public service media)

9.7.2 The Demanding Reformer

The Demanding Reformer represents a more assertive analytics expert type who adopts a dominant approach in interactions with journalists, convinced those **analytics are indispensable and necessary for a media organization's survival** in the digital age. While some of them attempt to breach boundaries by labeling journalistic selection as outdated and ignorant of audience interest, most refer to journalistic standards to span boundaries. They advocate for data-informed rather than purely data-driven journalism. However, their **primary focus remains on commercial considerations and content that "works"** with respect to analytical performance (Nelson & Tandoc, 2018). Their role centers on guiding journalists to focus efficiently on promising content, instead of content that is not expected to perform. Despite varying levels of authority, demanding reformers are consistently proactive and demanding.

I see more advantages because without analyzing reader behavior, a modern publishing house or media company simply could not exist. (PO3-2, analytics expert, regional publisher)

Journalists in this environment often **assimilate elements of this analyst orientation**, blurring the boundaries of their own profession themselves. Some even advocate for deeper integration of analytics experts into news production, prioritizing the goal "to make users happy". Content that "works" aligns closely with what journalists perceive as relevant, underscoring a **prevalent consumer orientation** reinforced by analytics experts as well as an ongoing convergence between both roles. While analytics experts exert influence, some boundaries persist, particularly regarding topics deemed socially relevant despite lower performance. Yet, this notion is frequently challenged by both analytics experts and journalists, indicating **continuous debates over boundary**

definitions. Among journalists who adopt an analytics expert orientation, there is often a tendency to equate economic success with content relevance. Conversely, this also implies that anything not in immediate demand risks being classified as unimportant.

Things that were important to us in the past, of which we now know that they are simply not in such high demand that they are no longer made [...] But that's...I don't know if that's necessarily a bad thing, if it's not in demand, then maybe it just wasn't right ...]. (PO4-1-, journalist, local publisher).

In this context of blurring boundaries, journalists often take on hybrid roles involving audience-related tasks and embrace elements of the analyst orientation. For example, an editor at a small local outlet relied solely on analytics to curate front-page content, automatically prioritizing high-performing topics while de-selecting non-performing articles.

This type is predominantly found in regional publishing houses hosting several small outlets, some of which are undergoing restructuring and significant changes in editorial offices due to consolidation processes. The type also appears in stand-alone online-only local media organizations. Factors like **declining revenue and a desire for closer interaction with a limited readership** drive boundary blurring from both sides. By implementing processes that render the presence of analytics experts mandatory, managers grant more authority to the Demanding Reformer, often facilitated by spatial proximity, i. e. placing them in the center of the newsroom. However, since journalists and analytics experts are often aligned in their goals, conflicts are not a daily occurrence. Notably, the emphasis on the audience can lead to either boundary expansion or, in some cases, to their destruction. Hybrid roles, such as the Integrator from the typology presented in the first project, can play a bridging role here, facilitating effective boundary spanning.

9.7.3 The Distant Service Provider

While confirming the existence of the Friendly Intruder and the Dominant Reformer types, the additional interviews revealed a third type reflecting a more traditional approach in the relationship between journalists and analytics experts. The Distant Service Provider tends to have a **rather passive role**, primarily providing basic reports to journalists. Audience analytics tasks are typically handled by dedicated teams or the chief editor with **minimal involvement from journalists** unless they choose to participate. Because of their inferior position, distant service providers engage

in boundary spanning efforts to increase their impact. This includes **appealing to journalistic pride** in an attempt to garner attention for audience analytics. Unlike other types, these boundary spanning efforts are rarely mutual and do not directly impact journalistic work, **maintaining distinct roles with clear boundaries**.

Every editor is happy when he appears in the daily top 3 that I announce there. Conversely, if a colleague doesn't have any page views, it doesn't mean that the colleague changes his writing style or devotes himself to new topics or somehow feels bad. That just doesn't happen either. So that's the situation (PO8-1, analytics expert, national magazine publisher)

The advice provided by analytics experts is discussed from a journalistic perspective, highlighting efforts to protect journalistic autonomy. Citizen orientation, namely a watchdog role and providing socially relevant content, are prioritized over consumer demands. Simultaneously, analytics experts accept these journalistic boundaries by framing audience analytics as a marketing tool rather than a journalistic one. Despite the strong emphasis on citizen orientation, journalists maintain an interest in audience behavior, thereby slightly expanding their boundaries. However, they also express **expulsion for practices that exclusively cater to audience needs**, distinguishing them from journalists involved in the dominant reformer environment.

[...] that a topic is now completely adapted again on the basis of the metrics, without there being a new twist in terms of content, is rather not the case. (PSM2-1, journalists, public service media)

This type is predominantly found in well-established traditional media brands and PSM, where journalistic autonomy is paramount and interactions between both roles are minimal due to spatial separation. These organizations, unlike others, exhibit **less reliance on market orientation**, due to public funding or a relatively stable nationwide readership. Similar to other types, managerial influence shapes the hierarchy between journalists and analytics experts. However, in these contexts, analytics experts' influence is tempered by organizational prerequisites and established workflows that prioritize journalistic autonomy. This also points to a more traditional separation of labor. For instance, in some newsrooms, journalists gain access to analytics tools only after receiving training to ensure thoughtful and responsible use, again highlighting that reflection is considered important for some organizations while other types reveal a more unconcerned use. The

Distant Service Provider **must align with citizen orientation** to maintain at least some marginal relevance in news production.

This type emerged exclusively from the additional interviews, where both roles were not integrated within the same organization. Analytics experts were typically organized into separate divisions, or the organization did not employ dedicated analytics experts at all, leaving such tasks to chief editors. This organizational setup likely accounts for the passive role observed among analytics experts in these contexts.

9.7.4 Aggregating the Types

Table 9 summarizes the three types of analytics experts in relation to journalists. Each type is explored in terms of **boundary work patterns, role orientations, and organizational context**. By detailing these elements, the table provides an overview of how various organizational factors influence the roles and interactions of analytics experts and journalists.

Table 9: Boundary Work Patterns, Role Orientations and Contextual Factors Associated with Analytics Expert Types

	Friendly Intruder	Dominant Reformer	Distant Service Provider
Boundary work patterns	Analytics experts: Boundary spanning (attempt to enter journalistic profession) Journalists: Boundary spanning, protection of autonomy	Analytics experts: Excessive boundary spanning and boundary blurring, some cases of boundary breaching Journalists: Boundary blurring and boundary spanning	Analytics experts: Cautious boundary spanning Journalists: Expulsion and protection of autonomy, selective boundary spanning
Role orientation	Analytics experts: Consumer orientation but appreciation of brand and citizen orientation Journalists: Citizen orientation but open to elements of consumer orientation	Analytics experts: Dominant analyst orientation Journalists: Excessive consumer orientation and incorporation of analyst orientation	Analytics experts: Strong appreciation of citizen orientation with low levels of analyst orientation Journalists: Strong citizen orientation but interested in audiences

	Friendly Intruder	Dominant Reformer	Distant Service Provider
<i>Type of organization</i>	Traditional legacy brands (quality news) & Public Service Media	Regional publishing houses and stand-alone online-only	Quality news media and Public Service Media
<i>Market orientation</i>	Moderate: Attempts to strengthen audience inclusion (also for PSM)	High: Consolidation and restructuring processes	Low: Little impact on journalists' work
<i>Scope of Audience</i>	Nationwide	Regional or local	Nationwide
<i>Managerial guidance</i>	Favoring journalists over analytics experts while integrating them	Granting analytics experts authority by strong integration into processes	Strong separation of both roles in processes
<i>Spatial proximity</i>	Mixed integration into newsrooms	Strong integration	Separated

Note: Organizational context factors is split into five distinct dimensions.

9.8 Conclusion and Discussion

The emergence of analytics experts has raised concerns about the overpowering influence of audience analytics on news production and with it a growing quantification of journalism (Fürst, 2020). Journalism as an “uninsulated profession” is already subject to weak boundaries and new roles could lead to a shift of the relevant skillset (Carlson, 2015; Ekström et al., 2022; Schudson, 1978; Tenor, 2024; Wu et al., 2019). Both roles may have reservations about each other while trying to come to terms with the situation. The findings point to a mostly cooperative relationship. However, analytics experts have their **own approach toward journalism and engage in boundary work to shape the journalistic profession**. A distinct analyst orientation that extends beyond traditional consumer-focused approaches could be identified. This emerging orientation regards audience analytics as impartial and reflective of audience interests, contrasting with the subjective journalistic gut feeling and citizen orientation often deemed inadequate for serving the audience. Despite acceptance of journalistic standards, some analytics experts strive for more influence in

the newsroom. This adds to the notion of “engineering consent” while pursuing own goals (Petre, 2018).

9.8.1 Summary of Findings

To deepen these findings and explore the conditions under which this analyst orientation gains momentum, this project identifies three distinct types of analytics experts and examine how they engage in boundary work with their journalistic counterparts. **Friendly Intruders** provide suggestions on content production and alterations, aiming for integration into the journalistic profession by spanning its boundaries. While journalists are open to expanding their boundaries to incorporate audience demands, they are selective in their utilization of analytics experts’ advice, prioritizing the protection of their autonomy confirming Christin and Petre (2020). This type predominates in traditional legacy brands, where managers strive to integrate audience perspectives while also preserving journalistic freedom. The **Demanding Reformer** actively shapes news production processes based on the analyst orientation and, supported by management and financial pressures, endeavors to persuade journalists to adopt their recommendations by erasing boundaries between professions. Conversely, journalists assimilate aspects of this analyst orientation to prioritize audience engagement in their work, thereby contributing to the blurring of boundaries themselves. This boundary blurring may ultimately lead to altered journalistic roles (Belair-Gagnon et al., 2020; Hanusch & Tandoc, 2017). The **Distant Service Provider** adopts a passive role, often working in isolation from journalists. This type is commonly found in more traditional news brands and Public Service Media, where journalists prioritize citizen orientation and strongly engage in the protection of their profession’s boundaries.

9.8.2 Connections to the Typology of Audience Analytics Users and Implications for Media Management

The typology developed in the first project offers valuable insights for differentiating the relationship between journalists and analytics experts, and for deepening our understanding of the latter’s role. A **synthesis of both typologies** proves particularly fruitful, as it reveals shared patterns in how certain types approach audience analytics. For instance, the Enthusiast and the Demanding Reformer are likely to work well together, as both share an **often uncritical belief in the capacity of analytics** to accurately reflect audience desires, and therefore consider them a valid basis for

decision-making. In this constellation, the Enthusiast would blur the boundaries of the profession to enable closer alignment with audience preferences. By contrast, the Skeptic – who is closely aligned with citizen-oriented journalism – would likely find little common ground with the Demanding Reformer, as their perspectives stand in direct opposition. This could lead to conflicts, especially over the **authority to define what constitutes “good” content**. The Skeptic, like the Opportunist, would be more compatible with the Distant Service Provider, who supplies data but does not challenge editorial autonomy. The Expert is most closely aligned with the Friendly Intruder, who – despite possessing deep knowledge of audience analytics – is also aware that **journalists need to be persuaded and that their professional needs must be considered**. Similarly, the Integrator type, who brings a journalistic background to their expertise in audience analytics, would likely work well with the Friendly Intruder. Conflicts, however, may arise with the Demanding Reformer, who tends to dismiss journalistic values associated with the citizen orientation as outdated, and who pushes for a more analytics-driven newsroom culture.

Overall, the typologies reveal potential overlaps and tensions between types. Determining which combinations are most harmonious or prone to conflict in actual newsroom settings, however, remains an empirical question. To explore this further, newsroom ethnographies could be combined with qualitative interviews to gain deeper insights into these dynamics. Such an approach would also enable the derivation of concrete implications for media management. While **the role of media management** was only indirectly addressed in this project, primarily in the context of organizational influences, it nonetheless emerged as a central factor, particularly in defining the role of analytics experts and in determining how these are embedded in newsroom structures. In doing so, two distinct approaches became evident: On the one hand, a commercially driven strategy aimed at establishing new standards to which journalists are expected to adapt. On the other hand, a more preservation-oriented form of media management that seeks to protect the long-term value of the media brand and actively supports journalists with a citizen-oriented mindset. This latter approach often involves the integration of Distant Service Providers, **maintaining a clear separation between journalistic and data-driven roles**. However, these observations are based primarily on statements from journalists and analytics experts. To gain more in-

depth insights into the strategic considerations behind such decisions, future research should incorporate interviews with media managers and focus on their rationale for integrating, or consciously delimiting, new roles in the newsroom.

9.8.3 Critical Evaluation

The combination of two theoretical lenses, boundary work and journalistic role orientations, proved to be a fruitful approach to scrutinize novel roles in the newsroom. It allowed for a detailed understanding of how analytics experts and journalists negotiate their professional boundaries, revealing the dynamics of their interactions within different organizational contexts. However, this typology is neither exhaustive nor universally applicable and may be influenced by **social and cultural context** as well as the media system (Dollah & Tandoc, 2022; Hanitzsch, 2011). Financial constraints, especially in transitional media systems, may even amplify the role of Demanding Reformers to key decision makers (Elsheikh et al., 2024). Conversely, state support or (anticipated) interference may diminish their role in newsrooms (Allam & Hollifield, 2023). However, in the context of the audience turn in journalism, this conceptualization offers a framework for understanding the dynamics between these roles and provides a foundation for further research into media production (Costera Meijer, 2020).

The **analytical distinction between analytics experts and journalists** is useful both from a pragmatic-empirical perspective and in terms of the boundary work framework. At the same time, this project has shown that **considerable convergence** between these roles can occur. This, however, also reveals a limitation of the study: a clear separation is not always feasible, as the functions of both roles are often embodied by the same individual. In many newsrooms, there are no dedicated analytics experts, rather, these tasks are carried out by journalists, either due to personal interest in the topic or because their leadership roles require them to engage more closely with strategic or commercial considerations. This is not unique to audience analytics; editorial leadership often entails a broader involvement with business matters. Consequently, the strict separation between journalists and analytics experts may be difficult to uphold in practice. The findings regarding the convergence of role orientations further support this: Journalists, some of them quite willingly, adopt elements of the analytics expert orientation. This is particularly true when analytics experts encounter journalists with a pronounced consumer orientation, which already overlaps

significantly with their own. From a boundary work perspective, this implies a **reduced need to defend journalistic boundaries**, as integration of the new role becomes more feasible when it is not perceived as fundamentally external. In other words, consumer-oriented journalists may not need to engage in boundary spanning, because their professional boundaries are already relatively open.

9.8.4 Implications for the Overarching Theme

Regarding the overarching question of commodification, two implications emerge: First, the intertwining of journalistic and commercially driven roles – especially those focused on audience optimization – indicates a **commodification that reaches deep into newsroom structures**. In the analytics expert orientation, quantification is equated with relevance. From the standpoint of citizen-oriented journalism, this could suggest a declining influence of traditional journalistic quality standards and may foreshadow long-term losses in content quality. Second, however, strong professional structures remain intact. Even Demanding Reformers acknowledge **the need to accommodate journalistic routines** to some extent. In time-constrained situations, these routines can even override analytics-based suggestions, limiting the influence of analytics experts. Moreover, some boundary patterns indicate that journalism continues to demonstrate resilience and retains **agency in deciding which aspects of audience analytics to integrate** into its workflows. That said, further convergence between these two roles seems likely over the long term, and the degree to which such convergence occurs will play a crucial role in shaping how audience analytics are embedded and received within editorial practices.

9.8.5 From Internal Dynamics to Content Decisions

Lastly, it is important to acknowledge that the interviews reflect the narrated role orientation rather than practiced ones qualifying the results as **approximation rather than an exact representation**, potentially favoring socially desirable role orientations, such as citizen orientation (Hanitzsch & Vos, 2017b; Hanitzsch, Vos, et al., 2019). However, since narrated roles, normative orientations, and role performance exist in a reciprocal relationship, it can be assumed that their mutual influence is at least partially behavior-shaping. Accordingly, this project was able to provide valuable insights into internal newsroom dynamics and nuance the role of analytics experts

in relation to journalists. Yet, it remains largely unclear how these dynamics affect **the nature and quality of the journalistic output** – whether a strong presence of analytics experts leads to substantial changes in content quality, or, conversely, whether orientation toward audience metrics can over time support coverage that addresses deliberative ideals and sustains topic diversity.

The following project therefore moves beyond the internal perspective of newsroom dynamics, expanding the analytical lens to **include the production process and the resulting content**. Of particular interest is the extent to which the dynamics observed here translate into content-relevant editorial decisions, and which situational factors, already identified as essential in this context, can be empirically traced throughout the production process.

10 Beyond Selection – Audience Analytics in Post-Publication Gatekeeping

The previous projects, closely examined the use of audience analytics and their relationship to journalistic role orientations. They demonstrated that audience analytics are not only structurally integrated into editorial routines but are also increasingly internalized by journalists. At the same time, citizen-oriented values continue to hold relevance and, depending on the situation, can significantly constrain the influence of audience data. This project builds on these insights and focuses on how such data practices affect editorial decisions beyond initial publication and how journalists reflect about this. To further explore how performance in audience analytics affect editorial output, this project analyzes **their impact on post-publication decisions, specifically, the de-selection of content**. While the selection of topics has been studied, the lifecycle of journalistic content extends beyond the initial publication. In this context, the role of audience analytics in guiding post-publication processes remains underexplored, especially when it comes to deciding which content is removed from prominent positions or hidden from view.

10.1 Problem Statement

Selection and placement of topics are a mainstay of journalistic news production, traditionally guided by journalists' instincts or peer input (Gans, 1979; Tuchman, 1978) . **This gatekeeping role, however, is challenged in digital news environments and with it established production routines** (Tandoc, 2014a; Vos, 2015). Here audience analytics and content platforms provide real-time insights into audience behavior (Anderson, 2011). The use of audience analytics leads to both short- and long-term adaptations in news production. In the short term, they monitor topic performance and guide selection. The placement, editing, and distribution of news items often depend on their performance. In the long term, performing topics receive follow-ups, shaping audience perceptions. As a result, financial and human resources are reallocated based on topic performance (Blanchett Neheli, 2018; Lamot & Paulussen, 2020; MacGregor, 2007; Tandoc, 2014a). While audience analytics are now a standard in news production, previous projects could demonstrate that their effect is limited by editorial dynamics, routines and normative role orientations. However, the focus on audiences raises concerns about compromised journalistic values and a decline in originality (Elsheikh et al., 2024; Fürst, 2020; Tandoc & Thomas, 2015). The previous

project also highlighted the relevance of reflection on audience analytics use, revealing sufficient levels while some journalists often fail to critically assess the limitations of audience analytics, viewing them as accurate reflections of audience desires (Groot Kormelink & Costera Meijer, 2018).

Research on the impact of audience analytics on editorial decision-making finds that **topics with strong audience performance are more likely to be selected or receive follow-up coverage** (Lamot et al., 2021; E.-J. Lee & Tandoc, 2017; Tandoc, 2014b). Audience analytics also influence homepage article placement, with higher-click articles gaining more prominence (Blanchett Neheli, 2018; A. M. Lee et al., 2014; Zamith, 2016). Most research on the impact of audience analytics on content decisions relies on interviews or ethnographic approaches, offering valuable insights into editorial processes (Cherubini & Nielsen, 2016; Lamot et al., 2021; Nelson & Tandoc, 2018). Lamot & van Aelst (2020), however, argue that they **fall short in quantifying analytics' impact**. To address this, they used experimental data to examine how audience analytics shape news ranking. While they expand the field by using an experimental approach to quantify audience analytics' influence on news ranking, their work focuses on selection and placement. However, **a news item's lifecycle extends beyond selection and placement**: This project argues that **duration and visibility of content are equally critical for entering public discourse** (Bright & Nicholls, 2014). Tandoc (2014a) observes that the removal and replacement of news items, called de-selection, is driven by audience analytics. Popularity cues boost a news item's chance of remaining prominently displayed (Bright & Nicholls, 2014; Zamith, 2016), while less popular items may be demoted or removed. Nonetheless, other factors like content diversity can offset popularity cues (Karlsson & Clerwall, 2013). Building on the experimental approach suggested by Lamot and van Aelst (2020) and first insights on de-selection, this project extends the scope by **quantitatively investigating how audience analytics drive de-selection decisions**:

RQ 4: To what extent do audience analytics influence post-publication gatekeeping processes?

Previous projects have shown that the recommendations and assessments provided by analytics experts tend to carry more weight for **certain types of content** – particularly those with less connection to public affairs – whereas their input is often disregarded when it comes to political topics, which are typically valued more highly in line with a citizen-oriented perspective. To move

beyond merely quantifying the effect of audience analytics, this project also examines **how topic areas, in combination with performance data, influence de-selection decisions** (RQ 4.1). In recognition of the fact that the exact reasons behind de-selection decisions, as well as the (social) dynamics within newsrooms, can hardly be fully captured in an experimental setting, additional in-depth interviews with journalists from various news outlets were conducted. These interviews explore **editorial routines, the use of individual metrics, and de-selection practices**, thereby contextualizing the experimental findings and shedding light on underlying processes (RQ 4.2). This also meets the demands of a mixed methods approach outlines for this research.

10.2 Literature Review and Conceptual Framework

The analysis is framed by the **post-publication gatekeeping framework** (Hermida, 2020; Salonen et al., 2023), which incorporates broader influences to provide a more holistic understanding of de-selection. This framework also offers a promising lens for discussing journalists' gatekeeping roles and the extent to which audience analytics influence editorial authority, or whether a kind of new equilibrium has emerged between data-driven imperatives and professional judgment (Tenor, 2024). To illustrate how post-publication gatekeeping extends the original concept, a brief overview of the traditional framework is provided.

10.2.1 Gatekeeping: Deciding What Is News (and What Is Not)

Gatekeeping addresses the fundamental question of why, from an abundance of information, certain items are selected as news while others are neglected (Shoemaker & Vos, 2009; White, 1950). This process, shaping how social reality is constructed, has traditionally been the **domain of journalists** and their judgments alone (Wallace, 2018). Various factors impact this decision, including individual journalists' role orientations, organizational routines, and external social institutions like governments, advertisers, and cultural values (Shoemaker & Vos, 2009; Vos, 2015). In digital environments, where space and outlets are no longer scarce, the **traditional concept of gatekeeping has shifted**. With technological possibilities and increasing economic pressures, the once "missing link" (Schlesinger, 1987) between journalists and audiences has been replaced by a permanent connection, resulting in a **deeper integration of audience preferences**. However, this connection and the role of users may not always be active or collaborative; instead, their presence

often takes the form of aggregated data via audience analytics. As such, what journalists interpret as audience preferences often merely reflects what they *perceive* users want based on metrics – and does not necessarily align with actual user interests (Groot Kormelink & Costera Meijer, 2018; Wendelin et al., 2017).

10.2.2 Beyond Selection: Post-Publication Gatekeeping

The role of audiences extends far beyond the initial selection of news. Users can actively contribute by sharing and highlighting content, thus increasing its prominence and visibility. Singer (2015) introduces the concept of “secondary gatekeeping” for this more collaborative approach. However, **most users lack the time and skills to engage in active gatekeeping** (Bruns, 2018; Heinderyckx, 2015). Given these constraints, this project assumes **audience analytics as more passive feedback** mark the primary shift in the relationship of journalism and its audiences, instead of more active participation like user generated content (Anderson, 2011; Costera Meijer, 2020).

To adequately capture the role of audience analytics in editorial processes that occur after the initial selection of news, and to account for factors influencing the lifecycle of content, this project draws on the post-publication gatekeeping framework developed by Salonen et al. (2023) and Hermida (2020). The framework identifies four key dimensions that shape news production beyond publication: **Audiences, platforms, practices, and regulations:**

Audiences, the first dimension, refers not only to aggregates of audience groups but also encompasses social system and institutional levels, such as organizational or societal expectations placed on journalism. **Platforms** represent content distribution channels which, with their own publication rhythms and algorithmic requirements, influence how published news is treated, for example, whether it is adjusted or is regarded suitable for distribution. **Practices** refer primarily to journalistic routines which, as enacted roles rooted in journalistic role orientations, are of particular relevance in this research (Hanitzsch & Vos, 2017b). This dimension is especially important for de-selection decisions, as this project aims to identify patterns of practice that reflect situational factors. The fourth dimension, **regulations**, includes both legal frameworks (*e.g.*, the European General Data Protection Regulation) and journalistic self-regulation, both of which can impact post-publication processes.

The framework builds on established models of gatekeeping by expanding in two ways: first, it incorporates **all five levels of analysis** – individual, routines, organizational, institutional, and social system – into post-publication activities. Second, it introduces new actors and requirements, such as platforms and audiences, into the gatekeeping process (Ferrucci & Hopp, 2024; Shoemaker & Reese, 2014; Shoemaker & Vos, 2009; Vos, 2015). What makes this framework particularly suitable for the current research question is that, unlike the original gatekeeping conceptualization, it explicitly includes audiences, and thus also audience analytics, as an independent influence. Moreover, the framework incorporates **practices and routines**, which were central to the previous projects, and acknowledges the importance of **platforms** and their external metrics (Nguyen, 2013). While legal regulation lies outside the newsroom itself, it can nonetheless exert a prohibitive influence – especially when it comes to the collection of personal data essential for monetization, which is often more accessible to platforms than to media organizations (von Rimscha & Riemann, 2024). In addition, the **regulatory dimension**, through its inclusion of self-regulatory practices, establishes a strong connection to **injunctive norms** (Ajzen, 2005; Tandoc & Ferrucci, 2017), which, as previously discussed, can be either organizational (*e.g.*, guidelines for analytics use) or professional (reflected in role orientations). This also links the regulatory dimension to **reflection**, as examined in the second project: self-regulation requires prior reflection on both one’s own work and the imagined audience.

10.2.3 Audience Analytics in Post-Publication Gatekeeping

The primary post-publication activity relevant to this project is **de-selection**, which refers to “deciding which among articles that have made it through the gates will be taken out of the homepage to be replaced by a new story” (Tandoc, 2014a, p. 571). De-selection is shaped by multiple dimensions of the post-publication gatekeeping framework, most notably **audiences**, **practices**, and, to a certain extent, **platforms**, making the framework particularly suitable for analyzing the role of audience analytics in this process. Audience analytics play a central role in informing decisions about whether already published content should be removed. Tandoc (2014a) shows that **de-selection is a common practice** aimed at keeping news homepages updated. Articles that perform well, particularly those with high readership, are less likely to be removed from prominent posi-

tions (Bright & Nicholls, 2014). This decision-making process typically centers on **internal metrics**, although platform-based metrics can also influence visibility, depending on distribution strategy. **Regulation**, while less directly involved, can influence de-selection decisions in two ways: On the one hand, **injunctive norms** on the organizational level may actively promote the integration of audience analytics into the de-selection process. On the other hand, **normative considerations**, such as professional values or public service missions, may encourage restraint in de-selecting certain content types.

Market-driven news organizations, in particular, are more likely to engage in post-publication interventions aimed at optimizing analytics performance (Ferrucci, 2020). However, as Zamith (2016) notes, the effect of audience analytics on editorial decisions is often limited, highlighting the importance of additional selection or de-selection criteria. In this context, Nelson and Tandoc (2018) highlight that **soft news is often treated differently**: When such stories fail to meet expected audience reception, they are quickly removed, unlike hard news, which tends to be published and maintained regardless of performance. Interestingly, even popular stories may be removed if it is assumed that they have already achieved sufficient exposure, thus creating space for other items to gain attention (A. M. Lee et al., 2014).

10.2.4 Different Topic – Different Approach?

As previously outlined, this project does not only examine the role of audience analytics in de-selection decisions but also considers **topic as an important counterweight** – especially since earlier findings, particularly in the third project, showed that topical relevance can sometimes outweigh the influence of audience analytics. Topics can be situated within the **practices and audience dimensions** of the post-publication gatekeeping framework, as they serve as structuring elements in the perception of news, both for journalists and for audiences. Drawing on the role orientations established in earlier projects, this project distinguishes **between public affairs and non-public affairs topics**. This classification aligns with the well-established distinction between hard and soft news and reflects elements of both citizen and consumer orientation (Wendelin et al., 2017). **Hard news** is typically associated with political relevance and broader societal consequences, whereas **soft news tends** to involve less political weight, emphasizing individual conse-

quences and emotional appeal (Reinemann et al., 2012). A concrete example of content that targets readers more as consumers than citizens is **service journalism** (From & Nørgaard Kristensen, 2018).

While journalists tend to favor public affairs topics, audiences often prefer non-public affairs content (Boczkowski & Peer, 2011). Ai et al. (2024) identify a contrasting trend in China, where users rate public affairs items higher than editors, suggesting a shift toward integrating **anticipated popularity** into journalistic practices. Regarding audience analytics, it is frequently assumed that their use in news selection results in more soft news (Fürst, 2020). However, the influence of audience analytics appears to vary depending on the topic: While **public affairs content tends to be published regardless of its performance** metrics, **soft news items are closely monitored** and often removed when performance expectations are not met (Nelson & Tandoc, 2018). Lamot and van Aelst (2020) further demonstrate that audience analytics impact the placement of soft news, while hard news remain largely unaffected. Moreover, **the blend and balance of topics** may be crucial for post-publication gatekeeping, again conditioning the effect of audience analytics (Karlsson & Clerwall, 2013). Hence, audience analytics' influence on selection and placement often topic dependent. Nonetheless, the precise role of audience analytics in post-publication gatekeeping and its interactions with topics remain obscure. To capture a broad range of variation in terms of public affairs relevance, three thematic areas were selected: **politics** (high public affairs relevance), **culture** (moderate public affairs relevance), and **service journalism** (low public affairs relevance).

10.3 Research Question and Hypotheses

To address *RQ 4 - To what extent do audience analytics influence post-publication gatekeeping processes?* – this project proposes several hypotheses based on the literature review. Prior research shows that high performance in audience analytics plays a significant role in news selection and placement (Blanchett Neheli, 2018; Lamot et al., 2021; MacGregor, 2007; Tandoc, 2014a). Thus, the following assumption is made:

H1: Higher performance in audience analytics metrics is associated with lower levels of article de-selection.

This effect, however, may vary by topic (R4.1). Previous research suggests that public affairs topics – traditionally tied to journalistic values, societal relevance and citizen orientation – are less prone to being analytics-driven than non-public affairs topics (Lamot & van Aelst, 2020; Nelson & Tandoc, 2018). Consequently, topic areas likely play a role in shaping de-selection decisions:

H2: The topic area influences the de-selection of articles.

Among non-public affairs topics, service journalism stands out due to its strong utilitarian focus, **appealing to users as consumers rather than citizens** (From & Nørgaard Kristensen, 2018). This consumer-oriented approach, coupled with its dependence on measurable performance, makes service journalism particularly susceptible to de-selection when metrics underperform. Therefore:

H2a: Articles in the service area are deselected more often than those in the culture or politics area.

Conversely, politics articles are closely aligned with journalistic values reflected in the citizen orientation and often carry societal importance. This connection likely **affords them greater protection from de-selection** compared to less societally relevant topics, such as service journalism or culture (Lamot & van Aelst, 2020). Thus:

H2b: Articles in the politics area are deselected less often than those in the culture and service area.

Since the influence of audience analytics varies by topic area, non-public affairs topics rely more heavily on audience feedback, while public affairs topics adhere primarily to established journalistic values (Lamot & van Aelst, 2020), it is assumed that – apart from the posited main effects – **the impact of audience analytics on de-selection interacts with topic areas**, with some areas being more strongly influenced by performance metrics than others (Nelson & Tandoc, 2018):

H3: The effect of audience analytics performance on article de-selection differs depending on the topic area.

This project adopts a comprehensive perspective and seeks to **contextualize the quantitative findings** to explore dynamics and situational patterns of de-selection processes. It once again

moves beyond the broad concept of audience analytics and addresses the **underlying mechanisms** that shape editorial decisions after publication as well as individual metrics:

RQ 4.2: How are deselection decisions made, and what role do individual metrics play in this process?

10.4 Methodological Approach – a Mixed Methods Design

This project employs a mixed-methods approach (Cornish & Gillespie, 2009; Döring, 2023; Tashakkori & Teddlie, 2010) to explore post-publication gatekeeping by combining quantitative and qualitative methods, leveraging their strengths to address the complexities of de-selection in journalism. This approach is particularly promising, as the strengths of the experimental design lie in **isolating the effects of audience analytics and topic type on de-selection decisions**. This relationship has not yet been sufficiently quantified and offers valuable insights into the role of audience analytics beyond observational findings and interviews, which often include a range of additional influences. However, this requires a somewhat **artificial setting** that participants may perceive as lacking realism, potentially limiting the generalizability of the results (Brosius et al., 2016; Döring, 2023; Koch et al., 2019). To counter this limitation, qualitative interviews focusing specifically on de-selection practices are conducted.

The quantitative part consists of a survey-embedded experiment designed to examine causal mechanisms in de-selection decisions by manipulating the key factors audience analytics performance and topic area to explore their effects on editorial judgments. Complementing this, in-depth interviews with journalists provide insights into motives, organizational norms, and situational factors influencing de-selection. By contextualizing experimental findings, the interviews uncover the reasoning and professional considerations behind these decisions, offering a detailed understanding of how audience analytics interact with journalistic practices and values.

10.4.1 Operationalization

No established scale for de-selection, the central dependent variable, could be identified and had, therefore, to be established. In this process, de-selection was primarily measured indirectly through participants' recommendations to remove content, **for two main reasons**. First, this approach aims to reflect **intra-editorial dynamics**, where decisions regarding content are rarely made by a single newsroom member. Second, as shown in the third project, such decisions are in

some cases no longer made by journalists themselves but rather by analytics experts. This also leads to a third **research-pragmatic implication**: limiting the sample to individuals who can independently make de-selection decisions would have significantly restricted participant diversity. Therefore, the **scenario of an editorial meeting** was chosen, and participants were asked to what extent they would recommend de-selecting the article shown in the stimulus, *e.g.*, by responding to the item: “I would advise my colleagues in the editorial meeting to keep the article under consideration on the homepage.” This approach includes all roles potentially involved in the decision-making process. Agreement was measured using a 5-point Likert scale. Negatively phrased items were reverse-coded to ensure that higher values uniformly indicated stronger agreement with de-selection. The scale demonstrated excellent internal consistency (Cronbach’s $\alpha = .93$), suggesting robust measurement but also potential item redundancy (Field, 2024; Gehrau et al., 2022). However, given the novelty of the scale and its conceptual utility, no modifications were made. For analysis, a mean index was computed to represent the overall level of agreement with de-selection decisions.

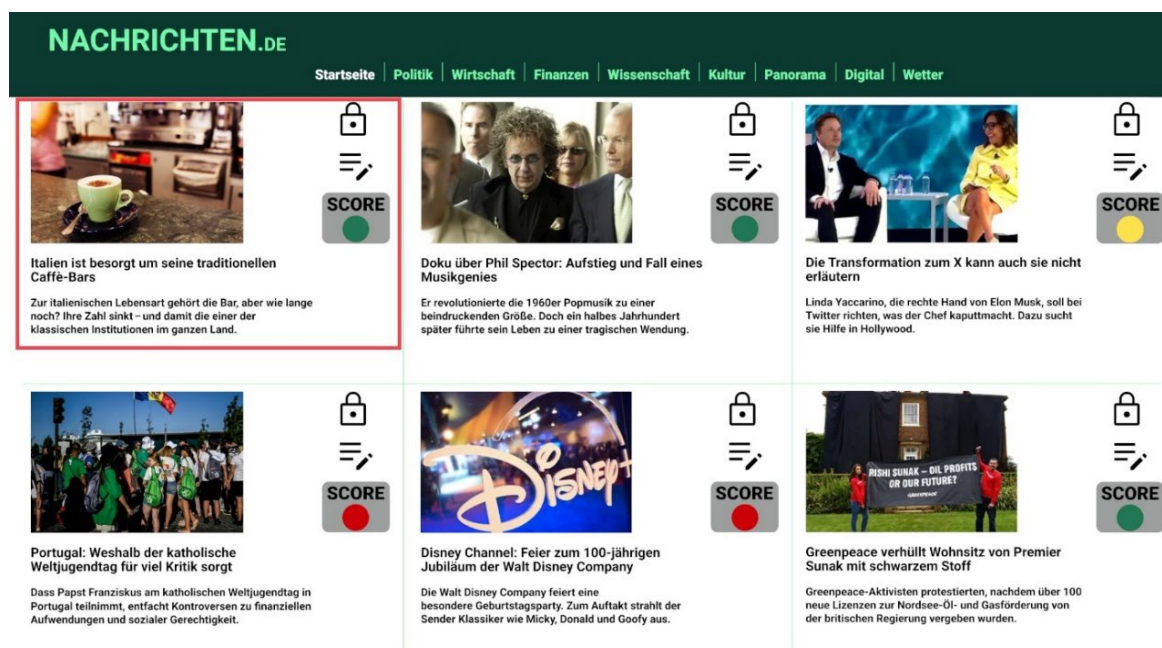
Audience analytics performance as independent variable was represented as **aggregated performance indicator visualized with a traffic light system (red, yellow, green)**, indicating performance levels of below-average, average, and above-average, with a control group receiving no analytics. To enhance external validity, this project used an aggregated score instead of specific KPIs such as click counts or reading time. The second project demonstrated that metrics vary in relevance across newsroom contexts. Given this diversity of tools and metrics in editorial settings, a universally interpretable indicator was favored. The traffic light system provided a shared framework, **enabling consistent interpretation** of analytics levels and alignment with various newsroom systems, ensuring comparable conditions for all participants. Therefore, it was initially explained to ensure the same level of knowledge about the tool for all participants.

Topic areas, serving as the second independent variable, were categorized as politics, culture, and service. Articles were selected to **maintain equivalent news value** based on Galtung and Ruge’s (1965) criteria of prominence, relevance, and timeliness. To avoid bias from overly dominant or emotionally charged topics, articles were constructed around **consistent themes with moderate public relevance across all categories**. This approach ensured that topics were relevant enough to be part of journalists’ general professional considerations but not so popular that, as

observed in the third project, audience analytics would become entirely irrelevant because the topic itself overrides all other influences, thus potentially compromising the experimental validity. Since this necessarily involved a considerable degree of experimental control, the qualitative interviews were designed to explicitly address the perceived role of topic relevance in de-selection decisions. All stimulus articles **shared a neutral overarching theme** – coffee consumption. In the political article, a café dedicated to Russian autocrat Vladimir Putin was featured; the culture piece addressed the decline of Italian espresso bars; and the service article focused on the practical value of coffee capsules. Only teasers were shown, each of equal length, to minimize stylistic influence on de-selection decisions. Articles were adapted from international sources to ensure participants were unfamiliar with the original stories in the German context. It must be noted that, of course, an article about a café dedicated to Vladimir Putin does not inherently possess a high public affairs value. However, the goal in this project was to ensure the **greatest possible comparability across the overarching theme**, in order to avoid distortion effects. Thus, this article holds relatively low public affairs relevance in absolute terms – but comparatively high relevance in relation to the other two articles in the same thematic category.

10.4.2 Procedure in the Experiment

The stimulus material simulated a fictional news website's content management system (CMS), **immersing participants in a newsroom scenario** during a Monday morning editorial meeting. They were tasked with deciding the fate of a highlighted article prominently featured on the homepage. The layout displayed six articles arranged in three columns and two rows, with the stimulus article placed in the top-left cell and outlined in red to draw attention (see red rectangle in Figure 3). To simulate a realistic newsroom, the homepage included five additional articles, constant across all experimental groups, acknowledging the comparative nature of editorial decisions. Articles included titles, teasers, images, CMS symbols, and audience analytics metrics (for all stimulus versions see Appendix 4-01-2). The stimulus presented in Figure 3 is an example of one of the 4x3 variants, in which the topics (politics, culture, service) and the traffic light score for analytics (no score, below average, average, above average performance) were varied (in this case culture x above average performance).

Figure 3: Simulated Newsroom Homepage as Stimulus for the Experiment

Note: Stimulus created by student assistants based on specifications and conceptual guidelines developed by the author and Dr. Gianna Ehrlich within the framework of a joint experimental study.

The survey comprised three sections to capture data relevant to the study's objectives. In the experimental section, participants evaluated the target article, **deciding whether to retain it or remove it (de-selection as dependent variable)**, and their awareness of the manipulated audience analytics levels was captured to control whether the manipulation was perceived at all. The second section covered how participant rated the news values of the presented articles, the perceived importance and use of audience analytics, de-selection practices, and participants' newsroom roles, exploring how analytics integrate into editorial decision-making. Demographic information, including gender, age, employment status, and department, was collected in the final section (see Appendix 4-01-1).

10.4.3 Procedure in the Qualitative Interviews

To contextualize the quantitative findings and better understand post-publication gatekeeping processes involving audience analytics, the project relies on 15 in-depth interviews with different editorial roles, aged 26 to 43 (Table 10). The interviews were conducted across 13 private media organizations, ranging from local to national publishers, including hybrid (print and online) and

online-only outlets. Participants were responsible for managing the homepage or contributing to editorial meetings on content decisions. To avoid introducing post-publication gatekeeping and its link to audience analytics prematurely, the interview guide began with **general questions about the lifecycle of news items before narrowing to de-selection** and audience analytics (see Appendix 4-02-1). Participants were recruited via outlet contact addresses or LinkedIn. Interviews lasted 25 to 59 minutes and were conducted in September and October 2023 (see Appendix 4-02-2).

Table 10: Interview Participants and Their Organizational Position

Code	Gender	Age	Position	Distribution of Media Organization
I1-MO1	Male	37	Editor-in-Chief and Content Management Head	Regional
I2-MO2	Male	43	Homepage Chief	National
I3-MO3	Male	38	Editorial Management	Local
I4-MO4	Female	41	Editor – National Desk	National
I5-MO5	Male	29	Editor	Regional
I6-MO6	Male	26	Editor	Regional
I7-MO7	Male	35	Editorial Management	National
I8-MO7	Female	26	Social Media Team	National
I9-MO6	Male	29	Audience Team	Regional
I10-MO8	Male	35	Audience Developer	Regional
I11-MO9	Male	30	Editorial Management	National
I12-MO10	Female	26	Editor	Local
I13-MO11	Male	33	Deputy Section Head – Politics, Economy, Society	National
I14-MO12	Male	43	Editor	Regional
I15-MO13	Female	36	Editor	Regional

Note: All participants were assigned pseudonymous codes to ensure anonymity.

The analysis relied on the post-publication gatekeeping framework and inductively derived categories. Existing categories were refined when necessary (Braun & Clarke, 2006; Döring, 2023; Meyen et al., 2019). **Four main categories** were used as basis, including post-publication gatekeeping and its four factors, audience analytics use, topics, and specific metrics. As the interviews covered the entire news lifecycle, editorial practices related to news selection were also incorporated for comparison. Within the post-publication gatekeeping categories, relationships with analytics use, topics, and reasons for de-selection were coded. In the first round, the coding scheme was applied to the material, followed by a second round with a refined scheme, especially focusing on de-selection processes and resulting patterns. This resulted in 1,347 coded segments, with some segments carrying multiple categories. Each category was **summarized across all interviews to aggregate the material**, and by linking post-publication gatekeeping with audience analytics use, **potential overarching patterns** in their relationship could be identified (see Appendix 4-02-3).

10.5 Results

The results of both the quantitative and qualitative components will be integrated following the logic of a mixed-methods approach. This allows for compensating the potentially limited external validity of the experiment while still isolating the effects of audience analytics and topic areas. However, for the sake of clarity and to emphasize the distinct methodological contributions of each part, the findings will first be presented separately. In the discussion section, both strands of results will be brought together, with the **experimental findings enriched by patterns identified in the qualitative interviews**. This aims to provide a comprehensive picture of post-publication processes and the role of audience analytics within them.

10.5.1 Experiment: Sample Description

Data were collected between September and November 2023 from journalists and editors across 777 newsrooms in Germany, Austria, and the German-speaking part of Switzerland. Recruitment strategies included email invitations, social media outreach (e.g., LinkedIn), and collaboration with professional associations and educational institutions. In addition, potential participants were asked to forward the survey to colleagues. Participation was limited to journalists or editorial

staff involved in decisions about article placement or de-selection within their professional routines. This also included individuals who may not make final decisions themselves but are involved in the process, for example, through participation in editorial meeting.

The survey initially yielded 763 partial responses, with **412 participants included in the final sample** after applying exclusion criteria (for example, comprehension checks and consistency tests). The sample was relatively balanced by gender (57% male, 42% female) and had a mean age of 41.63 years ($SD = 12.03$), encompassing both early-career and experienced professionals (age range: 19–67 years). Most participants (83.3%) were permanently employed, and a majority of 79.6% worked for Germany-based media companies. **Most respondents (91%) actively produced news content**, ensuring authentic and practical insights into journalistic de-selection decisions. Participants represented diverse editorial departments, including politics, business, culture, regional reporting, and news desks, offering multiple perspectives on de-selection across journalistic contexts (for an overview see Appendix 4-01-4).

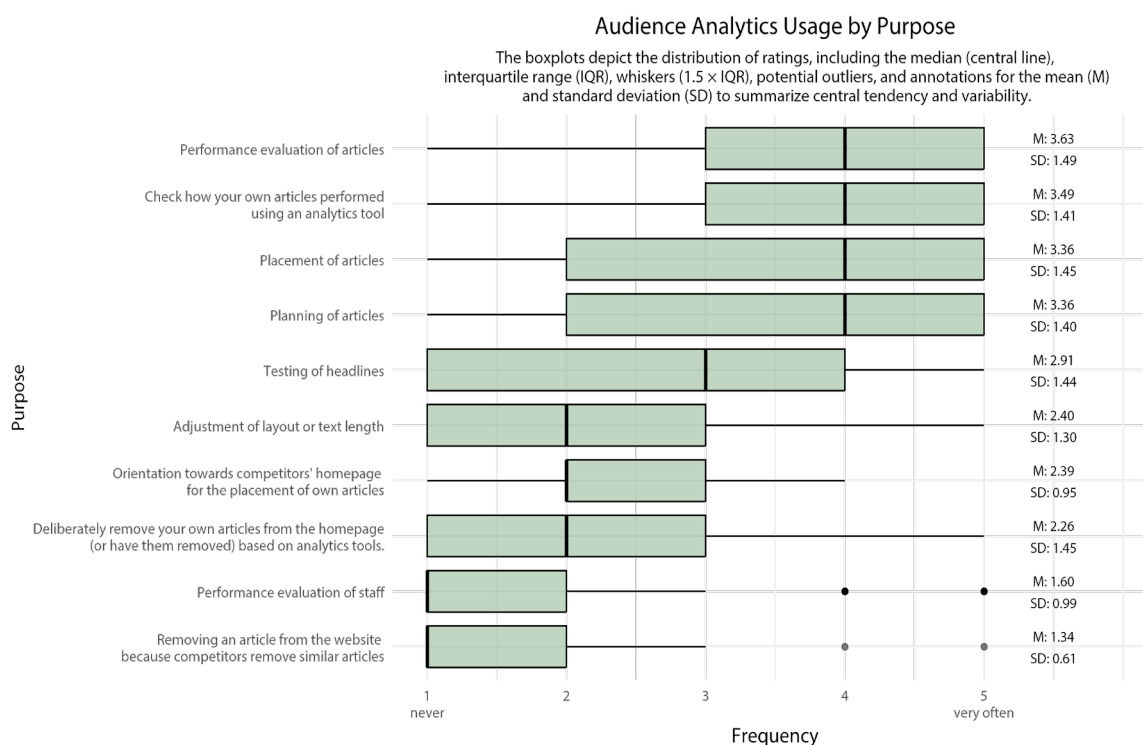
10.5.2 Experiment: Descriptive Statistics for Audience Analytics Use

The data reveal distinct patterns in the purposes and frequency (1 = “never” to 5 = “very often”) of audience analytics use in journalistic workflows (see Figure 4). Analyses were conducted using R version 4.3.2 (R Core Team, 2023).² Audience analytics are most frequently used for evaluating **article performance** more generally ($M = 3.36$, $SD = 1.49$) and reviewing the performance own articles specifically ($M = 3.49$, $SD = 1.41$). This again underscores the importance and **prevalence of performance measurement** and the associated quantification of journalistic output. Audience analytics are also commonly employed for **article placement** ($M = 3.36$, $SD = 1.45$) and **planning** ($M = 3.56$, $SD = 1.40$), highlighting their strategic importance in organizing and prioritizing content and confirming prior work by Lamot and Paulussen (2021). However, while article evaluation is a frequently observed use case, this does not seem to extend to performance evaluations of editorial staff ($M = 1.60$; $SD = 0.99$). This suggests that fears that journalists’ performance might be

² The following R packages were used during data preparation, analysis, and visualization: *reshape2* (Wickham, 2007), *sjstats* (Lüdecke, 2018), *emmeans* (Lenth, 2025), *rstatix* (Kassambara, 2023b), *car* (Fox & Weisberg, 2019), *ggpubr* (Kassambara, 2023a), *sjPlot* (Lüdecke, 2024), *tidyverse* (Wickham et al., 2019), *ggplot2* (Wickham, 2016), *tidyr* (Wickham et al., 2024), *dplyr* (Wickham et al., 2023), *haven* (Revelle, 2025a), *psych* (Revelle, 2025b), *writextl* (Ooms, 2023), *openxlsx* (Schauberger & Walker, 2023), and *extrafont* (Chang, 2014).

exclusively assessed via audience analytics – and that they could potentially face sanctions based on these metrics – have not yet materialized (Fürst, 2020). Moreover, less frequent uses include removing one’s own articles from the homepage ($M = 2.26$, $SD = 1.45$) and responding to competitor actions by removing content ($M = 1.34$, $SD = 0.61$), indicating that post-publication de-selection based on audience analytics is a selective and relatively infrequent practice – at least for one’s own work.

Figure 4: Descriptive Statistics of Audience Analytics Use Items

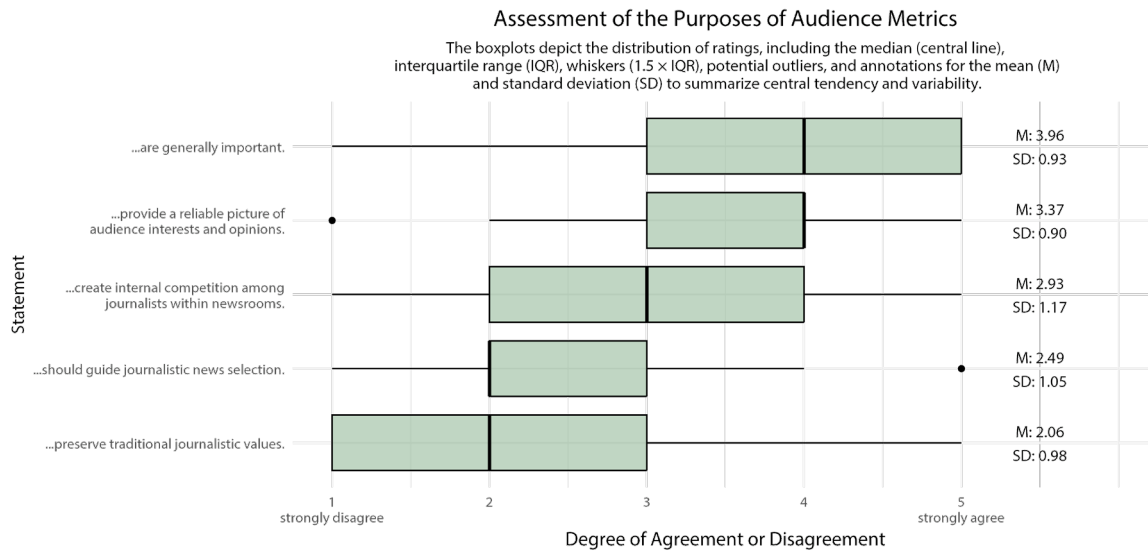


Note: Developed within the framework of a collaborative project. The figure was designed by Gianna Ehrlich as part of the joint analysis process.

The analysis of **journalists’ perceptions of audience analytics** demonstrates their practical significance but also perceived limitations (see Figure 5): Participants generally regarded audience analytics as important ($M = 3.96$, $SD = 0.93$) and moderately reliable in reflecting audience interests and opinions ($M = 3.37$, $SD = 0.90$). This largely aligns with findings from the second project, which indicated a **moderate level of reflection on the limitations of audience analytics**. However, their role in guiding news selection ($M = 2.49$, $SD = 1.05$) and supporting traditional journalistic values ($M = 2.06$, $SD = 0.98$) was viewed more critically. This echoes the results of the third project, which pointed to a rather selective use of analytics and a cautious reception of advice from

analytics experts, especially among journalists with a citizen-oriented role conception. Opinions were divided on whether audience analytics foster internal competition among journalists ($M = 2.93$, $SD = 1.17$), reflecting varied newsroom dynamics and organizational culture.

Figure 5: Perceived Usefulness of Audience Analytics



Note: Developed within the framework of a collaborative project. The figure was designed by Gianna Ehrlich as part of the joint analysis process.

10.5.3 Experiment: Hypotheses Testing

To test the hypotheses and assess the impact of audience analytics levels and topic areas on de-selection decisions, a two-factor ANOVA was performed (Table 11). The analysis **revealed a significant main effect of audience analytics on de-selection decisions** ($F(3, 408) = 6.41$, $p < .001$, $\eta^2 = .046$), supporting *H1* (significance level set at 0.05 for all tests; $N = 412$). However, the effect varied across performance levels and was not consistent for all of them: Tukey's HSD post-hoc tests indicated that articles with below-average analytics ($M = 3.19$, $SD = 1.08$) were deselected significantly more frequently than those with above-average analytics ($M = 2.62$, $SD = 0.98$; $p < .001$, 95% CI [0.23, 0.94]) (Table 12). Additionally, articles with below-average analytics were deselected significantly more often than those with no analytics ($p = .026$, 95% CI [0.031, 0.724]). **However, no significant differences were observed between the control group** ($M = 2.85$, $SD = 0.97$) **and average analytics** ($M = 2.88$, $SD = 1.01$; $p = .981$). The **small effect size** ($\eta^2 = .046$) indicates that while audience analytics influence de-selection, their impact remains limited. These

findings also suggest that audience analytics are primarily used for de-selection when performance is notably poor and avoided when performance is above average. However, decision patterns appear less differentiated in the mid-range (see Appendix 4-02-3 for an overview of the analysis).

Table 11: Two-Way ANOVA Examining the Effects of Audience Analytics and Topic Area on De-selection Decisions

ANOVA						
Effect	<i>F</i>	<i>p</i>	<i>df</i>	η^2	<i>R</i> ²	<i>Adj. R</i> ²
Audience analytics	6.41	<.001	3	.046		
Topic area	12.59	<.001	2	.059	.12	.10
Interaction	1.90	.079	6	.028		

Note: Developed within the framework of a collaborative project. The table was designed by Gianna Ehrlich as part of the joint analysis process.

A **significant main effect of topic area** (politics, culture, service) on de-selection was also identified ($F(2, 408) = 12.59, p < .001, \eta^2 = .059$), supporting *H2*. With a small to medium effect size, topic area emerged as a **slightly stronger determinant of de-selection than audience analytics**. Post-hoc comparisons revealed that service articles ($M = 3.23, SD = 0.99$) were deselected significantly more frequently than culture ($M = 2.75, SD = 0.95; p < .001, 95\% \text{ CI } [0.19, 0.75]$) and politics articles ($M = 2.69, SD = 1.05; p < .001, 95\% \text{ CI } [0.27, 0.81]$). This finding supports *H2a*, highlighting service articles' vulnerability to de-selection. However, **no significant difference was found between culture and politics** ($p = .845$), rejecting *H2b*, as politics articles were not deselected less frequently than culture articles. Similar to audience analytics, the effect is not evenly distributed across all categories – rather, **only one topic area appears to stand out**. The type of content most closely aligned with consumer orientation, namely, service journalism, was more frequently deselected compared to the other topic areas. This aligns with findings from the third study, demonstrating a strong retention of relevance for politically oriented content. What is surprising, however, is that no difference emerged between political and moderately public affairs-related cultural news. One possible explanation, as with audience analytics, is that only **thematic**

outliers are especially prone to de-selection, while political content and a range of other topic areas may enjoy broader acceptance and are more likely to remain accessible.

Table 12: Mean Article De-Selection Scores by Topic Area and Audience Analytics Condition

Topic	Audience analytics														
	None			Below-average			Average			Above-average			Overall		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
Culture	2.85	.98	34	2.97	1.09	32	2.62	.93	28	2.55	.78	33	2.75	.95	127
Service	2.91	.94	39	3.69 (a)	.90	33	3.18	.90	34	3.18	1.10	33	3.23	.99	139
Politics	2.77	1.03	32	2.96	1.09	42	2.81	1.11	38	2.13	.75	34	2.69	1.05	146
Overall	2.85	.97	105	3.19	1.08	107	2.88	1.01	100	2.62	.98	100	2.89	1.03	412

Note: Developed within the framework of a collaborative project. The figure was designed by Gianna Ehrlich as part of the joint analysis process. Marker (a) highlights the highest de-selection rate.

The assumed **interaction between audience analytics and topic areas was not significant** ($F(6, 408) = 1.91, p = .079, \eta^2 = .028$), rejecting $H3$ and indicating that the influence of audience analytics on de-selection does not depend on the topic of the article (for a summary of results see Table 13. This finding is also somewhat surprising in light of prior research and the insights from previous projects, which suggested that **different topics often serve different editorial purposes**. Specifically, public affairs content tends to be produced in line with journalistic values, particularly those associated with citizen orientation, whereas soft news topics are often selected based on recommendations from analytics experts and driven by commercial considerations. Following this logic, one would expect soft news articles, such as the service piece used here, to be treated differently in response to performance metrics compared to articles with a stronger public affairs focus. Poorly performing soft news may have been more likely to be de-selected, whereas public affairs articles might have been retained despite lower performance (Nelson & Tandoc, 2018). However, this pattern did not emerge, as no significant interaction effect was found. This suggests that the two main effects, audience analytics performance and topic area, **operate largely independently**. One possible explanation may lie in the stimulus design: the public affairs affiliation of all articles

was relatively low to begin with, possibly limiting the extent to which topic salience influenced participants' decisions. Furthermore, the relatively uniform role of audience analytics in de-selection, regardless of topic area, may point to a **broader integration of these tools into editorial decision-making processes** and a growing familiarity with metrics. Regarding the overarching theme, this may indicate a fundamental embedding of quantification in editorial workflows. However, considering the relatively small effect of audience analytics and the slightly stronger effect of topic area, this points toward a form of commodification that is present but limited in scope, **integrated into editorial routines, yet not dominant** (Cohen, 2015; Meyer & Rowan, 1977; Petre, 2018). Although no statistically significant interaction effect was observed, it is nevertheless noteworthy that the highest de-selection rate (3.69) by far occurred in the condition combining service articles with below-average audience analytics (Table 12, marker a).

Table 13: Summary of Hypothesis Testing

Hypothesis	Statistical Test & <i>p</i> -Value	Effect Size (η^2)	Outcome
H1: Higher performance in audience analytics metrics is associated with lower levels of article de-selection.	ANOVA, $p < .001$.046	supported
H2: The topic area influences the de-selection of articles.	ANOVA, $p < .001$.059	supported
H2a: Articles in the service area are deselected more often than those in the culture or politics area.	Tukey HSD, $p < .001$ (both comparisons)	-	supported
H2b: Articles in the politics area are deselected less often than those in the culture and service area.	Tukey HSD, $p = .845$ (politics vs. culture)	-	rejected
H3: The effect of audience analytics performance on article de-selection differs depending on the topic area. (Interaction effect)	ANOVA (Interaction), $p = .079$	-	rejected

Note: Outcome indicates whether the hypothesis was supported based on $p < .05$.

10.5.4 Qualitative Interviews: Identifying De-Selection Patterns

Interviews revealed diverse de-selection patterns, enhancing the experimental findings by uncovering motives and organizational rationales behind post-publication gatekeeping practices. While audience analytics emerged as a significant driver in many scenarios, their impact varied depending on **organizational conditions and situational factors**. First, it must be noted that de-selection is a normal process within news production – just like selection itself. De-selection occurs naturally within a news item’s lifecycle due to limited homepage space, particularly when new topics emerge. The results presented here are therefore based on a relational perspective, focusing on when and under what circumstances de-selection becomes more or less likely. The **obligation to keep the homepage up to date** often outweighs audience analytics performance, especially in the case of national publishers with large audiences. This highlights the self-regulatory dimension of post-publication gatekeeping, where journalistic values can, at times, take precedence over performance metrics, confirming insights from the third project.

If other news become more relevant, more current, or if an event develops further, then it is, of course, clear that those items will be moved up, and other things will naturally move down. (I13-MO11, Deputy Section Head – Politics, Economy, Society, national news outlet)

10.5.5 The Multi-Faceted Role of Topics in De-Selection

Hence, the role of audience analytics in content removal is shaped by the dynamics of the news flow: While analytics often guide day-to-day de-selection decisions in cases where topics of similar news value compete for visibility, they are frequently disregarded in the context of **dominant events** such as elections. Although the experimental design deliberately excluded such dominant topics to avoid potential distortions, the general role of audience analytics in everyday de-selection decisions can nonetheless be confirmed. Within the practices dimension of the post-publication gatekeeping framework, **topics emerged as a key driver of de-selection**, further supporting the experimental findings. Political news, particularly stories perceived as socially relevant, were less frequently de-selected by participants. In contrast, softer topics, such as service journalism, proved more vulnerable to removal.

Interestingly, **this pattern reversed in many local newsrooms**, where national political content, despite its societal relevance, was often quickly removed. Editors assumed that readers

turned to their outlet primarily for local news and would turn to other sources for national coverage. In these cases, softer content with direct local relevance, such as traffic updates or hazardous events like fires, tended to retain homepage visibility, regardless of metric performance. This **challenges the common assumption that public-affairs-oriented news is categorically less likely to be de-selected**. Instead, local relevance emerged as an additional and sometimes overriding criterion. Contrariwise, national outlets retained political news regardless of their performance. Thus, the **interaction effect** that did not reach significance in the experiment appears more clearly in the interview data.

Moreover, content that required **considerable resources** or was **produced in-house** was often less likely to be removed, pointing to internal value assignments beyond audience data. These findings suggest that de-selection decisions are shaped by organizational priorities, blending the audience and practice dimensions of the post-publication gatekeeping framework. Different Rationales for Selection and De-Selection

While the influence of audience analytics on post-publication gatekeeping is not consistent across all contexts, the interviews revealed specific and recurring practices in how they are used. By examining the full lifecycle of news items, a clear pattern emerged: **Initial story selection often followed journalistic criteria**, broader news agendas, or reactions to competitor activities. In contrast, audience analytics played a more decisive role in determining how long a story remained visible. A common strategy involved **“giving a story a chance” to observe its performance**, followed by swift removal if it underperformed. This approach was particularly noticeable with political content that had been published out of a sense of normative responsibility. These findings highlight why existing findings about the role of audience analytics in news selection cannot be directly transferred to post-publication activities. It appears that normative considerations, especially those linked to citizen-oriented role perceptions, carry more weight in the selection phase than in decisions about whether to de-select a piece after publication. This dynamic underscores the importance of studying post-publication gatekeeping: **Simply being published does not guarantee visibility**, as low-performing items may remain live for only brief periods.

Yes, that's the thing – after testing and observing whether people are interested, and we realize they aren't because it simply doesn't get any clicks, then we react very quickly. So, you usually give

the article about an hour at most and check whether it's being picked up or not [...]. (I12-MO10, Editor, local news outlet)

In extreme cases, article placement and de-selection are fully automated, with performance metrics dictating outcomes and leaving editors with little agency for manual adjustments.

10.5.6 Strategic De-Selection

While audience analytics performance frequently triggered de-selection and related post-publication activities, such as modifying headlines or article length, the rationale behind these actions varied. The audience aspect within the post-publication gatekeeping framework played a dominant role here: De-selection often stemmed from a belief that audiences lacked interest in specific content. In some cases, this was a strategic decision: **Low-performing content misaligned with an outlet's unique selling point was removed more quickly** due to economic pressures. Keeping non-performing items in prominent positions was perceived as unaffordable, again reflecting intersections between audiences and practices. However, de-selection does not necessarily result in disappearance. Some participants mentioned to de-select articles strategically due to low performance, only to modify them and **give them a second chance later on**, hoping for better audience analytics during another time of the day:

If we notice, okay, there are so few people on it, even though it's actually a hot topic, we take it down for now. And occasionally, we also handle it in such a way that we remove articles from the homepage for a certain time and then republish them later. (I6-MO6, Editor, regional news outlet)

10.5.7 The Role of Individual Metrics

To meet the broader goal of this research – and in alignment with the approach pursued in the second project – to move beyond the generalized term audience analytics, this project examined how individual metrics shape post-publication decisions. Unsurprisingly, click counts remain the dominant metric. However, conversions measuring the generation of subscriptions are gaining importance, supporting findings by Newman et al. (2024). Some participants reported **assigning specific metric goals to different articles**, such as retaining existing subscribers, driving traffic, or acquiring new subscribers. This suggests a differentiated approach to de-selection depending

on strategic goals. For instance, an article aimed at retaining subscribers may be treated more generously – even if its click numbers are relatively low. This illustrates that, beyond purely quantitative goals, other evaluative criteria are possible. This leads to the assumption that – regarding metric performance – not only topics are treated differently, **but also articles are evaluated based on their intended purpose**, offering additional explanatory potential.

At the same time, metrics are often presented in aggregated formats with easily accessible indicators, which speaks to their institutional embedding within editorial workflows and their relevance to post-publication gatekeeping. However, this aggregation may also lead to a less nuanced engagement with individual metrics, instead promoting a generalized view. One explanation could be that **journalists lack the time to analyze multiple metrics** and instead rely on heuristics that support quick decision-making. This also validates the traffic light system employed in the experimental design. Interestingly, a high value on a given metric does not always correlate with a lower likelihood of de-selection. On the contrary: **high referred traffic from search engines, for example, could prompt de-selection**, as such articles were perceived to have already served their visibility purpose and no longer needed to occupy space on the homepage. Although usually seen as background infrastructure, the platform dimension in the post-publication gatekeeping framework reveals its influence through these seemingly **counterintuitive de-selection patterns**, supporting insights by A. M. Lee et al. (2014).

If I then see that it's not being clicked on the homepage at all but has a very high reach via Google, then you can follow the principle of saying: "Well, I'll take it down because obviously no one is reading it on the homepage, but they're finding the content through other means. So, I'd rather use the space on the homepage to offer something else." (I2-MO2, Homepage Chief, national news outlet)

Overall, the interviews reinforce findings from the experiment while uncovering distinctive patterns and underlying motives extending the quantitative results. De-selection appears more susceptible to audience analytics than initial selection, though its influence varies with the news situation and organizational culture, marking the critical intersection of audiences and practices. Apart from that, de-selection can be temporary, stressing its **strategic nature**.

10.6 Summary of Findings and Discussion

This project investigated the role of audience analytics in editorial practices *after* the initial selection of news. By extending insights into selection decisions (Blanchett Neheli, 2018; Lamot & van Aelst, 2020; Tandoc, 2014a; Welbers et al., 2016), it highlights that selecting a news item is **necessary but not sufficient for its inclusion in public discourse** – visibility, duration, and placement are equally critical. By integrating the concept of analytics-driven de-selection (Nelson & Tandoc, 2018; Tandoc, 2014a) into the post-publication gatekeeping framework (Hermida, 2020; Salonen et al., 2023), factors influencing de-selection decisions were examined and patterns as well as motives behind these practices uncovered. Given the importance of topic areas in this relationship (Lamot & van Aelst, 2020; Nelson & Tandoc, 2018), they were integrated into both the experiment and the in-depth interviews.

10.6.1 The Limited Influence of Audience Analytics

The findings confirm that audience analytics significantly influence decisions regarding the duration and prominence of published news articles, though their impact is not absolute but rather small (see effect size in Table 11 and 13). The fact that the impact on de-selection only differed significantly between high and low performing analytics but neither of them with average performance points to a **threshold that needs to be exceeded**, suggesting that their influence does not seem to be entirely linear. Moreover, the experiment revealed that the topic area of an article exerts a stronger influence on de-selection decisions than its performance in audience analytics, suggesting that **newsroom practices** and **content-specific factors** play a more decisive role in post-publication practices. The topic areas politics and culture are less frequently deselected compared to service-related content, reflecting the prioritization of societal relevance and the alignment with traditional news values. While audience success may not be universally decisive, it has become a permanent fixture in editorial practices, effectively **extending the traditional set of news factors**, as noted by Lamot and van Aelst (2020).

In the interviews, journalists reported greater autonomy and normative considerations in the initial selection of topics, often “giving several topics a chance”. However, once a topic was selected, its performance frequently became a key determinant of its duration and placement. This reflects a heightened awareness of the need for balanced and diverse coverage during the selection

phase, contrasted with **more performance-driven rigor during de-selection**. This also reinforces the notion that role orientations and their components may not be static but can shift along the continuum of market orientation depending on contextual demands. While selection, as a classic gatekeeping task, is perceived as more relevant and influenced by citizen orientation, the evaluation of content and its visibility over time tends to be shaped more strongly by market-based criteria.

10.6.2 Different Situation, Different Approach

However, situational aspects shape this relationship. Audience analytics' impact, for instance, often hinged on the overall news situation. Journalists are hesitant to remove dominant topics such as elections or terrorist attacks from their homepage even if they do not perform well, indicating the intersection – and at times tension – between the audiences and practices aspect of post-publication gatekeeping. Conversely, articles are de-selected despite high performance due to the perceived **obligation to keep the homepage updated**. This underscores the persistence of editorial judgment in determining which articles remain accessible and visible to audiences, even in the face of increasing reliance on real-time audience metrics, resembling the self-regulative aspect within the post-publication framework.

Organizational characteristics, reflecting the practices aspect of the applied framework, play a crucial role in de-selection decisions as well. Resource-intensive content and in-house productions are less likely to be de-selected, even when failing performance benchmarks. This underscores the **interplay of economic and social considerations**: Promoting brand-specific content or satisfying authors often takes precedence over strict adherence to audience analytics. However, de-selection was frequently described as an economic necessity, especially for smaller outlets with more limited resources. These organizational and situational influences – which can, at times, completely override audience analytics – may help explain why the variance in de-selection explained by topic area and audience analytics performance remains relatively low at approximately 10% (Table 11). This finding highlights the need to account for a broader and more nuanced set of influences in future research on post-publication gatekeeping.

The findings revealed no significant interaction between topic area and audience analytics in de-selection decisions, diverging from the results Nelson and Tandoc (2018), who identified a

stronger influence of analytics on soft news. However, the hard versus soft news dichotomy employed in their study may produce more pronounced differences in journalistic values than the topic categories of politics, culture, and service used here. Interestingly, the **interviews uncovered more nuanced patterns**: interactions between topic area and analytics performance varied strongly depending on whether outlets served local, regional, or national audiences. Participants from national outlets reported that hard news, particularly stories of broad social relevance, were less likely to be de-selected despite poor performance. Conversely, local and regional outlets showed greater willingness to remove such stories if they did not perform well, as these topics were seen as **misaligned with their specific audience interests and editorial priorities**. These contrasting editorial logics may explain the absence of a statistically detectable interaction effect: **divergent tendencies likely neutralize each other when averaged across the sample**. This finding is particularly noteworthy, as it reveals counterintuitive patterns and suggests that, contrary to the experimental data alone, an interaction effect between topic area and analytics performance – similar to that observed by Nelson and Tandoc (2018) – may indeed exist under specific contextual conditions.

10.7 Implications for Journalism and Media Management

The findings paint a nuanced picture of editorial autonomy in post-publication processes. While organizational expectations are considered, particularly when performance is lacking, journalists largely retain decision-making authority. This expands upon insights from third project by emphasizing the conditional nature of external influence. Overall, the presumed loss of independent, criteria-driven editorial practices cannot be confirmed, and with it the often-assumed decline in journalistic quality. Instead, the **influence of audience analytics appears to be significant but far from all-encompassing**, aligning with previous research (Karlsson & Clerwall, 2013; Lamot et al., 2021; Lamot & van Aelst, 2020; Nelson & Tandoc, 2018). The fact that topic area exerted an even greater influence than analytics further indicates that other editorial considerations continue to shape news production, audience analytics are one factor among many.

Interestingly, selection and de-selection appear to follow different logics. This suggests that in the context of post-publication gatekeeping, made possible through digital technologies, **journalists face different demands than in traditional gatekeeping**, which remains more strongly

tied to normative ideals. The recurring pattern of “giving stories a chance” and subsequently removing them if they underperform indicates a shift toward performance-driven editorial judgment. This logic may constrain the diversity of public discourse. However, the generally low explained variance in the quantitative model seems plausible given the multiple pressures journalists face and the intuitive sense many have of which stories should be “sticky”, even if they don’t initially perform well. Internal newsroom dynamics also play a visible role: stories from in-house staff are less likely to be de-selected, revealing a need to satisfy colleagues or superiors. Furthermore, many media organizations seem to have adopted a more **differentiated approach to performance goals**. As a result, the influence of strongly quantitative, consumer-focused metrics appears to be limited. In their place, more qualitative and strategically aligned metrics are increasingly shaping de-selection decisions

Overall, examining post-publication processes proves to be a valuable endeavor. First, because, as shown above, they follow different logics than initial selection. Second, because the post-publication gatekeeping framework allows for a more nuanced integration of the audience perspective. It becomes evident that **audience influence mainly stems from aggregated analytics data**, while more active feedback mechanisms such as comments seem to play a minor role. Within the framework, the audience dimension and especially the process aspect emerged as especially influential, whereas self-regulatory elements were applied selectively. Regarding the journalistic perspective, it is also important to recognize that, as shown in the first project, individual differences in audience analytics use patterns lead to distinct de-selection practices. For example, a “Skeptic” type might de-select all articles that fail to meet their citizen-oriented expectations, regardless of performance metrics.

From a media management perspective, several important implications arise. First, the findings suggest that journalists have, at least partially, **internalized management-driven considerations**, especially in the post-publication phase, more so than during the initial selection process. This indicates a **growing awareness of organizational needs**, a pattern already observed in the third project. Such sensitivity is valuable in light of the often-precarious financial situation of news organizations, particularly because it appears to be accompanied by a sense of balance: journalists continue to set professional boundaries within their remit. Second, strategic elements also seem to play a role in post-publication decisions. For example, removing an article from the homepage

only to republish it later at a more opportune time **suggests entrepreneurial thinking and resource efficiency**. The handling of in-house content, which was less frequently de-selected, further underlines this, indicating its internal relevance as well as its perceived contribution to the brand. For media management, this implies a clear mandate: to **define metric-specific goals and link them to different content categories** in order to satisfy diverse audience segments. At the same time, management must safeguard editorial leeway that enables topics to be covered even if they do not serve immediate strategic goals. These decisions – on what should remain accessible in the interest of public discourse – must ultimately remain in the hands of journalists

10.8 Implications for the Overarching Theme

With regard to the overarching theme of this work, numerous implications have emerged throughout the analysis and discussion. First, the dominant role of the **process perspective** within the post-publication gatekeeping framework and the strong influence of **topic area** became evident. These findings illustrate that although economic pressures are indeed present and market orientation is embedded in journalists' thinking, such considerations are often outweighed by **pragmatic routines in the actual process of news production** (Meyer & Rowan, 1977). At the same time, the evaluation of content, especially in the post-publication phase, is frequently based on audience analytics and, as such, is not made by journalists themselves. This reflects a shift toward the **separation of conception and execution**, a core principle of the capitalist organization of labor (Braverman, 1974). However, this separation is mitigated by the fact that such evaluations are not automatically decisive for editorial action. Instead, they are embedded within broader sets of evaluative criteria, which are often shaped by situational consideration.

The decisive factor, therefore, is not whether audience analytics are used per se, but whether strategic objectives tied to specific metrics become dominant in guiding editorial decisions. Notably, the project highlights that **tendencies toward commodification appear to be more pronounced in regional and local markets**. These outlets are often less strongly associated with traditional professional journalistic values and operate under greater economic constraints. A particularly troubling sign of the penetration of quantification into journalistic thinking is the characterization – by some interview participants – of **certain topics as a luxury**. This suggests that economic constraints may, in some cases, outweigh normative journalistic judgments. Even when

journalists are aware of the societal importance of certain topics, they may still deprioritize them under economic pressure.

10.9 Limitations and Avenues for Future Research

The integration of experimental and qualitative methods proved productive, underscoring the value of diverse methodologies. The experiment provided robust evidence of audience analytics' influence, while the interviews contextualized these findings by uncovering situational dynamics and professional judgments beyond the experimental scope. In particular, the qualitative data offered critical insights into topic-related interpretations and helped contextualize the absence of an interaction effect – findings that could not have been derived from the experiment alone. Together, these **methodological complementarities** offer a comprehensive understanding of the interplay between audience metrics and editorial decision-making.

Despite these strengths, several limitations must be acknowledged: While the quantitative experiment isolated key variables and examined causal mechanisms, its external validity is inherently limited. Controlled settings cannot fully replicate the nuanced, real-world conditions shaping de-selection decisions. A **particular point of concern is the stimulus itself**. Although it was deliberately designed to maintain a consistently low news value to prevent topic-induced biases, it operated on a generally soft-news level. The inclusion of a public affairs reference, particularly through the mention of Vladimir Putin, may have struck participants as unusual or even bizarre within the given context. While the main effect suggests that participants did perceive a some sort of relevance, it remains unclear whether this was interpreted in line with the intended public affairs classification or simply regarded as a curiosity. In real newsroom conditions, such a story might be removed more quickly, especially when competing with more conventional political news. It is also possible that participants did not categorize the stimulus as “politics” at all, but rather reacted to the unusual framing or the presence of a high-profile figure. Furthermore, the **fictional news platform shown in the experiment** presented a mix of relatively soft news, which may have felt unfamiliar or even confusing to journalists accustomed to different editorial standards. Although participants were encouraged to envision a realistic newsroom setting, it remains uncertain whether their decisions reflected their own outlet's routines and strategic goals, or whether they instead responded based solely on the fictitious outlet depicted in the stimulus. A similar limitation applies to the audience analytics tool used: Although the traffic-light system was

chosen for its clarity and accessibility, participants may rely on entirely different tools in their daily routines, which come with specific affordances and contextual cues. This could have contributed to a sense of artificiality, even though the tool was designed to be broadly understandable and low-threshold in its application.

While in-depth interviews address the issue of external validity, they are subject to potential social desirability bias. Participants may **underreport their reliance on audience analytics and overstate adherence to journalistic values**, potentially skewing insights to protect their professional or personal image. Moreover, both samples focused on professional journalists from established media organizations, excluding freelance journalists, alternative media, and semi-professional players like news influencers, who may approach de-selection differently.

Lastly, the German news market's **strong differentiation among local, regional, and national outlets** significantly shaped the results. Local and regional outlets exhibited unique de-selection patterns that may not generalize to more concentrated or nationally oriented media markets. The position of Public Service Media within the market also likely influenced findings, emphasizing the role of organizational cultures. Nevertheless, both the experimental results and most interview patterns align with existing research (Lamot & van Aelst, 2020; Nelson & Tandoc, 2018; Tandoc, 2014a). While it is expected that the results hold relevance in other contexts and media markets, cultural and social factors can easily alter or offset the influence of audience analytics (Dollah & Tandoc, 2022).

To address some of these shortcomings, **the use of in situ data collection methods is suggested**. The qualitative interviews revealed that the application of audience analytics is highly situational, suggesting that contextual factors significantly influence their role in post-publication gatekeeping (Schnauber-Stockmann et al., 2024). To better capture and quantify these situational influences, future research could employ experience sampling methodology. This approach involves newsroom decision-makers completing short surveys multiple times a day, **collecting real-time data on their use of audience analytics** and the contextual factors informing their decisions. By examining individual, situational, and organizational-level influences, this method could yield more granular insights into the dynamics of post-publication gatekeeping. At the same time, it encourages continuous reflection. While the second project indicated that such reflection exists among journalists, it appeared only moderately pronounced. Experience sampling could offer

greater clarity on when and under what conditions reflection occurs, for instance, whether journalistic values or audience-maximization goals are more likely to be reflected upon, thus helping to resolve ambiguities identified in the second project.

10.10 From Shaping Content to Shaping Metrics

This project demonstrated that audience analytics have a limited but nuanced impact on newsrooms practices after initial selection. It stresses the need for balanced post-publication practices that align audience preferences with journalistic principles to ensure all topics “get their chance”. **To conclude, gatekeeping, often dismissed as outdated, remains central to editorial processes embedded in organizational cultures.** Facing an abundance of (mis)information, it assumes a **moral obligation** (Ferrucci & Hopp, 2024). Living up to this responsibility requires ongoing reflection on audience analytics use and the role of audiences in both selection and de-selection. Understanding these dynamics is crucial for **fostering newsroom transparency and accountability**, building trust with audiences, and countering concerns about the homogenization of news.

Against this backdrop, the next project explores how media organizations can actively shape these processes – rather than merely acting as passive users of audience analytics. To **counteract trends of commodification and prevent the potential erosion of journalistic values** by purely market-driven metrics, a proactive engagement with organizational and professional values is needed. Ideally, this would involve integrating these values into performance evaluations and identifying ways to render them measurable. The next project will therefore investigate how such **value-based measurement systems** can enhance legitimacy and public value, and what challenges emerge during their implementation.

11 Towards a Proprietary Approach – Establishing Analytics Systems in Public Service Media

The previous projects examined the differentiated use of audience analytics, newsroom dynamics, the emergence of new professional roles, and the relevance of audience analytics in news production processes. This final project explores how media organizations can address **the challenges of quantification and commodification** while preserving core professional values within the fourth thematic area of this work. Throughout the preceding projects, normative ideals – most notably journalistic role orientations – played a central role. Although findings from the second project suggest that consumer orientation does not necessarily result in uncritical or purely market-driven behavior, many of the proposed solutions to safeguard normative ideals still revolve around **limiting or selectively applying audience analytics** as shown in the third and fourth project. While the set of metrics in use has become more diverse, encompassing organizational goals such as subscription generation (conversions) and user retention, these metrics rarely reflect the **broader normative aspirations of journalism** or of the organization itself.

This tension becomes particularly salient in the context of PSM, which faces the risk of falling into a **“neoliberal trap”**: adopting performance measures rooted in commercial logic and competing on the same grounds as private media. Yet, such metrics may not be compatible with the unique remit of public service providers. The ongoing legitimacy debate surrounding PSM across many countries raises an urgent question: by which indicators should the success of public broadcasters be measured?

Using a conceptual framework that combines legitimacy types with public value and audience analytics literature, this project explores the development and implementation of the *ZDF-Kompass* (*ZDF Compass*), **a tailored measurement system designed to meet the organizational and legal requirements of the German PSM ZDF**. This project employs a **case study approach**, drawing on six interviews with managerial positions responsible for the development of the instrument and one external expert involved in the development process. Additionally, published material and internal documents provided during the interviews were included in the analysis. **PSM was chosen as case for three reasons**: First, it operates under a legal commitment to journalistic values such as independence and diversity; second, there are societal and stakeholder

group expectations regarding the quality of PSM; and third, a proprietary metric system is currently being developed at *ZDF*, offering a unique opportunity to address the research question. However, it is important to emphasize that such an instrument is **not exclusive to PSM**. Any media organization aiming to measure value-based or goal-specific performance could adopt a similar approach. In this context, the case serves as an example of organizations that seek to integrate journalistic as well as organizational values into their measurement systems.

11.1 Problem Statement and Research Questions

Audience data's ubiquity has elevated it to a dominant standard in evaluating the work of journalists. Even within the domain of non-commercial entities, such as PSM, there is a notable trend to maximize reach and audience appeal. This increasing integration of audience metrics into newsroom routines is shaping not only the selection, production, and distribution of journalistic content, but also programming in entertainment (Costera Meijer, 2020; Ekström et al., 2022; Lamot et al., 2021). Commercial indicators such as **audience metrics often define the degree to which goals are met and have become central to PSM's legitimacy narratives** (Puppis & Ali, 2023). However, this reliance on quantified performance evaluation risks prioritizing short-term optimization over the public service remit, potentially compromising the integrity of journalistic standards (Fürst, 2020; Tandoc & Thomas, 2015). Consequently, easily quantifiable aspects, often commercially driven, may take precedence as objectives, overshadowing other objectives that are more nuanced or **challenging to measure, if not altogether impossible to quantify** (Collins, 2007). This phenomenon is frequently described as "hitting the target but missing the point" within the discourse of public value (Horner et al., 2006; Karmasin, 2011). In the long run, such tendencies may weaken the very foundations of PSM legitimacy and trigger renewed debates about its societal value and purpose.

Like all organizations, public service broadcasters depend on legitimacy in the eyes of their stakeholders to ensure long-term viability (Fehlmann, 2023; Walgenbach & Meyer, 2008). **The ongoing political disputes** over increasing the license fee have intensified this pressure. Additionally, the debate surrounding the notion of broadcast-like services reveals growing pressure from commercial competitors to narrow the public broadcaster's range of services (Baetz, 2025; Entwurf für einen „Staatsvertrag zur Reform des öffentlich-rechtlichen Rundfunks (Reformstaatsvertrag)“),

2024). Compounding this is the public's low willingness to pay: in some segments of the population, willingness to (financially) contribute to public broadcasting is effectively zero (Sehl, 2023).

Scholarly discussions on public value emphasize that measurement is both central to and potentially hazardous for the concept: while it is an essential part of defining and demonstrating value, **insufficient or misguided measurement can undermine the realization of public value altogether** (Horner et al., 2006; Neumüller, 2011). Accordingly, scholars have increasingly called on media organizations to translate their (journalistic) goals into measurable indicators that meaningfully reflect their organizational values, rather than relying solely on commercial metrics (Belair-Gagnon et al., 2020; Cherubini & Nielsen, 2016). This kind of operationalization could help PSM avoid what has been called the neoliberal trap, the **uncritical adoption of market-based performance criteria** (Puppis & Ali, 2023). While existing research, as well as the previous projects in this work, have offered valuable insights into the use and effects of audience analytics on media production, far less is known about how organizations **translate normative goals into concrete indicators** and how these are implemented in ongoing editorial work. Research on public value has largely focused on *ex-ante* evaluations, assessing the potential value of content prior to its release, but has less often addressed the ongoing evaluation of existing formats in day-to-day operations (Latzl, 2011; Rodríguez-Castro & Campos Freire, 2023). Given that the demand for value-based measurement is widely acknowledged, yet the concrete implementation remains unclear, this project poses the following major research question:

RQ 5: *How do Public Service Media translate their organizational objectives into measurable indicators?*

What also remains unclear is how these value-oriented indicators can be reconciled with established metrics of performance evaluation. These traditional indicators are often commercially driven but have a longer history in media evaluation, among them pre-digital metrics like ratings and TV market share (Lämmle, 2008). However, this also includes audience analytics tools that have become embedded in editorial routines and formats, which similarly focus on quantifying audience size (Zamith, 2018). From this, the following research question emerges:

RQ 5.1: *How do newly developed indicators relate to established audience metrics?*

Lastly, the potential impact on media production processes requires evaluation. While the previous projects have shown that audience analytics are firmly embedded in editorial workflows, they are often overridden by organizational and situational constraints. **The implementation of new measurement systems therefore presents a distinct challenge.** Moreover, in the context of PSM an additional component becomes salient: The focus is no longer limited to journalistic formats but extends to a broad range of genres including entertainment, sports, and magazine programs. Hence, the third research question addresses how newly developed measurement systems are implemented within editorial units and how they potentially affect media production routines.

RQ 5.2: How are proprietary metrics implemented at the editorial level?

11.2 Literature Review and Conceptual Framework

To conceptually approach the research questions and underlying problem, this section begins by drawing on **legitimacy theory as a foundational framework.** Differentiating between various types of legitimacy allows for identifying which can be addressed through proprietary measurement systems, and thus for evaluating their value to PSM. This foundational perspective is then complemented by the **concept of public value,** which captures – and in some cases renders measurable – key values associated with PSM. It also provides a normative foundation for **assessing success beyond purely economic metrics.** Emphasizing societal benefit aligns with this project’s broader aim: to explore ways in which commercial quantification can be supplemented, or even replaced, by performance indicators grounded in professional and organizational values. Finally, a brief overview of the literature on audience analytics in relation to public value and legitimacy will be provided.

11.2.1 Under Pressure of Justification: Legitimacy in the Context of PSM

Since legitimacy can be defined as “a generalized 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” (Suchman, 1995, p. 574), it serves as a fitting conceptual foundation for examining the role of PSM in society. Analyzing processes of **legitimization provides a promising approach to understanding how PSM attempt to operationalize elements of their public service remit,** particularly in light of shifting societal expectations, evolving media usage patterns,

and increasing political contestation of their mandate (Puppis & Ali, 2023; Rodríguez-Castro & Campos Freire, 2023). These institutional transformations can weaken established legitimacy narratives through competing public judgments (Bitektine & Haack, 2015).

This project draws on the **legitimacy types discussed in the literature review** (based on Suchman, 1995), and expands them by introducing an additional regulative dimension. This conceptual continuation enables a differentiated analysis of PSM's legitimation strategies, as each type reflects distinct goals and logics relevant for understanding the role of performance measurement in this context. **Pragmatic legitimacy** refers to an organization's ability to generate desirable outcomes for its immediate environment. In the context of PSM, this includes satisfying both direct users and the actors involved in regulation and oversight. **Moral legitimacy**, by contrast, centers on the normative evaluation of an organization and its actions based on shared values and a commitment to societal welfare (Scott, 1995; Suchman, 1995; Suddaby et al., 2017). For PSM, this is commonly linked to adherence to the public service remit and core journalistic values such as independence and diversity. **Cognitive legitimacy** is rooted in the perception of an organization as natural and necessary – its existence is taken for granted and rarely questioned, even by non-users (Scherer, 2011). Finally, **regulative legitimacy** refers to compliance with formal legal frameworks, such as the *Interstate Media Treaty (Medienstaatsvertrag)* in Germany (Scott, 1995; Suchman, 1995; Suddaby et al., 2017). For PSM, this often entails a balancing act: while maximizing reach is required to ensure accessibility in line with the public mandate, **an exclusive focus on audience numbers may conflict with the mission to provide socially valuable content** (Anderson Schwarz, 2016).

This typology is based on the assumption that legitimacy can be understood **as property**, a view that sees legitimacy as an intangible resource that can be acquired or lost (Gardberg & Fombrun, 2006; Suddaby et al., 2017). However, legitimacy can also be conceptualized as a **process**, shifting the focus away from environmental congruence toward the dynamic actions and communicative practices through which legitimacy is continuously constructed (Suddaby et al., 2017; Tamm Hallström & Boström, 2010). Finally, legitimacy can be seen as **perception**, that is, as individual judgments that ultimately aggregate into collective assessments of an organization. Since this project adopts an intra-organizational perspective, the typology within the property view serves as analytical foundation, while acknowledging that this understanding may not fully

align with dominant approaches within PSM. In the context of the applied typology, **a worthwhile question becomes whether the different types of legitimacy can be more effectively addressed, or made more visible, through the operationalization of public service goals.** The issue of measurability and legitimacy is also closely intertwined with the concept of public value.

11.2.2 Public Value as an Instrument for Demonstrating Legitimacy

Demonstrating the creation of public value can be an approach to achieving legitimacy for public organizations. The concept focuses on **organizational actions that contribute to public welfare** (Gonser & Gundlach, 2022; Moore, 1995). It opposes alignment of public organizations with market economy principles like in the New Public Management approach, which emphasizes easily measurable KPIs such as average costs. Central to the concept of public value is the idea of opportunity costs, raising the question: What is society willing to sacrifice for a public service? Therefore, public managers must demonstrate not only the ability to create valuable outcomes **but also that these outcomes justify the costs incurred by society** (Moore, 1995; Neumüller, 2011).

In the context of PSM the concept of public value was initially introduced by the BBC, centering around the dimensions of **authorization, creation, and measurement**. Public value subsequently evolved into a key regulatory criterion for the BBC. However, for PSM in general, relying solely on authorization from users or governments may not be desirable. First, because PSM must maintain its independence and institutional autonomy. Second, the **public may not always be able to accurately assess its own needs and interests** (Collins, 2007). To address this accountability gap, mechanisms such as audience research, advisory boards, and user complaints are incorporated. Regarding the dimension of creation, the BBC defined **four output-oriented indicators, Reach, Quality, Impact, and Value for Money**, designed to engage audiences both as consumers and as citizens. **Measurement** aims to operationalize these indicators in order to assess whether public value is being created efficiently and effectively. However, **inadequate measurement may ultimately undermine both the concept and credibility of public value**. Furthermore, the prioritization of easily quantifiable aspects risks sidelining socially relevant dimensions that are less amenable to measurement (Collins, 2007). Additionally, not all elements of the public service remit can be (precisely) measured (Raats, 2023). The key challenge as proposed in this

project, therefore, lies in establishing a counterweight to commercial metrics and developing approaches that make public service objectives more measurable.

To operationalize public value for the BBC, Mazzucato et al. (2020) distinguish between **three dimensions: individual value, societal value, and value for the media industry**. **Individual value** includes elements such as trust, personal relevance, and consumer benefit, reflecting the direct relationship between the broadcaster and its audience. **Societal value**, by contrast, encompasses factors like diversity, editorial independence, and the fostering of social cohesion, and is explicitly understood to be more than a mere byproduct of individual value. **The value for the media industry** is reflected in the promotion of talent and innovation, as well as the establishment of industry standards. Measurement is not static but occurs **across multiple levels**. Taking climate change reporting as an example, the first level of analysis would examine how frequently the content is accessed. At a mid-term level, shifts in attitudes toward climate change would be considered, and in the long term, whether the content contributes to behavioral change. Murschetz et al. (2024) also criticize an overly narrow focus on usage metrics and propose **an operationalization of public value based on five dimensions** derived from Meynhardt (2019): **fulfillment of the public mandate, ethical conduct, contribution to quality of life, promotion of social cohesion, and efficient use of resources**. This framework essentially reflects the individual and societal value dimensions from the BBC conceptualization, but places greater emphasis on the individual. As a result, public value becomes more tangible and measurable. However, certain dimensions, such as efficient resource use or societal values like social cohesion, **may be difficult for individuals to assess directly**.

In the UK, public value is understood as an asset the market cannot adequately provide, while in Germany, it is more commonly regarded as a contribution to the quality of public discourse (Karmasin, 2011). In German PSM, a broadcasting commission conducts a “Three-Step Test” to evaluate new services. Although public value is not explicitly mentioned, the test assesses cultural, social, and democratic needs, along with the potential impact on media markets and opinion formation. Financial considerations are also taken into account before deciding on the implementation of a new service (Latzl, 2011). In this way, the Three-Step Test largely aligns with the operationalizations proposed by Murschetz (2024) and Mazzucato et al. (2020). A central issue with current and practically applied public value evaluations is that, while they do operationalize

socially relevant indicators, **they are primarily conducted for new services and rarely for existing formats**. This creates **an evaluative gap**, which is often filled in day-to-day operations by commercially driven audience metrics, metrics that do not account for normative values (Lamot et al., 2021).

11.2.3 Audience Analytics in the Public Value Debate

Despite a widespread perception among journalists of their audience as citizens, the use of audience metrics tends to foster more consumer-oriented audience conceptions (Belair-Gagnon et al., 2020). Excessive and uncritical reliance on these metrics risks neglecting societal needs by prioritizing popular topics and producing less diverse content in pursuit of user numbers (Ferrucci, 2020; Tandoc & Thomas, 2015). Although the second project demonstrated that even within a consumer-oriented framework there is evidence of reflective engagement, **it remains unclear whether such reflection necessarily extends to journalistic or PSM values**. Media professionals are often aware of these criticisms and respond by developing justificatory strategies, such as equating audience metrics with traditional news values or reframing them as democratic feedback, thus **masking their commercial underpinnings**. Conversely, existing metrics are sometimes adjusted to reflect organizational goals, thereby reversing the usual logic of metric application (Christin & Petre, 2020). To emancipate PSM from commercial performance indicators, scholars increasingly advocate for the development of media- and public-value-specific metrics (Cherubini & Nielsen, 2016; Puppis & Ali, 2023).

However, existing analytics systems cannot simply be ignored. Since audience analytics have become an industry standard (Ekström et al., 2022), they must be considered in any meaningful discussion about measuring mission-oriented goals. In this context, PSM adopt a hybrid approach: while they employ formal procedures to assess new services against public service criteria, they simultaneously rely on industry-standard metrics – often commercial in nature – to evaluate existing formats and content. Thus, establishing proprietary measurement systems does not imply starting from scratch, but rather necessitates the **strategic integration, adaptation, or potential discontinuation of existing analytics practices**. Developing such systems holds the potential to expand legitimacy efforts beyond ex ante evaluations avoiding the “neoliberal trap” (Puppis & Ali, 2023). Furthermore, proprietary systems may support media professionals in more

clearly **articulating professional boundaries and maintaining editorial autonomy** (Gieryn, 1983).

11.3 Methodological Approach

To investigate how PSM navigate the translation of their organizational goals into measurable metrics and its implications for media production, this study employs a case study approach focused on the development and implementation of the *ZDF-Compass*. Although calls for proprietary measurement systems have been made for some time, such instruments have rarely found their way into media organizations and newsrooms. Instead, existing metrics tend to be selectively adopted or recombined. In this context, an in-depth investigation of a single case appears particularly promising, as it enables a **closer examination of both the underlying motivations and design of such an instrument**, as well as its potential influence on production processes (von Rimscha & Sommer, 2016; Yin, 2018).

The *ZDF-Compass* was selected for its **revelatory potential** in exploring how PSM-specific values can be operationalized through measurement and to address the existing research gap regarding journalistic value-based approaches to audience analytics (Belair-Gagnon et al., 2020; Cherubini & Nielsen, 2016; Yin, 2009). *ZDF* (*Zweites Deutsches Fernsehen/Second German Television*) is one of the three German PSM entities with an operating budget of about 2.4 bn Euros in 2022. It is mainly funded by a monthly household fee. As a result of legislation, it publishes a bi-annual statement on its program policy which is presented to a broadcasting board of 60 members. Within this framework **the *ZDF-Compass*, an instrument to capture PSM goals, primarily content quality, has been designed** (ZDF, 2022).

The interview guideline was structured into three main blocks. Drawing on legitimacy types derived from the literature, the first section addressed the intended goals of the *ZDF-Compass*. This was followed by questions based on the public value framework, focusing on the dimensions of the instrument and how they are operationalized. If not already mentioned by participants, the relationship between the instrument and the public service mandate was also explicitly addressed. Finally, in light of previously used audience metrics, the (potential) application of the instrument was discussed. Interviewees were encouraged to deviate from the structure where appropriate in

order to elaborate on aspects not fully captured by the guideline (see Appendix 5-01). To contextualize the development of the instrument, both **internal and public documents** were also analyzed, including presentations prepared for the broadcasting board, press releases, *ZDF*'s official commitment to public service principles, and the most recent version of the German Interstate Media Treaty (4th version, January 2024). Table 14 presents an overview of the documents related to the *ZDF-Compass* that were included in the analysis (see Appendix 5-03).

Table 14: Documents Used for the Analysis

Code	Document type	Availability
Doc 1	Presentation for broadcasting board	internal
Doc 2	Performance indicators <i>ZDF-Compass</i>	internal
Doc 3	Self-commitment statement of the broadcasting board	public
Doc 4	Press release <i>ZDF-Compass</i>	public
Doc 5	Press release <i>ZDF</i> panel “mitreden”	public
Doc 6	Explanation <i>ZDF-Compass</i>	public
Doc 7	Presentation strategy of <i>ZDF-Compass</i>	internal
Doc 8	Interstate Media Treaty (4 th version, January 2024)	public
Doc 9	Press release: self-commitment statement	public

This project seeks to gain insights into the processes behind the development of criteria for the *ZDF-Compass*. Access to this knowledge was **limited to select managerial positions directly involved in its conception** and implementation. To broaden the scope of perspectives, the interview sample also included one external expert engaged in the development process and one representative from *ZDF*'s spin-off channel *FUNK* for younger audiences, resulting in a total of seven interviews – four conducted in person and three virtually. The interviews were carried out between February and April 2024, lasting between 53 and 101 minutes. To encourage open and candid responses, **all interviews were pseudonymized**, identifying participants only by their roles within the organization. Table 15 provides an overview of the interviewees' roles and their areas of activity within the organization (see Appendix 5-02).

Table 15: Interview Participants

Code	Affiliation	Gender	Tasks
Int 1	Senior vice president programming	male	Program planning, distribution, budget control, media research
Int 2	Deputy Head of Central Tasks	male	Project manager <i>ZDF-Compass</i> , project manager self-commitment statement
Int 3	Consultant <i>ZDF</i> Broadcasting and Administration Board	male	Management of research projects for boards, mediation between external experts and boards
Int 4	Head of Central Tasks-Program planning	male	HR management, IT management, portfolio management
Int 5	Team lead audience measurement and data science	male	Media research, survey and data management, system architecture
Int 6	Deputy program management – young audiences	male	Portfolio management, budget management
Int 7	External expert media quality	female	Advisory function for the broadcasting board

Note: Int 6 was not involved in the *ZDF-Compass* and included as a reference case due to their role in programming for young audiences.

The analysis combines **descriptive elements** (first-order information), such as interview statements offering insights into the structure and intentions behind the *ZDF-Compass*, with **overarching themes** concerning legitimation strategies and public value references extracted from the material (second-order themes) (Döring, 2023; Gioia, 2004; Gioia & Chittipeddi, 1991). The coding process followed an iterative approach, ensuring that emerging patterns were applied consistently across all interviews and complementary documents (Gehman et al., 2018). The analysis began with basic categories drawn from the literature review (see Appendix 5-05), particularly the various types of legitimacy and perceived strategies for achieving it (Hangartner & Fehlmann, 2019; Suddaby et al., 2017). In addition, the material was examined for references to public value and its measurability (Collins, 2007; Raats, 2023). Finally, reflections on audience analytics and their use within *ZDF* were analyzed based on established categories from prior research (Lamot & Paulussen, 2020).

The coding procedure involved three steps. First, each interview was roughly characterized to gain an initial overview of the material. Second, multiple rounds of coding were conducted in MaxQDA, using both deductive categories derived from the literature review and inductive categories found in the interviews and documents. Each category was assigned a distinct coding rule. This process yielded 1.646 coded segments, with many segments receiving multiple codes. Third, category-specific summaries across all interviews and documents were created to trace the development process of the instrument. To explore relationships between categories, the MaxQDA Code Relations Browser was used to **identify intersections, which were subsequently assessed for plausibility** (Kuckartz & Rädiker, 2024). These connections were then used to uncover overarching strategic approaches to legitimacy and the ways in which public value aspects were integrated (see Appendix 5-05).

The analysis was conducted during an ongoing phase of developing the *ZDF-Compass*. This enabled **real-time insights into the processes, avoiding ex-post rationalization** that often emphasizes success while neglecting failures. The internal reasoning and communication with stakeholders were prominent patterns. However, the **potential impact on production within and outside the organization can only be estimated** based on interviews and documents, as the final outcome of a ready-to-use instrument is not yet available.

11.4 Results

To provide proper context for answering the proposed research questions and capturing the organizational rationale behind the *ZDF-Compass*, the instrument and its individual layers are first introduced. This is followed by a closer examination of the development process to explore how the criteria were selected and operationalized, thereby addressing RQ 5 and the underlying question of *how* values are translated into metrics. Subsequently, an evaluation of the fit between existing performance evaluation mechanisms and the new instrument is presented (RQ 5.1). Finally, insights from the pilot testing phase within format editorial units are used to assess the implementation of the *ZDF-Compass* and its potential implications for media professionals and the organization more broadly (RQ 5.2).

11.4.1 ZDF-Compass: Background and Structure

The foundation for the development of the *ZDF-Compass* lies in the provisions of the 4th Amendment to the German Interstate Media Treaty (*4. Medienänderungsstaatsvertrag*). This **legal framework** requires public broadcasters to submit a report every two years on “the quantity and quality of their existing services”. To that end, broadcasters must define guidelines that include “the establishment of content-related and formal quality standards as well as standardized processes for their evaluation” (§31 (2), (4), (6), in effect since January 1, 2024, Doc 8). For reasons of transparency, these guidelines must be made publicly available and reviewed on a regular basis. A second foundational element is the **self-commitment statement** (*Selbstverpflichtungserklärung*, Doc 3) published by ZDF in June 2023, which was submitted to the broadcaster’s supervisory board, the Television Council (*Fernsehrat*). This document outlines how ZDF intends to achieve its strategic objectives and fulfill its public service remit. Under the guiding theme “*Ein ZDF für alle*” (“*One ZDF for All*”), **five central goals are defined: providing high-quality content, fostering understanding of the world, representing diverse lived realities, creating space for discourse, and delivering value for the industry and society**. These goals closely reflect the previously discussed dimensions of public value outlined by Murschetz et al. (2024) and Mazzucato et al. (2020) while further detailing the societal component.

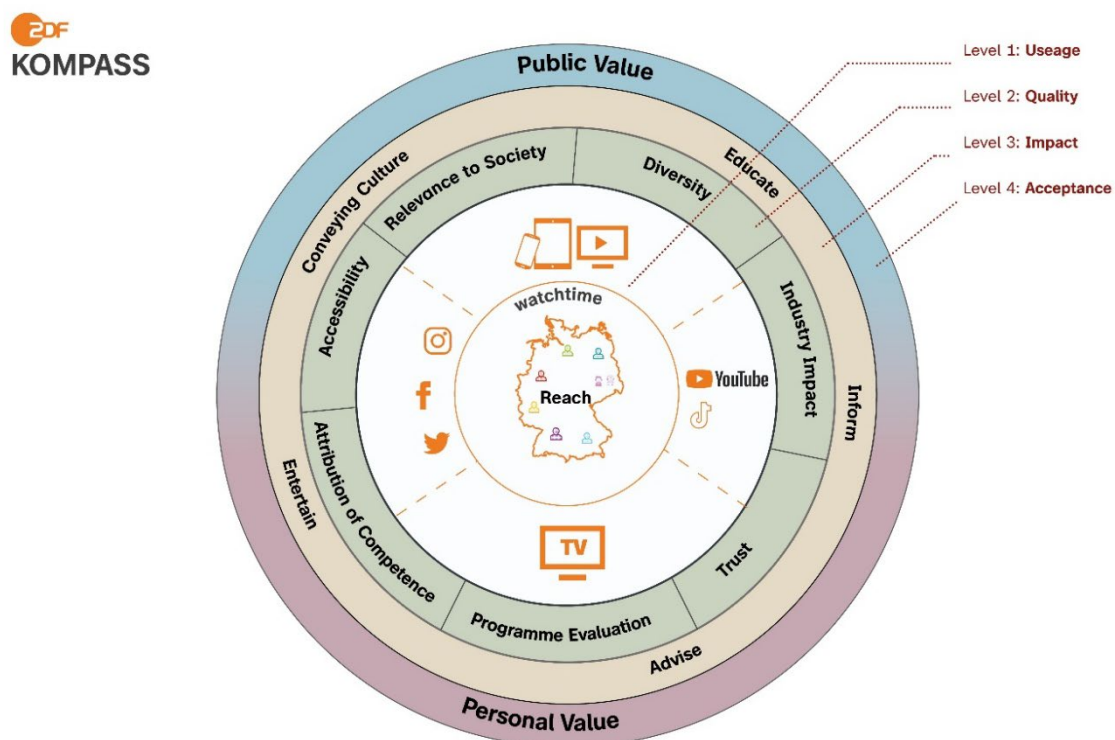
The *ZDF-Compass* is conceived of as the organization’s **central management tool** to pursue its strategic goals (ZDF, 2023a). Its overarching aim is to evaluate the public’s acceptance of the broadcaster’s content portfolio. The instrument is structured into four concentric circles (see Figure 6):

1. The innermost circle captures the usage of content as *conditio sine qua non*. This reflects the perspective of Murschetz et al. (2024), who argue that public value can only emerge if content is known and actually used. Central metrics include viewing volume as the central metric, reach, social media data, and market share.
2. The second circle is designed to assess content quality. The indicators include diversity, societal relevance, credibility, accessibility, industry impact, program evaluation, and attribution of competence – thus covering primarily societal and sector-specific dimensions. It is intended to safeguard journalistic independence and diligence standards (Doc 6). However, in its measurement it largely relies on user evaluations

3. The third circle contains indicators aimed at measuring the impact of ZDF content on users as outlined in the public remit (Interstate Media Treaty, § 26, Doc 8). It is assumed that the preceding circles – usage and perception of quality – lead to this impact. Specifically, it evaluates whether content informs, entertains, educates, gives advice for daily life, or promotes culture.
4. **The outermost circle** evaluates acceptance of the broadcasting fee – and with it the existence of ZDF -, taking into account both perceived individual value and broader societal value. The monthly broadcasting fee is 18,63 Euro per household and the share of ZDF is 4,69 Euro.

To operationalize these indicators, the self-commitment statement identifies **various data sources**, including usage metrics, quantitative and qualitative surveys, data from external providers, as well as the creation of an internal survey panel (*ZDF mitreden*) for audience feedback (Doc 3).

Figure 6: ZDF-Compass and its Layers



Source: ZDF (2023b). See also Appendix 5-06.

11.4.2 Setting the Course: Mission and Momentum Behind the ZDF-Compass

The **legal requirements** can be identified as the primary motivation for developing the *ZDF-Compass*. Its main addressee is the Television Council (*Fernsehrat*), which monitors the objectives outlined in the self-commitment statement. However, **technical motivations also emerged**, for instance, the desire to consolidate measurement methods, surveys, and data sources into a single instrument in order to address data management challenges. Previously dispersed usage data across various organizational units are now being transferred into a standardized format.

We don't want to reinvent the world with the metrics, because all the metrics are there. We just need to bring them together, coordinate them and make them available to the editorial teams in a standardized format. (Int 5, team lead audience measurement)

From a management perspective, the *ZDF-Compass* functions as a **regulatory framework intended to streamline evaluation processes**, facilitate the **setting of performance targets** with editorial units, and provide **strategic orientation**. Moreover, the instrument is designed to prevent formats from “cherry-picking” metrics, that is, selectively choosing evaluation indicators that show their content and format in the most favorable light.

The danger is that if you only look, but don't look in a directed way, then you can of course cherry pick the number that has just developed positively. But if that doesn't correspond to the goal, then (...). So, that's why we need agreements and clarification of objectives and then also an evaluation. (Int 1, Senior vice president programming)

The desire for a more **coherent and strategically guided portfolio management** approach also emerged as a dominant motivation. The *ZDF-Compass* is viewed as a tool to move away from the traditional focus on linear market share, which may still be relevant for certain formats but fails to capture the performance of most non-linear content. In this way, the *ZDF-Compass* not only addresses moral and regulative legitimacy in relation to the Television Council but also fosters **internal legitimacy** within the organization by initiating discussions about the values *ZDF* aims to represent as a whole. On the one hand, this enables a values-based discourse that supports a departure from commercially driven metrics. On the other hand, it also positions the *ZDF-Compass* as a **potentially powerful control mechanism**. Additionally, it is intended to clarify the role of

individual formats within the *ZDF* portfolio and establish a shared **commitment to mission-driven goals**. A similar pattern of evaluation can be observed in the youth-focused platform *FUNK*, where formats are regularly reviewed to determine their contribution to the overall offering.

11.4.3 Aligning the *ZDF-Compass* Needle: User-Focused Operationalization

Processes to develop the instrument involved establishing a task force charged with translating the requirements outlined in the self-commitment statement into elements of the *ZDF-Compass*. This included conducting an **inventory of existing data sources** and adopting prevalent market standards for many *ZDF-Compass* elements, particularly in the area of usage metrics (inner circle). For the quality dimension, insights from other European PSMs such as the BBC, the Dutch NPO, and the Swiss SRG were consulted. Additionally, perspectives from various editorial units and other in-house stakeholders were integrated into the criteria establishment process. Academic expertise was also brought in, with three external scholars commissioned to advise the broadcasting board on fictional programming, survey methodology, and media quality measurement. Despite the inclusion of a wide range of perspectives, **final authority over the *ZDF-Compass* criteria remained with ZDF's management**, highlighting that, for all its value-based ambitions, the *ZDF-Compass* also functions as a strategic portfolio management tool.

In the end that is a strategic management process, because that is a determination, a decision that you can't necessarily just deduce, but is also a definition. (Int 2, Deputy Head of Central Tasks)

For the **inner circle focusing on usage**, most data were readily available and already commonly used in internal evaluation processes, including views, market share, viewing time, and conversions into the media library (*Mediathek*). Interviews revealed clear prioritization patterns: watch time and reach across all distribution channels were deliberately selected as the central usage metrics, while other indicators, such as follower counts, although still tracked, were assigned a secondary role. This was also justified by the intention to reduce complexity and avoid overloading the instrument, which was perceived as a potential barrier to its effective implementation.

For the **operationalization of quality (second circle)**, the organization relies on existing measurements and surveys, particularly those addressing credibility and diversity of content. Program evaluations, trust, and perceived competence in the quality dimension are primarily based on user surveys. In contrast, the category of industry impact is captured through indicators such as support for emerging talent, sustainable production measures (*e.g.*, green shooting), and external certification by the Journalism Trust Initiative (*Doc 3*). An especially interesting aspect is **the treatment of societal relevance**, which is situated in the quality dimension (second circle) and operationalized through resonance analyses, awards, and collaborations with civil society. In contrast, within the **acceptance dimension (fourth circle)**, this relevance is measured from the perspective of individual users. Both the **impact and acceptance dimensions (third and fourth circle)** are primarily operationalized through the users' point of view. As a result, it becomes less important whether content is considered educational from a journalistic or scientific standpoint; **what matters instead is whether users agree with statements like “ZDF helps me better understand the world”**. Regarding diversity, the *ZDF-Compass* adopts a hybrid approach that includes both on-screen and off-screen diversity. Various measurement systems, some based on artificial intelligence, are used to capture gender ratios in productions or to generate lists of female experts for interviews. However, experts noted that the broader context in which gender and diversity are portrayed on screen remains insufficiently addressed. For example, it is not only about ensuring that female roles receive screen time, but also about how they are represented in terms of social positioning

In contrast to its domestic competitor *ARD*, which relies more heavily on content analyses and the operationalization of journalistic standards, *ZDF* managers **opted for a clearly user-focused approach in their measurement system**, emphasizing individual public value. While this user orientation is most evident in the usage and impact circle, it also extends to the quality and acceptance circles. This prioritization of user perspectives is viewed critically by some experts in terms of validity, as certain aspects of quality and their societal impact may not always be accurately assessed from an individual standpoint. However, interview participants argue that **focusing on the user perspective is essential for fostering acceptance** and for avoiding excessive alignment with competitors.

That's what makes it globally attractive, because then you don't squint: What is ARD doing? That's totally not the issue then. It's really not about what's on the market, it's about what the user wants, so it has a brutal user perspective, the compass. (Int 3, Consultant ZDF boards)

11.4.4 Tensions Between Commercial and Value-Based Indicators

While the *ZDF-Compass* unites a variety of measurement criteria, not all are necessarily complementary. In practice, this requires **prioritization**, both across and within the instrument's dimensions. For now, this prioritization is explicitly applied only within the usage dimension (inner circle): **watch time and reach** are designated as central usage metrics across the board, while other indicators, such as social media metrics, are still recorded but considered less relevant. Although the *ZDF-Compass* incorporates a broad range of value-based indicators and thus creates a **counterweight to market-driven evaluation**, it remains unclear how these criteria are weighted in relation to commercially influenced usage metrics. As a result, the relationship between traditional and newly introduced metrics remains largely unresolved, particularly at the organizational level (RQ 5.1). Therefore, this project further explores their integration at the editorial format level.

To conclude, the development process of the *ZDF-Compass* is shaped by **multiple types of legitimacy**. It begins with **regulative legitimacy** (fulfilling legal requirements) and **moral legitimacy**, reflected in the commitment to providing high-quality content. A second major driver is the pursuit of **pragmatic legitimacy**, most clearly demonstrated by the dominant user focus. The interviews reveal that this perspective is deeply embedded in the setup of measurement criteria, particularly in the **operationalization of the impact dimension** in the third circle. While the organizational perspective naturally adopts a process-oriented view of gaining legitimacy, it becomes evident that members of the organization increasingly embrace a perception-based understanding of legitimacy. In doing so, they **move away from long-standing internal benchmarks for quality**, placing greater trust in user evaluations instead.

I think that was the biggest culture shock of all, because in the past the understanding of a public service provider – I don't want to hold everyone responsible, but it's still partly the case now – was more along the lines of: "Well, if we do this, then it's already quality [...]" (Int 3, Consultant ZDF boards)

Regarding public value, authorization elements frequently involve the public or the broadcasting board, with the **value component perceived as a hygiene factor** inherent to the organization's DNA. However, measurement plays a dominant role, fostering internal legitimacy by operationalizing constructs that were previously open to interpretation by journalists and other media professionals. Thus, the instrument strengthens **individual public value frames**, with societal value still a part but largely contingent on users' perceptions of the organization's importance for society and social cohesion (*Doc 2*).

11.4.5 Breaking Down the ZDF-Compass to Formats

The *ZDF-Compass* serves as a macro-level evaluation tool for assessing the organization's overall performance. It mainly provides insights into how users perceive selected indicators and how these perceptions may evolve over time. As such, the instrument holds relevance not only for the ZDF broadcasting board and internal media managers, but also as a potential tool for responding to criticism from political actors or commercial competitors. However, its scope is confined to an **organization-wide perspective**. While individual formats can contribute significantly to the overall evaluation, the *ZDF-Compass* itself is **too broad** in scope to be used for assessing individual formats in detail.

To address this, the *ZDF-Compass* is extended to the level of individual programs or format clusters, referred to as the *Format-Compass*. Since this extension is **still in the planning phase and has only been tested in a limited number of editorial units**, RQ 5.2 (*How are proprietary metrics implemented at the editorial level?*) cannot yet be conclusively answered. However, the strategic rationale behind the *Format-Compass* and the anticipated challenges in its implementation already offer valuable insights into the potential impact of a proprietary metric system at the editorial level.

The goal of the pilot phase was to select initial formats for trial evaluations, aiming to **assign individual performance objectives**, such as whether a format is intended to inform or to entertain, and to assess their fulfillment. Unlike previous evaluation tools that were imposed top-down, these objectives are negotiated between management and editorial teams and are intended to serve as a shared point of reference and orientation.

The aim of this is not that we want to restrict the editorial team, but on the contrary: we want to give the editorial teams secure guard rails where they can say: this is my domain, where I can develop freely and courageously and try things. (Int 4, Head of Central Tasks)

From a portfolio management perspective, the aim is to create clarity about **a format's purpose, strategic orientation, and contribution to brand perception**: In a first step, formats are clustered and assigned goals on the usage and impact dimensions (first and third circle). Formats are expected to define in advance whether their primary mission is to **inform, educate, entertain, convey culture, or offer practical advice** (third circle). They are also required to formulate a mission statement that outlines their objectives and target audience(s), and to select usage metrics accordingly. For instance, the infotainment format *Terra X* might align with information, entertainment, and education within the impact dimension (third circle). In such cases, a ranking of priorities is to be established. Additionally, a **specific usage goal** is set, for example, increasing views on the format's dedicated Instagram channel. While watch time and reach have been defined as core metrics for the overarching *ZDF-Compass*, individual formats have the flexibility to emphasize alternative usage indicators. This reflects a consistent effort to **avoid arbitrariness in goal-setting** and to prevent instrumentalization of select metrics.

In the editorial department, we hope that we can, on the one hand, support the goal-setting process, the KPI definition, the "What is my format, what is part of it, what is not? What measures am I planning for next year?" That this process is streamlined and becomes more transparent. It is clear who has which roles, what has changed when and where and how? And that it works in a tool and not somehow "Okay, here's my word file, read over it and then send it to my colleagues." (Int 5, team lead audience measurement)

11.4.6 Quality vs. Simplicity?

In the pilot phase of the *Format-Compass*, **the quality dimension is deliberately excluded**, both to reduce complexity and due to a lack of available data. This creates an evaluation gap, particularly for politically oriented formats such as *frontal21*, which prioritize societal value and rely on indicators that are more difficult to quantify and collected less frequently. This omission **limits the scope of the *Format-Compass*** from a public value perspective and underscores the continued

dominance of readily available usage data, even though the quality dimension is intended to be included in future iterations.

Fundamentally, the instrument holds the potential to break away from commercial metrics and to establish an evaluation system that safeguards organizational and editorial standards. However, the **relative ease of accessing usage metrics compared to quality and impact indicators**, which typically require more time and resources to obtain, poses the risk that usage data will be disproportionately weighted. Consequently, the *Format-Compass* may ultimately fall short of its potential, and media professionals could be tempted to continue relying primarily on quantitative usage metrics simply because they are more accessible. Regarding RQ 5.1 the findings therefore indicate a **strong retention of existing metric systems**, particularly those focused on easily measurable usage figures. Moreover, this focus on usage metrics is expected to carry on in day-to-day production practices.

But, of course, they will and you can't lie to yourself about that, the conversations will be: "Our show didn't perform today. Didn't get good numbers. We have to change something." [...] This is a common practice that we already have here. That will happen. (Int 4, Head of Central Tasks)

From a public value perspective, the *Format-Compass* seeks to foster **discussions about the values and standards individual formats aim to uphold**, particularly in defining which aspects of the public remit they intend to address. At the same time, the instrument places strong emphasis on **the measurement aspect** of the public value concept. It encourages editorial units to develop a deeper understanding of the metrics they want to use to evaluate their formats.

However, this approach also introduces tensions: **journalistic expectations may collide with the requirement to set concrete goals and submit to performance evaluation**. Moreover, journalists might find the user-centric approach to quality assessment problematic, fearing it could undermine journalistic authority and autonomy. Yet, this potential conflict is consciously accepted by those responsible for the instrument, as defining goals is considered a central priority of the initiative.

The journalistic sector in particular will certainly struggle with this format compass and the definition of objectives. Yes, but that's also the right thing to do. And that's exactly what we need. We need this friction at this point. (Int 4, Head of Central Tasks)

11.4.7 Potential Consequences for Formats and Production

In answering RQ 5.2 and summarizing the preceding findings, the implementation of the *Format-Compass* not only challenges long-standing traditions of performance evaluation within the organization but also carries the **potential to reshape content production** and influence those involved in content creation. Its strong user focus in operationalization combined with a clear emphasis on goal-setting enables ongoing performance evaluation. This reflects an **internalization of pragmatic legitimacy**, where audience acceptance becomes the paramount objective. While many formats already employed various forms of audience analytics prior to the *ZDF-Compass*' development, the standardized nature of the new measurement system enables **systematic comparisons across formats within the same genre**. This reduces arbitrary evaluations and brings structure to performance assessment. At the same time, however, it creates incentives to tailor content more closely to audience preferences, which may risk deprioritizing broader societal objectives and shifting editorial focus away from the public service remit.

For media professionals, especially journalists, this implies a deeper integration of user demands into their workflows. At the format level, KPI-based evaluations may reveal underperformance and result in the **discontinuation of formats**, a practice observed at the spin-off channel for young audiences *FUNK*, where formats are reviewed with a strong focus on user data and removed if they fail to meet target group demands.

There are also areas that will be losing out. That's quite clear. Then you have to consider whether you still need this program or this product. (Int 3, Consultant ZDF boards)

At the same time, those involved in the project emphasize a willingness to revise goals and indicators if needed. In this respect, and in line with RQ 5.2, the *Format-Compass* holds potential not only for evaluating existing formats but also for influencing their strategic orientation and approach to audience engagement. However, its internal legitimacy depends heavily on **how the tool is received and applied by editorial teams**, particularly whether it is perceived as congruent with previous evaluation practices.

11.5 Discussion and Conclusion

After scrutinizing patterns of audience analytics use, reflections about it, emerging roles, and the impact of metrics beyond the initial selection of content, this project aimed to **move the debate forward**. It offers a perspective, and potential pathway, for media organizations to make their own goals and (journalistic) values measurable through the development of proprietary analytics systems. To this end, the implementation process of a measurement framework tailored to the organizational and legal requirements of the German PSM organization *ZDF* was examined. This is a particularly relevant issue in the German context, where failing to meet value-based criteria, such as diversity, accessibility, or representation, may not only undermine public trust but can also lead **to funding reductions**, as recently emphasized by the Council for the Future Development of Public Service Broadcasting (Zukunftsrat, 2024). In the broader legitimacy discourse, **aligning with purely market-driven metrics poses a significant risk for PSM**: it forces them into a competitive space where, structurally, they are unlikely to prevail (Raats, 2023).

11.5.1 Summary of Findings

The results offer a wealth of insights into the initiation, design, and implementation of a proprietary performance measurement system. These can be distilled into four key findings:

I. External Regulatory Pressure Enabled the *ZDF-Compass*

The development of the *ZDF-Compass* was primarily triggered by anticipated changes in the Interstate Media Treaty, which required PSM to establish **indicators for regular program evaluation and audience dialogue**. This finding reflects a clear pattern of regulative legitimacy and reveals that the initial motivation was not grounded in normative considerations or in the desire to counterbalance commercial metrics, but rather stemmed from external legal pressure.

II. The Instrument Is Broad but Primarily User-Focused

During the design phase, **a pronounced user focus emerged**: usage metrics were placed at the core of the *ZDF-Compass*, and the quality, impact, and acceptance dimensions were to a high degree **operationalized from a user perspective**. As a result, user perceptions of remit fulfilment became central to evaluation practices. This reflects a move toward **pragmatic legitimacy**, in

which audience satisfaction and target group resonance become primary goals. Despite this emphasis on users, the dissemination of high-quality content remains a major mission and moral responsibility, indicating a **blend of regulative, moral, and pragmatic legitimacy**. Notably, pragmatic legitimacy is rendered quantifiable through measurement, creating a stronger emphasis on audience approval that may, at times, conflict with internal standards or journalistic values. This reflects an important aspect in gaining legitimacy: While legitimacy is built through internal processes, the strong user orientation also incorporates and anticipates legitimacy as perception (Fehlmann, 2023; Suddaby et al., 2017). It further reveals a **shift in internal priorities and a gradual relinquishing of exclusive authority over content evaluation**.

III. The ZDF-Compass Aims to Quantify Format Management

Beyond its initial purpose of fulfilling legal obligations and satisfying the broadcasting board, the *ZDF-Compass* has taken on a strong **strategic function in portfolio management**. The *Format-Compass* requires editorial units to commit to specific goals derived from the overarching indicators. This aims to avoid arbitrary evaluations and post-hoc justifications. The structured goal-setting and performance reviews place the **audience at the center of content creation**, thereby increasing the potential influence of the instrument on journalists and other media professionals. If benchmarks are not met, the format's continuation may be called into question.

IV. New Metrics are Resource-Intensive and Favor a Retention of Simple Usage Indicators

Although the *ZDF-Compass* integrates PSM values and stresses their measurement, a clear **imbalance emerges between easily obtainable usage data and more complex, value-driven indicators**. The latter, particularly those found in the quality and impact circles, require significant resources, including regular user surveys. Furthermore, at the organizational level, no prioritization between *ZDF-Compass* dimensions is defined, increasing the risk that traditional performance indicators (e.g., viewing figures or market share) will be used habitually. This risk is reinforced by the fact that the **quality dimension has been excluded** from the initial phase of the *Format-Compass*, leaving usage and impact, both strongly user-driven, as the central evaluation criteria. As a result, the scope of the *ZDF-Compass* is potentially limited, particularly in fulfilling the broader goals of public value.

11.5.2 Conclusion: Is the ZDF-Compass a Viable Alternative?

While the instrument holds the potential to counteract the so-called “neoliberal trap”, its strong user orientation also makes editorial units **susceptible to fluctuating audience sentiments**. It constitutes a promising step toward emancipating performance measurement from the exclusive use of commercial metrics. Moreover, it reflects elements of citizen orientation and introduces innovative approaches to quantifying normative journalistic goals. From an organizational perspective, the focus on user centrality may appear both logical and strategic. However, it should be applied with caution, as it risks overlooking other perspectives within the organization, particularly the needs of journalists. The construction of the instrument suggests a **blending of citizen and consumer orientations**: Values such as diversity and societal impact are indeed considered, but primarily from the audience’s perspective.

In light of the findings from the second project, it can be assumed that these metrics are more likely to be used by media professionals who align with a consumer orientation, while those with a citizen-oriented perspective may continue to operate independently of these tools – depending on how strictly the *ZDF-Compass* is applied as a portfolio management instrument. However, the *Format-Compass*, at least at a conceptual level, enables **flexibility and differentiated goal-setting**, allowing entertainment formats, whose primary aim is not necessarily the fulfilment of a citizen-oriented mission, to be evaluated in alignment with consumer needs. If applied rigorously, the role of analytics experts within editorial units may gain increased relevance relating to the third project.

To answer the central question of whether the *ZDF-Compass* provides a viable solution or pathway beyond performance evaluations solely based on commercial metrics, the findings suggest that the **deliberate engagement with organizational values and the attempt to make these values measurable** represents an innovative and promising approach. In this regard, the **quality and impact dimensions** stand out, as they challenge traditional methods of program evaluation by placing a multitude of normative KPIs at the center of assessment processes. However, the continued dominance of quantitative usage metrics remains evident. Their displacement appears unlikely (and perhaps undesirable) since they provide many media professionals with important orientation markers. Instead, the key lies in **diversifying measurement practices** and, crucially,

encouraging editorial units to engage with their own values, the measurability of those values, and the inherent **limitations of quantification**.

This aligns with insights from the first and second projects, which underscored the **importance of reflection**. While the *Format-Compass* incorporates this notion through tight goal-setting procedures, ongoing reflection must be ensured. It should be anchored in both the remit and the organizational values of *ZDF* as a public service institution. This also includes the willingness (and authority), when necessary, to deprioritize audience preferences and instead produce content that may not align with immediate tastes but holds significance from a societal perspective, especially content that challenges users or confronts them with uncomfortable truths. This imperative extends beyond journalistic formats- the primary focus of this work – to also include entertainment formats as well if they are to meaningfully embody a public service ethos.

11.5.3 Theoretical Implications

Overall, the combination of legitimacy types and the public value approach proved valuable for capturing the organizational perspective behind the development of the measurement instrument. The typology proposed by Suchman (1995) was particularly useful, as it allowed for a **clear differentiation between various legitimacy goals**. However, one noteworthy observation is the **significant role of internal legitimacy** in the development of the *ZDF-Compass*, a dimension previously overlooked and not included in the original typology, which primarily focuses on legitimacy in relation to external stakeholders. This indicates that the theoretical framework used for this project should have more explicitly **incorporated intra-organizational perspectives** in order to account for the full spectrum of motives in measurement system development.

With regard to the public value approach, it is necessary to **critically assess the role of measurement**, a core element of the concept. In the case of the *ZDF-Compass*, public value fulfillment is primarily assessed through the perspective of users. This raises the question of whether audiences are equipped to evaluate societal impact at all, or whether such an approach ultimately leads to distorted measurements and, consequently, an **obsolete understanding of public value**. This issue can be illustrated by the example of diversity: It is doubtful whether the majority population is adequately positioned to assess whether a program truly represents diverse perspectives and minority voices. As a result, media organizations may be led to believe they are sufficiently

addressing diversity, while in practice, they may merely be reflecting a variety of mainstream viewpoints

11.5.4 Implications for Media Management

While media management was not the primary focus of the previous projects – where it appeared only indirectly through the emphasis on journalists – this project centers exclusively on the perspective of media management, particularly within the PSM context. It becomes evident that media management in PSM operates within a field of tension: **regulatory requirements must be met, and external stakeholders, represented in the broadcasting board, must be informed and satisfied.** This is reflected in the centrality of the self-commitment statement, which served as the foundation for the *ZDF-Compass*. At the same time, it is necessary to ensure that programs and formats capture audience interest and can compete with commercial providers. Thus, it can be assumed that management is to some degree intrinsically but for the most part extrinsically motivated to incorporate organizational values into the evaluation of media products.

Regarding the *ZDF-Compass*, a **strong need for standardization** becomes apparent. Interviews reveal that in earlier performance evaluations, formats frequently framed key figures in their favor, resulting in a certain loss of control for management due to the absence of standardized goal-setting. This is reflected in the fact that, within the format compass, target agreements are reached in collaboration with editorial units, yet the final decision rests with management. Moreover, the *ZDF-Compass*, especially the format compass, is seen as a unique opportunity to initiate unification processes that would significantly strengthen the position of media management vis-à-vis editorial units: on the one hand through **comparability**, and on the other through **target agreements** by which formats must be evaluated. The user focus can also serve as a strong argument to persuade formats, as it is **difficult to argue against audience-centricity**. However, it remains unclear whether the implementation will proceed as intended, as previous research on audience analytics has shown that although management initiatives can positively influence the use of such tools, there is a threshold beyond which resistance emerges (Lamot et al., 2021; Tandoc, 2014b; Usher, 2013).

Thus, for management, there is an opportunity to conduct more **targeted evaluations** and, as practiced by the youth channel *FUNK*, to discontinue or modify formats when necessary. Nevertheless, it must be expected that especially in the journalistic field, resistance could arise, particularly concerning the strong user focus. Close coordination with editorial units, clear explanation and reflection on the respective indicators of the *ZDF-Compass*, as well as securing a commitment to the agreed-upon goals will therefore be crucial. The cautious and cooperative approach taken during the pilot phase indicates that entrenched structures in performance evaluation must be overcome, and that **editorial units, in many cases, occupy powerful positions within the organization**. In this context, it may be particularly important to observe and address different usage types within editorial units, as outlined in the first project, and to respond to or counter their specific needs. For instance, **“Integrators” could be willing to carry the format compass into the editorial units** and provide the necessary translation between the tool and journalistic practice. More resistant types, such as the “Skeptics”, could be approached by explicitly emphasizing the value-based categories of the compass and illustrating how these categories are integrated into editorial routines. Another challenge concerns **resources**: Individual target setting and, prospectively, the evaluation of results could cause significant strain, particularly during the initial phase.

11.5.5 Implications for the Overarching Theme

In light of the overarching research question of this work, the case analysis yields several broader implications. First, the effort to make mission-related values measurable can be seen **as a departure from commercial evaluation practices**. This is particularly evident in the quality dimension of the *ZDF-Compass*, which includes components such as diversity, trust, and relevance to society. These are values that, at least with regard to the journalistic profession (which constitutes only a small part of PSM), reflect key normative principles. However, **quantified usage metrics remain central** to the instrument. Their framing as a *conditio sine qua non* reveals an association with rationality and objectivity, reinforcing their perceived decision-making relevance (Espeland & Stevens, 2008). In the uncertain environment in which PSM operate, this is understandable, yet it also opens the door for such numbers to be used for **justification purposes** (Dreyfus & Dreyfus, 2005), which may not always align with the public service remit.

Additionally, from a public service perspective, it must be questioned whether all relevant aspects can be adequately captured through measurement. While the instrument implicitly assumes this to be the case, it may ultimately risk what Petre (2018) refers to as **mechanical objectivity**, where quantification itself is mistaken for precision or neutrality. Furthermore, the user-centric orientation already discussed reveals a fundamental tension: It potentially leads to **a separation between the act of producing content and the authority to evaluate it**, effectively shifting judgment from media professionals to users. This challenges traditional understandings of professional autonomy and editorial responsibility.

Another form of authority becomes particularly evident in the *ZDF-Compass*'s function as a portfolio management tool, highlighting that, despite its value-based design, the measurements can also serve as a **managerial control mechanism**, thereby harnessing the potential of quantification for **discipline and surveillance** (Braverman, 1974). The *ZDF-Compass* primarily functions as a legitimacy instrument directed at the broadcasting board and the general public, and may also serve as a defense against political criticism or to differentiate from commercial competitors. Yet, it simultaneously risks constraining editorial boundaries and reducing journalistic autonomy. However, this effect is context-dependent: It largely hinges on **which metric systems were previously in place**. In some instances, the *ZDF-Compass* might even relieve editorial units of the burden of being evaluated solely by commercial standards, potentially restoring a more mission-oriented framework for performance assessment.

11.6 Limitations

Several limitations arise both from the research design and the current stage of the *ZDF-Compass*'s implementation: **First**, the reliance on a single-case study design enabled deep insights into the motivations behind and the managerial processes shaping the development of a proprietary measurement system. However, it limits the **generalizability of the findings** beyond the specific context of a PSM organization, particularly with regard to privately operated media companies (von Rimscha & Sommer, 2016). This raises the question of how far the findings can be transferred to other media organizations or systems: While the concrete components of the *ZDF-Compass* may not be directly applicable across different organizational contexts, the underlying process, namely, **the strategic reflection on how to translate organizational values into measurable indicators**,

may well offer guidance beyond this particular case. Moreover, the decision to incorporate **user-focused metrics** to reach specific audience segments is likely relevant for many media organizations. The same holds true for the individual goal-setting process at the format level. Nevertheless, it must be acknowledged that such systems are **resource-intensive**, and individualized measurement may be costlier than off-the-shelf industry solutions. For commercial outlets dependent on advertising revenue, proprietary value-based indicators may only serve as a complement to commercial metrics, which remain essential for demonstrating the marketability of their advertising inventory. Finally, while German PSM benefits from comparatively stable financial conditions, **political contestation and legitimacy pressures**, particularly from right-wing parties and commercial actors, are shared challenges for public media systems more broadly.

Second, the *ZDF-Compass* was still in the **pilot phase** at the time of the interviews. As a result, it is currently only possible to make preliminary observations about its potential impact on media production practices. Without full implementation, it remains unclear whether the instrument will ultimately shape content decisions and organizational alignment as intended, or whether its primary function will remain symbolic, signaling accountability to the broadcasting board and political stakeholders. **Third**, the interview sample primarily **reflects the management and expert perspective**. Although this allowed for insights into the strategic and organizational framing of the *ZDF-Compass*, it provides limited insight into how media professionals experience the tool in their everyday routines. This restricts the evaluation of how well the instrument aligns with editorial workflows and newsroom values. A more comprehensive understanding would require further empirical work **focused on the users of the instrument** at the content production level.

Finally, although a variety of formats were included in the analysis, the evaluation of the *ZDF-Compass* focused primarily on its alignment with journalistic values. This was consistent with the broader theme of this work, which centers on the tension between audience analytics and normative commitments in journalism. Yet, it **falls short to capture the wide-ranging remit beyond journalism**, encompassing entertainment, cultural, and sports programming. These genres often operate according to different professional logics and value systems. Consequently, perspectives of other creative professionals working in these areas should be included in the evaluation of the instrument.

11.7 Moving On with Proprietary Measurement Systems

Despite the limitations discussed and its potential use as a control mechanism, the *ZDF-Compass* represents a promising tool for performance evaluation rooted in public service obligations. It marks an important step toward **reducing dependence on audience metrics** that are often shaped by commercial imperatives. Its strong user focus reflects a strategic decision, one that must be continually scrutinized both in the operationalization of individual indicators and in its application at the format level, especially if the *ZDF-Compass* is to strengthen the legitimacy of PSM in current debates

A next step should involve incorporating perspectives from journalists and other media professionals inside and outside the organization who are confronted with the *ZDF-Compass* indicators to understand how the instrument functions in practice and whether it aligns with professional norms and workflows. Moving forward, **incorporating other organizational settings and other PSM** could facilitate comparisons of different approaches on how to retain or recapture editorial and organizational autonomy in evaluating performance and content – also **beyond the journalistic domain**. Finally, a fundamental question remains: To what extent can instruments like the *ZDF-Compass* not only make internal values more measurable but also translate these values into actual content? Only if such tools ultimately manifest in the content itself and generate **tangible public value** both individually and collectively can they fulfill their intended purpose.

To explore these and other questions related to the projects presented in this work, the following section provides a brief overview of the individual project results and evaluates them in light of their respective limitations. In a next step, the findings are synthesized to derive implications from the body of results for the theoretical frameworks employed, the journalistic profession, and the role of journalism as an institution within society – followed by its counterpart, the media organizations that often finance it – and for media management more broadly. Based on this synthesis, the chapter concludes with a discussion of the opportunities and future prospects for both journalism and media organizations regarding the core themes of this work, as well as directions for further research.

12 Integrative Summary and Discussion

Taken on their own, audience analytics as a means of performance measurement in journalistic work represent a highly relevant object of study due to their potential **impact on workflows, role orientations, organizational goal-setting, and ultimately the produced content** (Belair-Gagnon et al., 2020; Hanusch & Tandoc, 2017; Lamot & van Aelst, 2020; Tandoc, 2014b; Tenor, 2024). Beyond this, the broader perspective of **commodification** emerges, revealing how various areas of society are increasingly shaped by measurement and quantification, thus inviting a more overarching examination (Espeland & Stevens, 2008; Petre, 2018). The diverse theoretical and empirical perspectives demonstrate that the phenomenon demands, first, a differentiated approach: **There is no “one-size-fits-all” model.** And second, that it permeates multiple areas: it affects news production and media organizations directly but also connects to broader developments such as the precarious funding situation of journalism, the rise of platform-based distribution models, shifting usage behaviors, and a media environment in which journalism has long since lost its monopoly on information selection and dissemination (Haim, 2019; Steensen & Westlund, 2021; von Rimscha & Riemann, 2024; Vos, 2015). To better grasp the resulting research questions, to capture the complexity of the phenomenon, and to provide orientation, **four thematic areas were delineated:** The first area focused on the use of audience analytics among journalists; the second addressed the impact on the journalistic profession and its boundaries; the third dealt with the effects of audience analytics on production processes and content; and the fourth area covered the organizational perspective, including the development of potential solutions for handling audience analytics.

This chapter aims to **synthesize and examine the findings from and across the individual projects**, considering them in relation to the theoretical frameworks and existing empirical research. To do so, first, the results of the projects will be summarized concisely with reference to the respective research questions. Subsequently, these findings will be critically evaluated and contextualized within the discourse on audience analytics. Before the last chapter derives implications for the journalism profession, media organizations, and society, the limitations of the individual projects, as well as broader limitations of the overall approach, will be discussed.

12.1 Answering the Research Questions

To establish a foundation for the discussion of findings and to subsequently derive implications, the results of the individual projects are summarized and the corresponding research questions are briefly reviewed.

12.1.1 First Project: A Conceptual Typology of Audience Analytics Use

The first research question addresses the first thematic area, focusing on the use of audience analytics and the factors influencing their application. Using the Theory of Planned Behavior as a theoretical framework, this project aims to systematize various influences on audience analytics usage and their significance (Ajzen, 1991). This approach seeks to contribute to **a more nuanced understanding of the often broadly and inconsistently used term “audience analytics use”** by allowing for a more complex picture of different usage patterns rather than assuming uniform usage across contexts (Bunce, 2017; Duffy et al., 2018; Nelson & Tandoc, 2018). Beyond investigating how usage differs between and within editorial units, this project enables the identification of potential lines of conflict, provides a more precise classification of previous findings, and considers individual isolated influences within **a broader framework**, thereby allowing to assess the potential impact of audience analytics by taking the dynamic between different types of use into consideration. Accordingly, *RQ 1* examines the fundamental question: **What technological, organizational, and individual factors influence the use of audience analytics?** *RQ 1.1* addresses the variation of these influences and how different configurations shape the extent and manner of audience analytics usage. Building on this, a **conceptual typology** of different user types was to be developed. *RQ 1.2* draws on this typology to explore internal newsroom dynamics arising between different usage types. To answer these questions and establish a foundation for the conceptual typology, a comprehensive **systematic literature review** was conducted, incorporating both communication studies and business and management databases (Kraus et al., 2020).

Regarding *RQ 1*, this project identifies two overarching classes of influence. First, **individual influences**, with a particular emphasis **on role orientation**, specifically, whether a journalist’s orientation is shaped by viewing the audience primarily as citizens or as consumers (Hanitzsch, 2011; Hanitzsch, Vos, et al., 2019). A consumer orientation is associated with stronger use of audience

analytics. Similarly, both perceived behavioral control and attitudes toward audience analytics exhibit a positive influence on usage (Tandoc & Ferrucci, 2017; Zamith et al., 2020). Second, **organizational influences** emerge, most notably the broader market orientation of a media organization, which strengthens the use of audience analytics (Ferrucci, 2020). Managerial guidance, encompassing organizational expectations, also reinforces usage, although only up to a certain point; beyond this threshold, resistance and reactance among journalists begin to surface (Tandoc, 2019; Usher, 2013). In addition, **technological influences** are identified as determinants of usage. However, access to audience analytics tools and the nature of the tools themselves are largely organizationally determined. In terms of application and handling, they are well captured through the concept of perceived behavioral control.

Thus, within the theoretical framework, **attitude** and **perceived behavioral control** emerge as significant predictors of the intention to use audience analytics. **Subjective norms** are reflected both through role orientations and through organizational norms and behavioral expectations (Cialdini, 2003; Rossmann, 2021). Moreover, this project identifies **reflection on the use of audience analytics** as an additional, indirect influence shaping usage pattern. However, among journalists, this reflection is often characterized by a rather casual or uncritical attitude. Finally, to derive the typology of user types, the factors of **attitude**, **role orientation**, **organizational expectations**, and **perceived behavioral control** were particularly considered.

Based on the variation of influences (*RQ 1.1*), this project derives six distinct user types. The **Analytics Expert** demonstrates both a very cheerful outlook toward audience analytics and a high level of perceived behavioral control. This type is often characterized by a non-journalistic background and shows a strong tendency toward consumer orientation. Moreover, Analytics Experts can occupy relatively powerful positions within organizations facing high economic pressure. The **Integrator** represents a type with substantial journalistic experience, combined with high perceived behavioral control and a positive yet reflective attitude toward audience analytics. This type aims to reconcile citizen orientation with the use of analytics, making them particularly valuable for successful implementation strategies. The **Enthusiast**, by contrast, displays an overly positive attitude and high perceived behavioral control, but tends to have relatively low competence and minimal reflection. In this case, simple metrics are often overinterpreted as expressions of audience will, leading to an uncritical alignment of all actions with these metrics. As a result, conflicts

frequently arise, particularly with types who maintain a strong citizen orientation. The **Follower** is comparatively passive, aligning primarily with managerial guidance but displaying a mixed attitude and considerable uncertainty regarding analytics usage. This type particularly benefits from the presence of Integrators, who can help reduce anxieties and foster more confident usage. The **Opportunist** also exhibits a mixed attitude and low enthusiasm toward analytics but uses audience data strategically to justify decisions aligned with a citizen-oriented approach. Finally, the **Skeptic** maintains a consistently negative attitude and is generally resistant to the use of audience analytics, as they are perceived to fall short of the high standards associated with a citizen orientation. In strongly market-oriented environments, this resistance can escalate into conflicts and, in extreme cases, lead to journalists exiting the profession altogether.

Whether and to what extent audience analytics are utilized does not depend solely on the individual type, but also on intra-editorial dynamics, the composition of different types within editorial units, and the hierarchical positions they occupy (*RQ 1.2*). For example, an **Enthusiast** in a leadership position could (at least in the short term) drive the optimization of audience analytics in a competitive environment; however, it remains questionable whether such efforts would be supported by the broader editorial team. Similarly, in the case of **Skeptics**, it is crucial to assess whether multiple skeptics are present within a newsroom or whether they represent isolated cases.

12.1.2 Second Project: Individual Metrics and their Relationship with Role Orientations and Reflection

To deepen the first thematic area of usage, the second project took a differentiated look at the concept of audience analytics. The starting point was the recognition that audience analytics encompass **various metrics that serve distinct** objectives (Cherubini & Nielsen, 2016; Zamith, 2016, 2018). Metrics primarily focused on audience size, such as clicks, are likely used differently than metrics oriented toward the quality of usage, such as time spent. The role orientations identified as central in the first project (Hanusch & Tandoc, 2017), which also reflect market orientation, served as the foundation for *RQ 2: How does the use of individual metrics relate to journalists' role orientations?* Furthermore, the project sought to investigate the **relevance of reflection** on the use of audience analytics and the **voluntariness** of their use, as well as their relationship to role orien-

tations (RQ 2.1). This approach also aimed to differentiate between organizational and professional norms and to expand the concept of injunctive norms within the Theory of Planned Behavior.

It was hypothesized that the use of metrics strongly oriented toward audience size, such as pageviews and traffic, would be positively associated with consumer orientation (*H1.1* and *H1.2*), whereas metrics more closely tied to usage quality, such as shares and time spent, would be positively associated with citizen orientation (*H1.3* and *H1.4*). Regarding voluntariness, a negative relationship with citizen orientation (*H2.1*) and a positive relationship with consumer orientation (*H2.2*) were expected. Conversely, for reflection, a positive association with citizen orientation (*H3.1*) and a negative association with consumer orientation (*H3.2*) were hypothesized (Belair-Gagnon et al., 2020; Hanusch & Tandoc, 2017). A survey of journalists, which **for the first time included a scale for measuring reflection** on the use of audience analytics, yielded 288 valid cases and formed the basis for hypothesis testing. Spearman correlation analysis was applied for *H1.1* to *H1.4*, and Pearson correlation analysis was used for *H2.1* to *H3.2*.

The results confirmed *H1.1* and *H1.2*, although the effect sizes were rather small. In contrast, no statistically significant relationship could be identified for *H1.3* and *H1.4*. This indicates that while metrics strongly oriented toward quantitative measures are indeed associated with consumer orientation, metrics focused more on the quality of use are not necessarily linked to citizen orientation. It appears likely that **citizen orientation is generally less associated with metric use**. However, it was also found that metrics such as traffic and pageviews were consistently used more frequently than shares and time spent. Regarding voluntariness, a positive association with consumer orientation (*H2.2*) was confirmed, whereas no significant relationship was found with citizen orientation (*H2.1*). This suggests **that citizen orientation is largely independent** of whether the use of audience analytics is perceived as voluntary.

The findings on reflection are particularly interesting: As expected, a positive relationship with citizen orientation (*H3.1*) emerged, although with a small effect size. However, the hypothesized negative relationship with consumer orientation (*H3.2*) could not be confirmed; **instead, a positive relationship was found, which was even stronger than the association with citizen orientation**. This indicates that consumer orientation is, somewhat unexpectedly, more strongly

linked to reflection on the use of metrics. One possible explanation is that higher overall use leads to greater engagement with audience analytics and thus a stronger reflection process.

Overall, a **medium level of reflection can be attested**, supporting the relevance of this construct raised in the first project. Nevertheless, it can be assumed that journalists are not continuously engaged in reflection about metrics use. With regard to the overarching theme of commodification, the findings show that **consumer orientation is indeed more strongly associated with the use of metrics focused on audience size**. However, it does not follow that the use of these metrics occurs unreflectively. Furthermore, assumptions that citizen orientation necessarily implies a general refusal to use audience analytics must be reconsidered – a nuance also reflected in the “Integrator” type. Ultimately, despite the usefulness and novelty of **the reflection scale developed in this project**, it needs to be reconsidered or expanded, particularly regarding the object and target of reflection. It remains unclear whether journalists primarily reflect on professional values or simply on achieving performance goals (e.g., reaching as many users as possible).

12.1.3 Third Project: The Role of Analytics Experts in Editorial Offices

Within the second thematic area, the influence of audience analytics on the **journalistic profession and its boundaries** is addressed, shifting the focus away from the individual toward a profession-centered perspective. To capture the ongoing transformation of the industry and to expand the literature on the impact of technology by introducing a **social component**, this project investigates the role of audience analytics experts, who in many media organizations are either integrated into or connected to editorial departments (Belair-Gagnon & Holton, 2018; Petre, 2018; Slaček Brlek et al., 2017). The question guiding this project was: *RQ 3: How does the emergence of analytics expert roles impact patterns of boundary work within journalism?* Before answering this central question, it was necessary to first examine how the relationship between analytics experts and journalists influences **role orientations and journalistic practices** (RQ 3.1). The aim was to develop a relational typology of audience analytics experts in connection with their journalistic counterparts. This approach helps to counter one-sided views of the new role within editorial departments and to broaden the understanding of **how audience analytics are mediated and integrated** into newsroom practices.

To theoretically frame the research questions and to enhance the explanatory power regarding expected actions at the boundaries of the profession, this project drew on the well-established continuum of **role orientations** (citizen vs. consumer) as well as the concept of **boundary work**, which conceptualizes various strategies to expand and defend a profession (Gieryn, 1983; Hanitzsch & Vos, 2017b; Hanusch & Tandoc, 2017). Within this framework, three central forms of boundary work are distinguished: the **expansion** of boundaries, the rejection of certain actors or practices (**expulsion**), and the defense of **professional autonomy**. In this project, the concept is extended to also encompass the role of analytics experts. To this end, the notion of **expansion** is further differentiated into **boundary spanning** (adding new tasks to journalism), **boundary blurring** (diluting professional tasks), and **boundary breaching** (breaking professional norms). This conceptualization enables a relational understanding of both groups, journalists and analytics experts, and how they perceive and position themselves in relation to one another (Carlson & Lewis, 2015; Langley et al., 2019).

In total, to address the research questions, 26 interviews were conducted with journalists and analytics experts from 13 media organizations, carried out in two phases. In the first phase, one representative from each group was interviewed per organization. The interviews were analyzed using qualitative content analysis, initially coded according to categories focusing on role orientation, types of boundary work, and the integration of audience analytics.

The findings confirm a **tangible, albeit selective, influence of the new role of analytics experts within newsrooms**. Their advice on the selection and editing of content was often accepted, although in some cases it was simply disregarded due to time constraints. The influence on news production was notably stronger in organizations under greater financial pressure. Analogous to the typology developed in the first project, a variety of strategies for integrating analytics experts emerged. Often, a consumer orientation was adopted selectively depending on the topic. Among analytics experts, there was a clear tendency toward a consumer orientation, as expected. However, they also demonstrated distinct role understandings: **the belief in the objectivity of audience analytics, a focus on financial goals, an emphasis on providing guidance and service to journalists, and a simultaneous acknowledgment and challenge of journalistic norms**. Interestingly, some elements, such as the belief in the objectivity of audience analytics, were also found among certain journalists.

From these behavioral patterns, three types of analytics experts – defined in relation to journalists – were identified. The **Friendly Intruder** is integrated into the newsroom and advocates for a greater role of audience analytics. However, they typically lack formal authority and therefore seek **collaboration with journalists**, offering advice rather than issuing directives on content selection and preparation. Journalists in this relationship engage in **boundary spanning**, expanding the boundaries of their profession by adopting some of the analytics expert’s advice, while simultaneously asserting their autonomy. They are aware of their organization’s financial pressures but do not allow this awareness to dominate their journalistic decision-making. This role can also be found within PSM, where particular sensitivity is required, as journalists tend to show greater resistance. Thus, the Friendly Intruder faces greater challenges in persuasion within PSM environments.

The **Demanding Reformer**, by contrast, adopts a more dominant stance, convinced that a stronger orientation toward audience analytics is crucial for the survival of media organizations. Journalists working with Demanding Reformers often adopt many elements of the **analytics expert orientation**. Performance measured through audience analytics is frequently equated with “good content”. Although boundary work still occurs, with journalists maintaining a commitment to socially relevant topics, this **commitment is increasingly questioned**, both by Demanding Reformers and by the journalists themselves. **Boundary blurring** becomes evident as journalists take on hybrid roles and assume partial responsibility for audience analytics within their work.

In contrast, the **Distant Service Provider** is hardly integrated into newsroom structures, often not even physically present. Interaction is **limited to providing reports**, and to expand their influence, they **appeal to journalistic pride**, for instance, by highlighting the success of specific stories in analytics reports. Among journalists interacting with distant service providers, a strong **citizen orientation** is prevalent, and the Distant Service Provider adapts accordingly. However, this does not mean that journalists show no interest in audience analytics performance, leading to **subtle expansions of professional boundaries**. This relational pattern is primarily found in larger, national media organizations with strong brands and relatively stable financial structures.

Overall, the findings show that while audience analytics have become firmly established in newsrooms, this does not necessarily extend unrestrictedly to their human representatives, the analytics experts. However, analytics experts are often well-integrated and **bring their own role**

orientations, which journalists, in some cases, adopt. Notably, the distinction between journalists and analytics experts no longer fully applies, as many **hybrid roles** have emerged, further blurring the boundaries between editorial and analytics responsibilities.

12.1.4 Fourth Project: The Role of Audience Analytics in Post-Publication-Gatekeeping

In the third thematic area, the focus again lies on newsroom dynamics, but primarily on **news content and how audience analytics influence it**. This project pursued two main objectives: First, it sought **to quantify the influence of audience analytics** on editorial work, an area often explored through observational and interview studies, by using an experimental approach to make the extent of the impact visible (Christin, 2018; Lamot & van Aelst, 2020; Nelson & Tandoc, 2018; Tandoc, 2014a). Second, it aimed to **broaden the content-related perspective** by examining not just selection decisions but the entire lifecycle of a news item. The argument is that not only selection but also the duration and placement of a news item are crucial for whether it has a chance to enter public discourse (Bright & Nicholls, 2014; Vos & Heinderyckx, 2015). The central research question was therefore: *RQ 4: To what extent do audience analytics influence post-publication gatekeeping processes?* To avoid an overly isolated view of audience analytics, the project also considered the **role of the news topic** itself in decisions to remove a news item (*RQ 4.1*). Additionally, to better understand the motivations behind such decisions, it investigated **which motives drive de-selection and which patterns can be identified in this practice** (*RQ 4.2*) (Tandoc, 2014a).

As a theoretical foundation, this project built on an extension of the often-considered outdated gatekeeping concept: **post-publication gatekeeping**. This perspective focuses on activities after the initial selection process, recognizing that, unlike in the traditional model, news items can be altered even after publication. It encompasses four dimensions: **Audiences, Platforms, Practices, and Regulations**, making it particularly suitable for capturing the role of audience analytics. Regarding the topics, conceptualizations were employed that **distinguish degrees of public affairs relevance**, closely related to the soft news/hard news distinction (Hermida, 2020; Reinemann et al., 2012; Salonen et al., 2023).

Based on existing research on news selection, it was hypothesized that articles with high audience analytics performance are less likely to be de-selected (*H1*). Independently of performance, it was assumed that the topic itself would influence the de-selection decision (*H2*). To further differentiate this effect, it was hypothesized that service-related topics are more likely to be de-selected than articles in the fields of culture and politics (*H2a*). Conversely, it was assumed that political topics are less likely to be de-selected than culture and service topics (*H2b*). Drawing on previous findings (Nelson & Tandoc, 2018; Tandoc, 2014a) as well as the preceding projects of this work, which demonstrated selective audience analytics use and the retention of public affairs topics, an interaction effect between audience analytics performance and topic was additionally hypothesized (*H3*).

This project employed a **mixed-methods design** to address both the desired quantification of audience analytics' influence and the need to contextualize the results, thereby mitigating the artificiality of the experimental setup (Döring, 2023). The dependent variable in the experiment was the **de-selection decision**, for which a new scale had to be developed. The experiment was designed as a scenario-based study: Participants were shown news articles and asked whether they would recommend de-selecting them. This approach allowed the inclusion of journalists who may not hold formal decision-making authority but still engage in evaluative routines. **Audience analytics performance** was manipulated across three levels, **below average, average, and above average**, as well as a control condition where no performance data were shown. The **topic** was manipulated at three levels, **politics, culture, and service**, resulting in 12 experimental groups. The experiment yielded 412 valid cases. Rather than focusing solely on de-selection, the qualitative interviews broadly explored how news is selected and the role of audience analytics in this process. In total, 15 interviews with journalists from 13 media organizations were analyzed.

For the analysis of the experiment, an ANOVA was conducted and complemented by a post-hoc test to further classify group differences. *H1* could be confirmed, although with a small effect size. *H2*, concerning the role of the topic, was also confirmed, with a medium effect size, **thus larger than the effect of audience analytics performance**. The post-hoc test revealed that service topics were significantly more likely to be de-selected compared to the other two topics, thereby confirming *H2a*. However, the expected difference between politics and the other two

topics, culture and service, did not materialize (*H2b*). Moreover, the interaction effect often posited in the literature and indicated in previous projects- that audience analytics performance might be weighed differently depending on the topic – was not statistically significant in the experiment (*H3*). Therefore, no further statistical analyses regarding this interaction were conducted.

The interviews revealed that de-selection is a natural and routine process in journalistic practice. This can sometimes override the influence of audience analytics, for instance, when the homepage must be kept up to date. As in previous studies and other than in the experiment, a **preference for political news was observed regardless of performance (interaction effect)**. However, this preference could be further differentiated: in local newsrooms, **the opposite pattern emerged**. There, national topics not core to the outlet's brand were more likely to be de-selected in cases of underperformance than locally relevant stories tied to brand identity. Additionally, across organizations, there was greater reluctance to de-select in-house productions or content that required considerable resources. The interviews also revealed **distinct considerations between selection and de-selection**, underlining the importance of examining post-publication processes. It became evident that content is often selected based on citizen-oriented values but subsequently subjected to strict performance monitoring, leading to de-selection if engagement is low. Furthermore, de-selection does not necessarily signal the end of a news item's lifecycle. Strategic de-selection is often used to temporarily remove articles with the intention of republishing them at a more favorable time.

Overall, and particularly when compared to the influence of topic relevance, audience analytics emerged as a consistent but moderate influence, supporting the findings of the second and third project. This project contributes to the existing body of research by **identifying situational factors that may moderate or even neutralize the influence of audience analytics**, potentially explaining the absence of the anticipated interaction effect (Lamot & van Aelst, 2020; Nelson & Tandoc, 2018).

12.1.5 Fifth Project: Implementing Proprietary Audience Analytics in Public Service Media

The fourth thematic area of this work addresses **potential solutions for media organizations and journalism** in light of the overarching issue of commodification and existing research that largely

observes the use of commercially oriented audience analytics systems. This project evaluates whether and how media organizations can **translate their own values into measurable indicators**. While there are certainly media companies where no major goal conflicts arise – because commercial orientation is, to some extent, part of the strategy – the fifth project focuses on PSM, given that **ongoing legitimacy challenges require an evaluation framework** that does not rely solely on commercial metrics (Fehlmann, 2023; Puppis & Ali, 2023; Raats, 2023). To lay the groundwork for understanding the approach to such a framework, the overarching research question of the project is: *RQ 5: How do public service media translate their organizational objectives into measurable indicators?* Given the assumption that evaluation systems such as audience analytics are already in place, particular attention is paid to how these are related to or integrated with the newly developed metrics (*RQ 5.1*). A system of proprietary indicators, however, can only have a meaningful impact on content and media professionals if it is implemented at the editorial level, which is why the processes and strategies used within editorial units are also explored (*RQ 5.2*).

To account for the specific situation PSM, which is increasingly confronted with political attacks and declining public willingness to pay for its services, this project draws on the theoretical **framework of legitimacy**. Four types of legitimacy are used to categorize and better understand which organizational goals are addressed by the measurement instrument and how these relate to society and key stakeholders: **pragmatic, moral, cognitive, and regulative legitimacy** (Suchman, 1995; Suddaby et al., 2017). These types are not necessarily complementary; rather, they can stand in tension with one another, for instance, pragmatic legitimacy through large audience numbers may conflict with moral legitimacy rooted in serving minorities. It is therefore useful to consider how these types relate to one another and how legitimacy is pursued through them. In addition, the **public value concept** is applied to capture the unique role of PSM in managing public institutions (Mazzucato et al., 2020; Meynhardt, 2019; Moore, 1995; Murschetz et al., 2024; Neumüller, 2011). Among the commonly used dimensions – **authorization, creation, and measurement** – the latter is most relevant for the overarching theme of this work. **Misguided measurement practices can undermine public value**, making this dimension highly pertinent to the problem at hand. This project extends existing conceptualizations by shifting the focus beyond *ex ante* tests of public value, typically conducted prior to the launch of new services, and towards ongoing evaluation during regular operations (Collins, 2007). In practice, public value rarely plays a role in

these evaluations; instead, performance is frequently assessed using audience analytics. This may place PSM in a competitive situation it can hardly win, given its societal remit and the presence of commercial competitors. This dynamic risks triggering the so-called *neoliberal trap* (Puppis & Ali, 2023).

Since the development of value-based or profession-specific metrics has long been called for, yet many media organizations still rely only on tailored approaches derived from existing audience analytics systems, no substantial prior experience existed concerning the creation of such systems from scratch. For this reason, a **case study approach** was selected for its **revelatory potential** (Cherubini & Nielsen, 2016; Costera Meijer, 2020; von Rimscha & Sommer, 2016; Yin, 2009). This project seized the opportunity to study the German public service broadcaster ZDF, which at the time was in the process of developing and implementing a proprietary performance evaluation system, the *ZDF-Compass*, allowing for insights to be gained *in situ*. To capture first-hand insights into the development process and to reflect the organizational perspective, seven in-depth interviews were conducted. Participants included managers directly involved in the creation of the instrument, one external expert who contributed to its development, and a representative from the youth-oriented spin-off channel *FUNK*, to enable a comparative view of existing evaluation practices within PSM. The interviews focused on the components of the instrument, their operationalization, and the steps taken during implementation. A qualitative content analysis was applied, using categories based on legitimacy types, dimensions of public value, and emerging implementation patterns.

The *ZDF-Compass* comprises **four concentric circles designed to capture usage, quality, impact, and acceptance of both programming and the broadcasting fee**. While many established and readily available data sources are used, particularly for usage, the impact dimension, which assesses whether programs fulfill **specific PSM functions** (to inform, educate, advise, entertain, and convey culture), introduces new forms of measurement. The findings reveal that the development of the instrument was not purely driven by intrinsic motivation, but rather initiated in anticipation of legal requirements. Consequently, the compass primarily seeks to foster **regulative and pragmatic legitimacy**. Notably, the quality dimension, which includes indicators such as **diversity, relevance to society, trust, and accessibility**, offers an innovative approach to operationalizing PSM values. However, the implementation of these metrics is characterized by a **strong**

user focus: Values are operationalized from the audience’s perspective, revealing a shift in the exclusive authority over content evaluation. Beyond fulfilling regulatory demands, the *ZDF-Compass* is intended to be adapted at the level of individual formats, serving primarily as an internal management tool. Here, editorial teams are expected to commit to predefined goals to prevent arbitrary or selective evaluation practices. Regarding implementation, while the *ZDF-Compass* is an ambitious initiative, there is a risk that **readily available and cost-effective metrics, i.e., existing audience analytics, may be prioritized** over more resource-intensive value-based indicators, which are collected less frequently.

From a public value perspective, it remains questionable whether a predominantly user-oriented operationalization and evaluation of value-based categories truly supports the creation of societal value, or whether it introduces a bias that undermines the intended goals. Nevertheless, the *ZDF-Compass* represents an **important step toward autonomous and value-based performance evaluation**. Its successful implementation depends on ensuring that both the goal-setting processes and the underlying data, including their quality and operationalization, are continuously reflected upon. Without such reflection, there is a risk that the instrument could promote blind optimization rather than fostering meaningful PSM outcomes.

12.2 Evaluation and Contextualization of the Results

The aim of this work was to address blind spots in audience analytics research and, in doing so, offer a differentiated perspective on the phenomenon itself, the journalistic profession, and its societal role. As the individual projects already provided detailed discussions, contextualization and interconnections between findings, this section will not reiterate those in detail but instead highlight several **overarching themes and cross-cutting insights** that emerged across and beyond the individual projects. It is important to note that this work did not start from scratch. Rather, it builds on a rich body of theoretical and empirical research developed over the past decade. Audience analytics, therefore, is not a novel field of inquiry, but one that has been explored with varying intensity for years (Belair-Gagnon et al., 2020; Fürst, 2020; Steensen & Westlund, 2021; Tandoc & Ferrucci, 2017; Tenor, 2024). However, this work contributes to the existing body of research by **refining and differentiating earlier findings, expanding them through new methodological**

approaches, and critically re-evaluating established assumptions, each of which has been demonstrated within the thematic focus of the respective projects.

Despite the relative maturity of the field, the findings underscore the continued relevance of audience analytics in light of ongoing challenges for journalism and media organizations. The question of how quantified performance evaluation influences both the profession and its outputs remains highly pertinent. It also **demands an increasingly media-economic perspective**, one that adequately accounts for the financial contexts in which such systems are implemented while simultaneously accounting for the societal dimension of journalism. Across all projects, the **recurring prominence of market orientation** (Ferrucci, 2020) highlights the necessity of approaching audience analytics not only through the lens of journalism studies but also with reference to broader questions of media management and institutional change.

The title of this work, *Between Commodification and Autonomy*, was deliberately chosen to be somewhat provocative. The individual projects have demonstrated where this continuum can be specified more precisely, across which levels it unfolds, and **where it may need to be fundamentally reconsidered**. Across the projects, six overarching findings emerge, building upon another.

1. Ubiquity but Limited Impact

Audience analytics are integrated into the everyday workflows of journalists in most media organizations, however to varying degrees. While this is not a novel finding in itself, it underscores that the often-assumed **omnipresence and determinism of audience analytics is not universally reflected in practice**. Their use is diverse, ranging from basic performance evaluation to a supportive function, and in some cases even establishing standards that shape news selection and presentation (Lamot & Paulussen, 2020). However, the notion of journalism being entirely overridden by audience analytics, and with it, a resulting decline in quality, cannot be substantiated based on the findings (Fürst, 2020). Hence, it is essential to examine not only whether analytics are used, but also **when and how they are applied acknowledging situational factors**. This shifts the analytical focus away from pinpointing a fixed position on the continuum between commodification and autonomy – as the title of this work might suggest – toward **understanding the conditions under which journalists assert their professional autonomy**. The projects revealed that such

conditions may include topic-specific pressures, but also more pragmatic constraints such as time limitations or the need to frequently update content. The limited effect also materialized in the experiment where topic effects carried more weight than performance metrics.

The projects also highlight the importance of differentiating by purpose: Audience analytics may be used strategically, but they also carry **symbolic value**, potentially enhancing the value of one's work. In terms of symbolic value, the findings showed that **injunctive norms** shaping the use of analytics are not unidirectional; rather, they may reflect both organizational constraints and normative considerations, elements that may conflict with one another, but do not necessarily have to.

2. Market Orientation as Constant Companion

Despite differentiated patterns of use and a recurring emphasis on balancing audience analytics with journalistic, value-based criteria, a **pervasive market orientation emerges**, one that is often not consciously recognized or critically reflected upon by practitioners themselves, but rather taken as a given. Central to this orientation is a **strong focus on the user and their perceived needs**, which is not inherently problematic but can become so when socially important or challenging topics are no longer addressed, or only marginally so. This suggests a growing pressure to justify resource allocation in terms of audience appeal and a **shifting of interpretive authority over content quality** and success from producers to users (Nelson & Tandoc, 2018). Notably, even in environments where the use of audience analytics remains optional or limited, an acute awareness of the financial pressures facing media organizations, and of one's own contribution to addressing them, can be observed.

This market orientation is both implicit and, at times, explicitly acknowledged, and becomes evident in **reconfigurations of journalistic role orientations** (Hanusch & Tandoc, 2017). In some cases, elements from non-journalistic domains- here conceptualized as an analytics expert orientation – are increasingly integrated into journalists' professional self-conceptions. These include, for instance, a belief in the objectivity of metrics. Still, as noted in the first finding, a degree of coexistence remains possible: While consumer-oriented roles are more closely associated with the use of audience analytics, more traditional, citizen-oriented roles show far less alignment with such metrics. **Both orientations appear to coexist** within the same organizational environments.

Importantly, it remains unclear whether this form of market orientation truly constitutes a novel phenomenon. Journalistic engagement with notions of audience and responsiveness to audience needs has long been part of the profession's self-understanding, without which journalism would **risk becoming socially detached and unable to fulfill its democratic mission**. Moreover, strong market orientation has historically existed without digital analytics, such as through print circulation figures or broadcast ratings. What is new, however, is the broader application of performance measurement across editorial domains, and the increasingly **blurred boundary between editorial judgment and distribution logic**. While market orientation may not yet dominate editorial processes in all cases, its underlying logic is often subtly embedded in production routines. Findings suggest that it is precisely this normalized, unquestioned presence that has secured audience analytics a prominent role in contemporary journalism.

3. Soft Boundaries and Hybrid Roles

This blurring of boundaries is not limited to the organizational level but also occurs at the individual level, where a **hybridization of journalistic and audience analytics-related roles** is taking place (Belair-Gagnon & Holton, 2018; Petre, 2021). This may explain why audience analytics are not necessarily perceived as foreign to journalistic work. However, hybridization also works in the opposite direction, namely, when analytics experts take on editorial tasks or are granted decision-making authority. In both cases, the commonly assumed distinction between these two roles – often central to research practice – must be critically reconsidered, even if this creates methodological complications by making direct comparisons more difficult. This may indicate that comparison is not always the most appropriate analytical strategy in such contexts.

With regard to the boundaries of the journalistic profession, **a softening of what were already porous demarcations can be observed** (Carlson & Lewis, 2015; Schudson, 1978; Vos & Heinderyckx, 2015). Again, organizational context plays a decisive role: While traditional media organizations tend to retain classic role conceptions, **such value fidelity may be considered a luxury** in smaller, financially unstable outlets. As such, although professional boundaries continue to be discursively negotiated, it is evident that economic considerations and audience responsiveness are increasingly shaping these negotiations.

4. Extension of the Managerial Sphere of Influence and Audit Culture

This dynamic also results in **managerial interventions into journalistic authority**, particularly when it comes to the evaluation of content. At the same time, hybrid roles can lead to the delegation of managerial tasks to journalists. This is not an entirely new phenomenon: after all, editorial oversight has always existed through positions such as editors-in-chief. However, audience analytics provide a new **means of exerting control within the newsroom**, establishing a form of governance that was previously rooted in journalistic norms. This may occur through target-setting or regular evaluations. While the underlying rationale for these practices may include value-based or editorial-strategic considerations beyond purely economic imperatives, they nonetheless resemble the characteristics of an **audit culture**. Depending on their orientation, such systems can function as incentive structures that reward **risk-averse, more-of-the-same behavior**, potentially leading, at least indirectly, to a decline in content quality. It is important to note, however, that while managerial influence is present, it encounters relatively stable newsroom cultures (Lamot et al., 2021). As a result, even though formal expectations are set, they are not always followed meticulously in everyday practice, indicating some sort of resilience.

5. Legitimacy Through the Eyes of the User

The management function of also highlights **audience analytics' dual role as instruments of legitimacy**, both internally and externally. Externally, they serve to demonstrate performance capability. Internally, as outlined above, they are employed to ensure control and commitment to predefined goals. Here, pragmatic legitimacy, understood as the satisfaction of immediate stakeholders, particularly the audience, emerges as a shared point of reference across different groups (Fehlmann, 2023; Suchman, 1995). It is recognized not only by strategic and editorial actors but also externally as a credible signal of value. This form of legitimacy gains traction in part because internal **organizational values are often difficult to translate into measurable indicators** – and, when they do exist, are rarely coherent or uniformly embraced, even within individual newsrooms.

The rise of new professional roles tasked with internalizing and institutionalizing such legitimacy approaches further reinforces this development. It is therefore unsurprising that organ-

izations fall back on **simplified evaluation logics**, many of which resonate with external expectations, such as those found in advertising. User orientation thus appears to be a common denominator, one that may serve as a practical proxy for value, particularly given that media content must ultimately be used in the first place to have any (societal) impact later on. At the same time, however, it risks becoming a **rhetorical trump card**: a justification that can suppress creativity or, through excessive optimization, erode the very societal value that journalism seeks to generate (Puppis & Ali, 2023).

6. Reflection: Potential but no Panacea

This potential erosion is undesirable both from a societal and a professional perspective. Two pathways for addressing the overly narrow, analytics- and user-centered focus could be identified: first, the **development of proprietary measurement systems** that reflect the values of the organization and the profession; and second, a more **reflective approach to using existing audience analytics** – a far less resource-intensive alternative. However, the idea that market orientation necessarily precludes reflexivity appears unwarranted. Instead, even market-driven goal attainment can be subject to critical reflection, particularly concerning the eligibility to address these goals. This underscores both the persistence of market orientation and the necessity of explicitly considering societal values. Such reflection should not be left to chance but should become a more deliberate **part of journalistic training**. Doing so could mitigate the one-dimensional tendency to equate high-performing content with high-quality journalism. Over time, reflexive engagement, much like market orientation, could evolve into a parallel, **implicit standard that enables informed data use** without compromising journalistic integrity

Proprietary measurement systems go one step further: They offer a promising means of placing journalistic values at the center of performance evaluation (Cherubini & Nielsen, 2016). However, it must be acknowledged that **measuring value-based dimensions often proves complicated**, costly, or in some cases conceptually or practically unfeasible. Nevertheless, such systems can serve as tools to assert journalistic values with confidence and to reclaim legitimacy through the very means of performance measurement.

Conclusion: Between Accountability and Autonomy

Across the projects, it became evident that the quantification of journalistic performance enables the identification of decision-relevant action patterns that reflect a **broader reconfiguration of professional roles and authority according to market logic**. Key aspects of the journalistic value creation process, particularly the evaluation of one's own work, but also parts of the content production itself, appear to be increasingly decoupled from the profession. Importantly, commodification itself is not inherently problematic; in many sectors, it facilitates efficient communication between supply and demand. In the automotive market, for example, commodification may lead to more precise alignment with customer needs, greater competition, increased innovation, and relatively fair product distribution, unmediated by political affiliation or social connections.

However, such dynamics cannot be straightforwardly transferred to the media sector, particularly not to journalism. While market orientation may work well for entertainment content, it is far less compatible with the democratic function of journalism. Audience analytics contribute to this ambiguity by simulating market transparency: **they appear to convey what users want, yet the metrics themselves are not necessarily accurate proxies for audience needs**. As both the findings of this project and existing research have shown, these measurements often provide only a partial or distorted picture of user interest, not to mention public interest. Hence, journalism is not solely about catering to what audiences *want*, but also about addressing *needs* that extend **beyond the individual consumer and the measurable aggregate of such individuals**. This broader understanding of journalistic value continues to resonate among many journalists and suggests a relatively high degree of professional retention. However, as demonstrated in financially precarious media organizations, increasing market orientation tends to cast doubt on this understanding over time.

The key question is how long both aspirations can either be held in **balance** or be situationally combined in a way that aligns with professional norms. In the long run, this challenge cannot be solved by the profession alone, nor by the media organizations that house and, to a significant extent, continue to finance journalism. Rather, it **requires a societal solution**, one that explicitly recognizes journalism as a vital institution and holds it accountable based on its contributions to the public and democracy (Kiefer, 2011). Crucially, such **accountability must not be equated with quantification** alone.

12.3 Limitations Across and Beyond the Projects

The limitations of the individual projects – arising from their respective research designs, guiding questions, and particularly their methodological approaches – have been discussed in detail immediately following the presentation of each project’s results, especially with regard to their contribution. Therefore, this section does not aim to repeat those project-specific limitations. These often revolve around the fact that human participants (in both qualitative and quantitative settings) may, either consciously or unconsciously, provide responses that do not fully reflect actual behavior, or, conversely, that the research design may be too far removed from the respondents’ realities. Instead, this section focuses on **identifying limitations that are cross-cutting, thematic, or related to the phenomenon** under investigation.

First, it must be noted that while the individual projects cover a broad range of relevant subfields, from usage patterns to newsroom dynamics, production processes, and the organizational perspective, **they do not collectively lead to a unified model**. This is primarily due to the diversity of the perspectives involved. Although various influencing factors related to the use of audience analytics were conceptually integrated into a model in the first project, this model was not empirically tested in its entirety, **leaving the relative weight of individual factors undetermined**. While the influence of audience analytics could be quantified in the experimental study and in relation to role orientations in the survey, a comprehensive analysis that captures the full range of relevant factors is still lacking. Such an analysis would have enabled, first, a prioritization of influences and, second, a more precise estimation of the role audience analytics currently play in these contexts. This limitation stems from the fact that the projects address pressing questions within the research field and build upon one another, yet they offer rather **segmented insights into various facets of the phenomenon**. These facets are interrelated but operate at **different analytical levels**: most projects are situated at the micro or meso level, while the final project, although focused on the meso level, explicitly aims to derive implications for the macro level. As such, while the findings are to some extent integrable, they are at times too distantly positioned across analytical levels to be captured within a single theoretical framework or overarching model, particularly without running the risk of reducing complexity too much and, with it, limiting potential results. This is especially relevant given the central aim of this work: to differentiate and refine existing findings rather than simplify them.

In addition, limitations arise from the choice of topic itself, both within the individual projects and across the overall study. The **very act of selecting this subject for investigation** may, on the one hand, lead participants to assume that audience analytics are particularly relevant, and on the other hand, reinforce this perception, potentially biased, on the part of the researcher. It is conceivable that, in everyday newsroom practice, audience analytics play only a peripheral role, are not considered especially meaningful, and have limited impact – an **impact that is only attributed to them through the research process** and the interactions with interviewees. As a result, a subtle or background influence may be elevated to an explicit one merely by the fact of it being studied, thereby complicating efforts to examine its “true nature” and potentially leading to an overestimation of its significance. However, this risk was at least partially mitigated through methodological design, for example, by not explicitly introducing the topic of audience analytics in qualitative interviews, but instead framing them more broadly around news production.

Thematically, the focus on audience analytics naturally entails a certain limitation. It is likely, however, that **various technological developments** influence the process of news production, journalists’ role orientations, and ultimately the nature of content and its distribution. This study largely excluded **algorithms and the use of artificial intelligence** – aside from references to Grimme and Zabel (2024) and Helberger (2019). Yet, depending on the organizational context, it may well be the case that journalists are no longer the ones deciding how content is produced. Instead, audience analytics may be interpreted algorithmically, raising the need to investigate how journalists respond to or work around such technological affordances. However, considering that algorithms, such as those used in news recommenders, often operate in the background and that journalists tend to have limited direct interaction with them, it appears plausible (and this was also confirmed empirically) that there is still a **meaningful encounter with audience analytics** themselves, which continue to influence everyday newsroom decisions.

Another limitation lies in the **Western and particularly German context** of this work. Although the projects make an effort to acknowledge alternative perspectives and occasionally point out that different media and political systems may create distinct pressures, potentially intensifying or mitigating the influence of audience analytics. However, these considerations remain at the level of conceptual framing rather than empirical investigation. As such, the **findings must be**

interpreted primarily within this specific national and systemic context. While this work attempts to counterbalance this limitation by relying on broadly observable factors such as market orientation or individual attitudes, the extent to which the results can be transferred to other cultural, political, or economic contexts remains limited and at best approximate.

Furthermore, **long-term effects** are difficult to observe given the current research and project design and can, at best, be inferred from the assessments of interview participants. This applies, first, to audience analytics themselves: While previous research can be consulted, the diversity of methodological approaches, the variety of metrics researched, and the heterogeneity of research questions make it challenging to identify consistent long-term effects, let alone to substantiate them. This limitation also holds for the broader theme of commodification, where one might be tempted to assume **a narrative of decline**, such as “things were better before”. However, this impression is deliberately avoided. This work does not assume that audience analytics alone have caused a shift toward market orientation. Rather, it shows where such tendencies are evident and, at most, where they may have been intensified. Moreover, such meta-trends are methodologically difficult to capture, **as respondents often do not consciously reflect on them**, particularly because we are all situated within the ongoing process of change. With regard to commodification, the full extent of its influence will likely only become evident in retrospect.

One of the most important limitations of this study lies in its focus on media professionals, their production processes, and the organizations affected by audience analytics. What ultimately constitutes societal impact – **the content itself, how it is processed by users, and what attitudes or behaviors may result from it** – is only addressed indirectly. As such, the study can only draw conclusions about the conditions under which journalism may contribute to democratic values (which, in itself, is a significant contribution). However, it cannot assess **whether these conditions actually translate into high-quality reporting** (a question that would require content analysis) nor how such content is received and processed by users, or whether it garners enough attention to exert any impact at all. Answering those questions would necessitate user observation or surveys. In this sense, while the study offers valuable insights into the processes of content creation and the underlying assumptions about audience needs and external constraints, it can only **estimate journalism’s potential** rather than its actual societal effect.

Finally, the focus on journalism must be addressed. For the context of this study, this focus appears both appropriate and necessary, as audience analytics directly affect the journalistic profession and its production processes, potentially limiting journalism's role in democracy and its contribution to society. However, **media usage and media organizations extend far beyond journalism**, and non-journalistic media consumption can likewise have a significant societal impact. Therefore, this broader perspective should be taken into account when considering the overall implications of the findings.

12.4 Implications

Numerous implications have emerged across the individual projects, not only regarding the specific research questions and actors involved, but also concerning the theoretical frameworks, the institution of journalism, media organizations and management, and broader phenomena such as quantification and commodification. While many of these reflections have already been addressed within the respective project contexts, this section aims to **aggregate and further contextualize them with regard to the overarching research agenda**. The implications for journalism and media organizations derived from the projects are not to be understood as prescriptive imperatives, but rather as a basis for further discussion.

12.4.1 Theoretical Implications

Overall, it became evident that the different facets explored across the projects required **diverse theoretical approaches**, particularly because they address distinct analytical levels. Thus, a one-size-fits-all framework would not have been appropriate. For each project, alternative theoretical approaches were considered and an informed decision was made in favor of the most fitting one. However, this does not preclude the existence of other valid theoretical perspectives that could have been applied to the identified problems. Given that all projects emphasized the perspective of media organizations, or at least incorporated it as a significant influence, **organizational theory**, and in particular the concept of loose and tight coupling, could have provided an additional lens (Pancs, 2017; Roberts, 2004). This concept, which focuses on the interdependence of different

organizational units, would have been particularly suitable for conceptualizing the divergent interests and dependencies analyzed in the third and fifth projects. At the same time, its application may have risked narrowing the analytical perspective to exclusively organizational concerns.

A number of theoretical insights can be derived from the frameworks ultimately applied in this research. Within the **Theory of Planned Behavior**, the category of **injunctive norms** (*i.e.*, perceptions about what a group approves or disapproves of) revealed a key fault line in journalism: such norms may include not only professional journalistic values but also organizational expectations. Since these two sets of expectations may contradict each other, their influence on behavioral intention cannot always be clearly determined. This insight has methodological implications: different types of value expectations must be operationalized separately, rather than assuming a coherent and uniform value system across all actors. For the concept of **journalistic role orientations**, a mainstay of this work, it could be demonstrated that while market orientation remains a fundamental force in journalism, the **consumer orientation**, at least in its current operationalization, appears to be losing explanatory power. Moreover, the frequently assumed **binary opposition between consumer and citizen orientations** seems to hold less relevance in practice, where roles often shift based on context. While a general retention of citizen-oriented values can be observed, role conceptions are also being expanded, at times **incorporating elements from outside the journalistic domain**. This indicates that the dichotomy between consumer and citizen orientations must be critically reassessed, and that these newly emerging elements should be reflected in how role orientations are conceptualized and measured.

With respect to the **boundary work** framework, the concept proved highly suitable for analyzing the journalistic profession, particularly in positioning audience analytics as a **boundary object**. The various forms of boundary work helped illustrate how newcomers, such as analytics experts, can test and expand professional boundaries in order to find a place within journalism. At the same time, the framework showed limitations when it came to capturing **hybrid roles**, which move fluidly between established professional boundaries. In practice, this implies that actors may need to be studied in terms of their activities and positions, rather than strictly by their original professional identities. The **gatekeeping** concept also demonstrated renewed relevance. It could be expanded both to include stronger audience-oriented components and to capture pro-

cesses beyond the initial selection of content. Furthermore, a value-based perspective was successfully integrated into gatekeeping, complementing the traditional professional lens and enhancing the **framework's applicability in complex media environments**.

Finally, adding a **regulative notion** to the typology of **legitimacy** proved particularly valuable, especially for PSM. Moreover, the findings pointed to a distinct **internal legitimacy** component, which should be systematically considered when analyzing organizations. In relation to the **public value** framework, this work placed particular emphasis on the component of **measurement**, raising the question if assessments of public value from a user perspective conforms with goals and values of the concept. A central consequence is that when evaluating public value components, researchers and practitioners must not only consider what is measured and how, but also whose data is being used and who is authorized to assess it

12.4.2 Implications for Journalism as a Profession

This research also yields important implications for journalism as a profession. On the one hand, a strong **retention of traditional professional values** was observed, values that position the audience as citizens and emphasize the importance of holding powerful actors in politics and business accountable. On the other hand, a more subtle **market orientation** has emerged, which in many cases, especially within financially strained organizations, is either accepted as a given or remains largely unchallenged. Across different organizational contexts, a **growing integration of (perceived) audience needs** into professional role conceptions became evident. Journalists often displayed a willingness to expand the already porous boundaries of their profession to accommodate these elements. Contrary to expectations, this integration was in many cases smooth and largely free of open conflict. Incorporating user needs is not inherently problematic; journalism cannot operate in isolation from the society and individuals it serves. Indeed, responding to public interests and providing a platform for democratic discourse are fundamental pillars of journalism's societal function.

However, an **overreliance on audience analytics** and an overestimation of their ability to accurately reflect users' real needs and interests risk promoting a narrow conception of success, one that equates high-performing content with high-quality journalism. This suggests a **subtle shift in values**, even though it could be shown that citizen-oriented ideals and a pragmatic use of

analytics do not necessarily contradict each other. Still, if journalism increasingly aligns itself with assumed user preferences, there is a danger that it may dilute its distinctiveness as a profession. In doing so, journalism could lose the unique role it plays in democratic societies and become indistinguishable from other market-oriented content providers, such as digital platforms. Unlike automobile manufacturers or fashion brands, journalism is also tasked with producing products that are at times inconvenient or uncomfortable for audiences: **content that exposes societal flaws and fosters accountability**. While such work is not impossible under a user-centric logic, it is significantly more difficult to justify within that framework

The profession must therefore, if it is to avoid drifting into the trap of pandering to audiences, **develop a clearly defined value system** or deepen the anchoring of existing normative frameworks. This is essential in order to distinguish itself more clearly from other professions – particularly those that claim authority over content evaluation – and to reclaim **editorial sovereignty over its own value creation**. A central part of this value compass must involve assigning **audience analytics a deliberate but limited role**, recognizing that these tools are unlikely to disappear from newsrooms anytime soon (nor would their complete removal necessarily be desirable). This also requires **greater professional confidence** (not arrogance) in the inherent value of journalistic work, and a rejection of the assumption that a piece's worth is determined solely by the number of clicks it receives. Furthermore, this research demonstrated how **journalistic values can be translated** into measurable indicators within a proprietary evaluation system. Journalism as a profession should be actively involved in shaping such developments. Only through proactive engagement can journalism overcome the **recurring narrative of victimhood** that often accompanies the introduction of new technologies in editorial environments.

12.4.3 Implications for Journalism as an Institution

The implications for journalism as a profession also extend to its **role as an institution within society**. On the one hand, journalism is repeatedly subject to political pressure, and its institutionalized forms are increasingly being questioned, particularly with regard to the societal contributions it is expected to make. However, journalism as an institution is far from monolithic. Internal disagreements persist, especially concerning the **existence and scope PSM**. While this study can-

not answer the question of whether market-based models could provide these services more effectively, the low willingness to pay for journalism raises serious doubts. In the face of ongoing attacks on journalism's legitimacy and growing scrutiny of its institutional role, a purely market-oriented approach to performance evaluation, especially through commercially framed audience analytics, appears **unsustainable** for several reasons. First, it positions journalism in **direct competition with platforms** and other reach-driven content providers, a competition it is unlikely to win due to its typically national, regional, or local focus, and its lack of comparable technological infrastructure. Second, adopting commercially framed metrics opens the door to critics of publicly funded journalism, who may then **question its legitimacy and demand cuts or structural change**. Third, it risks **dividing actors within the institution** itself, instead of fostering solidarity in the face of powerful external players.

Similar to the profession itself, journalism as an institution could take a more **proactive role in shaping its legitimacy** by employing proprietary, value-based measurement systems instead of outsourcing evaluative authority. Such an approach would allow for a transparent articulation of journalistic values and demonstrate how these are implemented and measured within programming. This could, in turn, **strengthen audience trust**, a benefit that applies not only to PSM, but particularly to commercial providers as well. Nonetheless, if the precariousness of journalism's institutional position continues to grow (and here, audience analytics are at most a symptom, not a root cause), there must be broader societal reflection on whether journalism should be institutionally reinforced. While this work cannot resolve such questions, it highlights the need for these issues to be **publicly and politically negotiated**. A more stable institutional anchoring would also help to clarify journalism's societal functions and distinguish them more clearly from those of non-journalistic actors.

12.4.4 Implications for Media Organizations

For media organizations, market-oriented behavior does not inherently conflict with their mission, particularly as such behavior often ensures the long-term financial viability of their media products. However, the conceptual division between journalism as the creator of content and thus its quality, and media organizations as providers of infrastructure for marketing and distribution, **does not empirically manifest as a strict boundary**. Even journalists with a strong normative

orientation frequently display an awareness of financial constraints and take on tasks that were traditionally outside their domain. Informed by audience analytics, these activities are now more commonly integrated into editorial decision-making.

Conversely, from a management perspective, there is also **growing intervention in editorial practices** through performance evaluation based on audience analytics. While such practices may be relatively unproblematic in the context of entertainment content, they can lead to an excessive alignment with market principles in the case of journalistic content. If media organizations wish to maintain their distinct societal role and avoid being treated like standard commercial enterprises, they must take **deliberate steps**. First, they must **clearly define and limit the role of audience analytics** within the organization. Second, they must establish a **clear boundary between themselves and platform players**, for whom content quality is irrelevant and only reach matters. Third, they must resist the commodification of core journalistic competencies, such as the commercial production of content through practices like native advertising, which threatens to further **blur the boundaries of the profession** at the organizational level.

Trust, both internally and with audiences, could be fostered through the creation of proprietary value systems and their operationalization, even though this requires considerable initial effort. However, such an approach would also allow for the **establishment of competing value systems** within the media market, which could in turn enrich the marketplace of ideas or at least enhance transparency for both media professionals and users. This may help to counteract long-term media fatigue and, additionally, better highlight the added value of journalism compared to other content providers such as platform-based services.

12.4.5 Implications for Media Management

The challenges outlined and the resulting implications for media organizations must ultimately be addressed and implemented by media management. Media managers are required to **navigate a delicate balancing act**, particularly given the often-precarious nature of media financing. A central task is to critically reflect on whether short-term optimization of purely market-driven KPIs is truly beneficial for the **long-term sustainability** of the organization. Media management in the context of journalism should therefore also be understood, at least in part, as a form of public management, since it involves overseeing **not only economic performance but also a societal**

contribution. The role of media management lies not only in understanding the uniqueness of media products, the peculiarities of the market, and production logics, but also in ensuring that these factors are considered in relation to the broader democratic purpose when managing journalistic units. This **dual responsibility** underscores the need for **specialized training and education for media managers**, and suggests that managing media cannot be treated as just another functional area of general management.

Media management can thus take an **active role in advancing proprietary solutions** for performance evaluation. This offers, first, the opportunity to engage more deeply with editorial teams in setting and negotiating goals, thereby increasing both managerial integration and internal consistency across the organization. Furthermore, evaluation cycles can serve as a **value-oriented form of quality control** and provide the management with the flexibility to respond with product adaptations or new formats. At the same time, media management must also recognize its boundaries: rather than limiting editorial freedom and creativity through overly rigid KPI benchmarks, it should focus on **fostering reflection** within the editorial process. Additionally, both commercial audience analytics and proprietary measurement systems, as well as their potential interactions, represent a source of conflict that must be closely monitored and strategically resolved in alignment with the broader interests of the organization.

12.5 Research Outlook

Within the reflection on the individual projects, numerous avenues for future research have already emerged, each building on the findings of the respective studies to further develop the field of audience analytics and derive practical implications. In this context, many ideas are desirable, but difficult to implement. This section therefore outlines the **three most pressing cross-project suggestions** for future research on audience analytics that could build upon this work.

1. Testing Influences on Audience Analytics Use Jointly

A first key avenue for future research lies in empirically testing the comprehensive model of the influences on the use of audience analytics by means of a survey. Such an investigation would allow for determining both **the hierarchy and relative strength of various influencing factors.** For instance, it would be possible to assess the weight of injunctive norms and clarify whether

organizational guidelines or professional values exert a stronger impact. One particularly significant contribution could be the examination of the **role of reflection** in moderating the relationship between different influencing factors and actual usage.

An empirical specification of these influences would also enable a **validation of the user typology** developed in the first project. This would facilitate to identify whether the proposed types hold up empirically, whether the typology was overly simplified or too complex, and whether additional or alternative types emerge. In a subsequent step, editorial departments could be characterized based on **the composition of these types**, allowing for management-level implications to be derived. These could relate, for example, to potential conflict constellations or the necessity of installing structured mechanisms for reflection, whereas in some cases, such mechanisms might evolve organically. Importantly, whether and how different typological constellations produce conflict would need to be observed and assessed through newsroom ethnographies. After all, conflicts may also serve functional purposes and not require intervention.

Following the approach of nuancing audience analytics, a comprehensive model should not only aggregate influences on the general use of audience analytics, but also increase the complexity of the dependent variable itself. It would thus be valuable to **differentiate between the influences on the use of specific metrics**. This could help to further assess, for example, whether organizational pressure correlates with a preference for metrics that emphasize audience size.

2. Reassessing Market Alignment in Role Orientations

A second promising direction for future research involves the empirical validation of the proposed typology of analytics experts. However, such validation would require a **prior re-evaluation of the role orientation concept**, particularly the continuum between citizen orientation and consumer orientation, which is used to capture degrees of market alignment. Given the **increasingly limited empirical applicability of the consumer orientation** construct, it would be necessary to reassess this orientation. This reassessment should also incorporate additional elements or dimensions, such as the **degree of reflection on audience analytics**. Moreover, it would be useful to expand the notion of user orientation beyond the binary opposition between citizens and consumers. While the established scale for measuring reflection on audience analytics could be applied, it must be extended **to specify the object of reflection** in order to draw conclusions about

the quality of reflective practices. Revisiting role orientations could also help empirically anchor **hybrid roles** more effectively and link them to other hybrid positions, such as those found in public relations. More broadly, this approach could make **underlying commodification patterns** more visible and problematize them more thoroughly.

3. Linking Metrics, Content Quality, and Societal Impact

A challenge already discussed in the limitations section, and perhaps the **most pressing yet difficult** avenue for future research, is establishing a connection between the use of audience analytics (or specific metrics), the resulting **content quality**, and their **eventual impact on audiences** and, by extension, **society**. The potential for such a research program is significant. It could reveal to what extent particular metrics correlate with **changes in content quality** or are associated with specific **quality levels**. Moreover, it might allow for a **comparative analysis** of how metrics influence the character of journalistic products. Finally, it would enable to evaluate the **value of proprietary measurement systems** beyond their organizational utility, by examining how the metric sets used for performance evaluation relate to the actual content produced. This could ultimately answer the question of whether such systems are truly worthwhile.

Despite its promise, this endeavor would be methodologically challenging. **Quality is notoriously difficult to measure**. Yet, as the *ZDF-Compass* has demonstrated, it is not impossible. The main obstacle lies in the lack of a universal definition of quality, nor is such universality necessarily desirable. Nonetheless, existing frameworks for operationalizing and measuring journalistic quality (Stark et al., 2021) could provide useful foundations. More difficult, however, is tracing the role of audience analytics in shaping quality over time. Historical editorial practices, the varying intensity of analytics use, and the lack of traceability between individual articles and the analytics used in their production make this a complex task. Still, moving research in the direction of actual content and audience processing seems worthwhile – both to **strengthen journalism’s legitimacy narrative** and to identify potential vulnerabilities in the field.

12.6 Concluding Remarks

This work set out to examine the causes, effects, and limitations of quantification in journalism, and analyze the potential influence that performance measurement can exert on content production, media professionals, and society as a whole. This phenomenon was embedded within the **broader context of commodification**, which tends to subordinate journalistic standards to economic principles and, in doing so, potentially undermines them. In order to capture the phenomenon in its full breadth, to involve multiple analytical levels, and to approach its societal implications, **the study adopted a multi-layered design**. It began at the individual level, moved on to explore intra-editorial dynamics, continued with a focus on content production processes, and concluded by taking an organizational perspective in relation to society.

Thus, **four thematic areas were conceptualized**: (1) the use of audience analytics and its driving factors; (2) the effects of audience analytics on the journalistic profession and its boundaries; (3) their impact on news production processes and content; and (4) the development of proprietary performance measurement solutions grounded in professional values. To adequately address and contextualize these thematic areas, audience analytics were defined and situated within the landscape of digital journalism, and its economic, technological, and user-related environment. This contextualization revealed that **market orientation** is frequently encountered in journalism, often as a response to these evolving conditions. To address the four thematic areas, **five individual projects were conducted**. While each project was grounded in a distinct theoretical framework, they also shared recurring elements, such as journalistic role orientations and the associated value systems. Depending on the specific research questions, the projects employed literature-based, qualitative, and quantitative methodologies, with one project explicitly designed as a mixed-methods study.

The findings suggest that audience analytics do **exert influence on both the profession and the production process, yet this influence remains limited**. Alarmist claims of a blanket decline in content quality appear misplaced in light of the observed retention of core journalistic values. However, such concerns are not entirely unfounded: In certain organizational contexts, a stronger influence of analytics and a less reflective attitude may lead to a **conflation of performance with quality**. Interestingly, the study did not confirm the assumption that market-oriented role orientations are associated with less reflective use of audience analytics. Instead, a **coexistence between**

market orientation and citizen-oriented understandings of journalism emerged. From a professional standpoint, the boundaries of journalism appear rather soft and permeable, which is to varying degrees taken advantage of by new actors seeking to assert interpretive authority over journalistic products. In terms of production, findings underscore both the limited overall influence of analytics, especially in comparison with topics as more traditional relevance indicator, and **the centrality of situational and pragmatic considerations**. Notably, while selection decisions tend to be value-driven, **post publication decisions are more susceptible to performance metrics**. This work also explored proprietary measurement systems based on organizational values and public value as a potential solution for **decoupling performance evaluation from commercial metrics**. While the development of such systems is indeed feasible, the implementation, particularly the strong emphasis on **user-focused indicators**, may inadvertently undermine the goal of achieving greater independence from market-driven standards.

Overall, the findings demonstrate that tendencies toward commodification are indeed observable, but they are not absolute. These tendencies can be moderated, often even overridden, by existing value orientations or situational factors, though they are often internalized unconsciously. For the journalistic profession, this underscores the need for a more **robust discourse on values**, particularly concerning how such values can be made at least partially measurable or rendered transparent. From a management perspective, this opens up the possibility of shifting from a reliance solely on market-driven KPIs toward **quality evaluations based on organization-specific metrics**, and of maintaining ongoing dialogue with editorial teams. If journalism as an institution aims to defend and maintain its role in society, it must actively engage with and **counter commodification dynamics**. Failing to do so risks placing journalism in a losing competition with other actors whose goals are purely commercial, thereby subjecting it to inappropriate performance standards and potentially weakening its legitimacy. In the long term, and particularly from a public value perspective, society must confront a pressing question: **How much is it willing to sacrifice, especially financially, to ensure the continued existence of journalism that is not only commercially driven, but also independent and rooted in democratic values?**

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Erklärung

gemäß § 6 Absatz 2 g) und gemäß § 6 Absatz 2 h) der Promotionsordnung der Fachbereiche 02, 05, 06, 07, 09 und 10 vom 04. April 2016

Name: Riemann

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Hiermit erkläre ich, dass ich die eingereichte Dissertation selbständig, ohne fremde Hilfe verfasst und mit keinen anderen als den darin angegebenen Hilfsmitteln angefertigt habe, dass die wörtlichen oder dem Inhalt nach aus fremden Arbeiten entnommenen Stellen, Zeichnungen, Skizzen, bildlichen Darstellungen und dergleichen als solche genau kenntlich gemacht sind.

Von der Ordnung zur Sicherung guter wissenschaftlicher Praxis in Forschung und Lehre und zum Verfahren zum Umgang mit wissenschaftlichem Fehlverhalten habe ich Kenntnis genommen.

Ich habe keine Hilfe von kommerziellen Promotionsberatern in Anspruch genommen.

Hiermit erkläre ich zudem, dass ich mich in der Vergangenheit noch keinem Promotionsverfahren unterzogen habe. Außerdem habe ich die vorgelegte schriftliche Prüfungsleistung oder Teile daraus in keinem anderen Verfahren zur Erlangung des Doktorgrades oder eines sonstigen akademischen Grades oder einer anderen Prüfung eingereicht bzw. bereits früher eingereicht.

Gemäß § 10 Abs. 5 zu den ergänzenden Regelungen bei Teilveröffentlichung der Dissertation für das Fach Kommunikationswissenschaft erkläre ich, dass Teile der Ergebnisse dieser Arbeit zuvor in wissenschaftlichen Fachjournals publiziert wurden. Diese wissenschaftlichen Publikationen sind nachfolgend aufgelistet und beinhalten sowohl Ergebnisse zur Nutzung von Audience Analytics (Project 1) sowie die darin enthaltene Typologie als auch zu proprietären Metrikensystemen (Project 5).

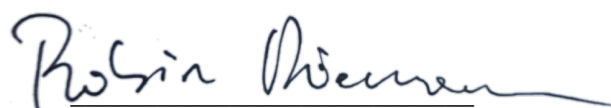
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Des Weiteren erkläre ich, dass die Ergebnisse aus denen hier als Project 3 und Project 4 zur Veröffentlichung eingereicht sind und sich derzeit im Review-Verfahren befinden. Die unveröffentlichten Manuskripte sind im elektronischen Anhang dieser Arbeit einsehbar. Die Daten für die hier als Project 2, 3 und 4 bezeichneten Studien wurden im Rahmen der Seminare Medienwirtschaftliche Empirie und Praxis (2021/2022 & 2023/2024) gewonnen.

Mainz, 08.05.2025

Ort und Datum



Unterschrift

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