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Adapting to Affordances and Audiences? A Cross-Platform, Multi-Modal Analysis of the Platformization of News on Facebook, Instagram, TikTok, and Twitter

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ABSTRACT

To capture audiences' attention on social media, news outlets may disseminate journalistic content in line with platform instead of mass media logics, indicating a platformization of news. Taking a cross-platform, multi-modal approach, we analyze how German outlets select and adapt existing stories for Facebook, Instagram, TikTok, and Twitter. We combine a computational and a manual content analysis of articles and social media posts ($N = 4{,}412$), including related images/videos ($N = 6{,}850$). Overall, evidence for outlets following platform logics on social media is limited: News outlets select and adapt news on a technical level, for instance by distributing more content on news-centered platforms like Twitter or by fostering on-platform engagement by excluding external links on Instagram. However, they do not systematically select or adapt news on a more communicative level, for instance by preferring specific topics for social media or by using more engaging language on platforms.

KEYWORDS

Digital news; platformization; social media; computational methods; Facebook; Instagram; TikTok; Twitter

Introduction

Social media platforms have become central for how audiences access news (Newman et al. 2021; Wojcieszak et al. 2022). This development not only fundamentally changed audiences' consumption habits and news experiences (Kümpel 2022) but also journalistic routines: News outlets increasingly use Facebook, Instagram, TikTok, or Twitter to disseminate news and reach (new) audiences (Schützeneder and Graßl 2022; Sehl, Cornia, and Nielsen 2018; Vázquez-Herrero, Negreira-Rey, and Sixto-García 2022). As such, the question is not *whether* but *how* outlets engage with platforms (Nielsen and Ganter 2018).

From research on cross-media production or convergence (García Avilés et al. 2009), we know that journalists have always selected, adapted, and produced content

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for different distribution channels (e.g., smartphone applications) and audiences (e.g., regional editions). As channels over which journalists have diminishing control (Nielsen and Ganter 2018), however, social media platforms have evolved "beyond their role as distribution channels" (Bell and Owen 2017: 9). They chip away at journalism's gatekeeping function (Broersma and Eldridge 2019) and transform publishers' relationship to audiences (Dvir-Gvirsman and Tsuriel 2022; Hartley et al. 2021). This epistemological shift (Ekström and Westlund 2019) has been discussed as a platformization of news (van Dijck, Poell, and de Waal 2018): news outlets select, adapt, and produce news in line with logics pushed forward by platforms (van Dijck and Poell 2013). For the dissemination of news on Facebook, evidence for example suggests that outlets select "softer" articles (Lamot 2022; Lischka 2021) or adapt the language of news to increase engagement (Hågvar 2019; Haim et al. 2021).

To date, studies have largely shed light on such selection and adaptation processes in single-platform studies, mostly for Facebook. Seeing that "social media is not homogenous" (Hermida and Mellado 2020: 866; see similarly Theocharis et al. 2022), research is in dire need of cross-platform studies (Matassi and Boczkowski 2021): Not only can comparative approaches inform our understanding of how communicators tailor content to platform affordances and audiences – something indicated not only for news (Dvir-Gvirsman and Tsuriel 2022; Hermida and Mellado 2020) but also for instance political campaigns (Bossetta 2018). Cross-platform studies can also broaden our understanding of platform-specific news use and its effects (Karnowski et al. 2021; Kim et al. 2022), thus also informing debates on political participation or polarization (Theocharis et al. 2022; Yarchi, Baden, and Kligler-Vilenchik 2021).

To address this gap, this study takes a cross-platform, multi-modal approach. We analyze how news outlets select and adapt existing stories from their own websites for Facebook, Instagram, TikTok, and Twitter. Drawing on a week of coverage from four German news outlets (*Spiegel*, *Süddeutsche Zeitung, Tagesschau, ZDF Heute*), we combine an automated and a manual content analysis of $N = 4{,}412$ website articles/social media posts and $N = 6{,}850$ related images/videos.

By doing so, we advance research in two ways: Theoretically, we shed light on the diverging degrees to which affordances and, by extension, platform logics emerge on different social media. Moreover, we underline the need to decenter Facebook as the primary lens of analysis. Methodologically, we illustrate the value of computational methods for journalism studies (Hase, Mahl, and Schäfer 2022) which, in combination with manual approaches, empower cross-platform perspectives.

Platformization: Platform Logics Instead of Mass Media Logic?

Following Ekström and Westlund, platforms are "digital infrastructure[s] with affordances offering diverse kinds of information and communication, as well as opportunities to produce, publish and engage with content" (Ekström and Westlund 2019: 259).[1] While conceptually disputed, affordances are often understood as the perceived range of possible actions linked to platform features (Bucher and Helmond 2018). According to Nagy and Neff (2015), affordances thus entail a material dimension (i.e., platform features) and a perceptual dimension (i.e., how users perceive and approach these).

Related to news, important affordances[2] include, for example, *algorithmic curation* (i.e., audiences being able to receive tailored news via algorithmic curation), *hypertextuality* (i.e., audiences being able to directly access linked information), *interactivity* (i.e., audiences being able to actively engage with news), or *visuality* (i.e., audiences being able to consume news in image or video format) (for similar overviews, see Hermida and Mellado 2020; Kiesow, Zhou, and Guo 2021; Kümpel 2022). These affordances inform specific logics (van Dijck and Poell 2013; Lamot, Kreutz, and Opgenhaffen 2022) through which platforms process and present communication. We call these *platform logics*, similar to "social media logic" (van Dijck and Poell 2013) or "network media logic(s)" (Klinger and Svensson 2015).

Platform logics, as scholars contend, differ[3] from mass media logic (van Dijck and Poell 2013; Tsuriel et al. 2021), i.e., principles commonly assumed to shape news (Altheide and Snow 1979) due to mass media affordances (Esser 2013). They differ since the degree to which platforms and mass media afford specific news experiences and how they afford these vary: For example, news websites and social media platforms both allow for interactive news consumption (Kiesow, Zhou, and Guo 2021) via comment sections. However, many platforms provide more interactivity via additional, *already* embedded features, for instance to host Q&As. Similarly, both news websites and social media platforms offer for audiences to consume news in (audio-)visual format – but some platforms, especially Instagram and TikTok, revolve more strongly around such. Thus, how and how much platforms afford interactivity or visuality, for instance, differs from how and how much mass media do. These differences in platform affordances then inform differences between mass media logic and platform logics (see similarly van Dijck and Poell 2013; Tsuriel et al. 2021).

To date, evidence on whether news production aligns with platform logics instead of mass media logic is mixed at best (e.g., Haim et al. 2021; Lamot 2022; Lamot, Kreutz, and Opgenhaffen 2022; Pak 2019; Wehden 2022; Welbers and Opgenhaffen 2019). One reason for inconsistent results is that studies include different news outlets and countries. This introduces platform-external factors supporting or constraining platformization: Journalists can but do not have to follow platform logics, much like how affordances pronounce but not determine social media use. On the micro-level, editorial positions shape how journalistic actors embrace social media (Dvir-Gvirsman and Tsuriel 2022). On the meso-level, outlets' legacy roots or funding models play a role (Poell, Nieborg, and Duffy 2022). Public service media, for instance, may more strongly follow platform logics to engage broad audiences across platforms (Lamot 2022; Sehl, Cornia, and Nielsen 2018, 2021). Moreover, outlets producing visual content have a strategic advantage on social media, seeing that platforms are either centered around such content (Instagram, TikTok) or algorithmically favor it (Facebook). On the macro-level, national media systems (Haim et al. 2021) and platform governances (Gorwa 2019) play a role.

A second reason for incoherent results, we would argue, is that scholarship often treats social media as homogenous (see critically Hermida and Mellado 2020). Platforms such as Facebook, Instagram, TikTok, or Twitter share affordances – but, similar to differences between mass media and platforms, differ in how and how much these are pronounced (see Bossetta 2018; Hermida and Mellado 2020; Kümpel

Table 1. Comparing affordances and logics across platforms.

Affordance	Platform			
	Facebook	Instagram	TikTok	Twitter
Algorithmic Curation	*Moderate* (algorithmic feed default, chronological feed viewable)	*Moderate* (algorithmic feed default, chronological feed viewable)	*High* (algorithmic feed default, no chronological feed)	*Low* (algorithmic and chronological feed selectable as default)
Hypertextuality	*High* (linking in posts and user bios)	*Moderate* (linking only in Instagram Stories and user bios)	*Low* (linking only in user bios)	*High* (linking in posts and user bios)
Interactivity	*High* (e.g., via commenting on, sharing, or liking news; Facebook reactions)	*Moderate* (e.g., via commenting on or liking news; polls in Instagram stories)	*Moderate* (e.g., via commenting on, reposting, or liking news)	*High* (e.g., via commenting on, retweeting, or liking news; Twitter polls)
Visuality	*Moderate* (focus on textual and audio-visual content)	*High* (focus on audio-visual content)	*High* (focus on audio-visual content)	*Moderate* (focus on textual and audio-visual content)
Most prevalent logic	*"Engaging News"*	*"Brand-Building News"*	*"Brand-Building News"*	*"Continuous, Breaking News"*

2022; Theocharis et al. 2022; Yarchi, Baden, and Kligler-Vilenchik 2021). This leads to diverging logics dominating each platform (for an overview, see Table 1).

Platform Logics: Comparing Facebook, Instagram, TikTok, and Twitter

To date, research on news dissemination via social media has almost exclusively focused on Facebook. Since the platform enables linking and offers diverse options for interactivity, for instance publicly sharing news or reacting towards content via Facebook Reactions, it is characterized by high hypertextuality and interactivity. Facebook also offers moderate levels of visuality as both texts and images/videos play a role. Lastly, Facebook affords moderate algorithmic curation: While users can view chronologically sorted feeds, algorithmically curated, non-chronological feeds are the only possible default setting. Given the prevalence of these affordances, Facebook is commonly associated with a logic pushing "*engaging news*": The platform strongly encourages interactivity via algorithmic curation. Its algorithms reward engagement, making "viral" news important (Lischka 2021; Tsuriel et al. 2021). To secure engagement, journalists seemingly focus on publishing soft, emotional, or subjective news (Hågvar 2019; Lamot 2022; Lischka 2021; Welbers and Opgenhaffen 2019). As scholars have mostly researched platform logics on Facebook, it is, however, unclear whether this logic generalizes beyond the platform (see critically Lamot, Kreutz, and Opgenhaffen 2022).

Compared to Facebook, Instagram and TikTok are characterized by higher levels of visuality. Both mainly revolve around images/videos (Instagram) or videos (TikTok). In addition, algorithmic curation is similarly high or even higher: TikTok, for instance, does not even offer chronologically sorted feeds. Since linking in posts is restricted,

both platforms afford less hypertextuality. Users can partly circumvent this, for instance via Instagram Stories or links in bios. Both platforms also afford less interactivity: Audiences can comment on or like posts, but public sharing of such is more restricted; in contrast to Facebook Reactions, both platforms do not offer emoticons to react towards regular posts. Overall, existing studies (Vázquez-Herrero, Direito-Rebollal, and López-García 2019; Vázquez-Herrero, Negreira-Rey, and López-García 2022) thus suggest that Instagram and TikTok are associated with a logic that could be called "*brand-building news*": the presentation of visually centered content news audiences can consume in a more passive way – building journalistic brands but rarely transferring audiences to substantial information on outlets' websites. This logic is, of course, also prevalent on other platforms like Facebook (García-Perdomo 2021; Walters 2021) – much like Instagram and TikTok similarly pushing "engaging" content (Vázquez-Herrero, Direito-Rebollal, and López-García 2019; Vázquez-Herrero, Negreira-Rey, and López-García 2022). The point here is not that a single, exclusive logic prevails on each platform – but that affordances informing platform logics lead to some logic(s) being *comparably more* prevalent on some platforms than others.

Lastly, Twitter is characterized by low levels of algorithmic curation (i.e., audiences can choose chronological feeds as the default, algorithmically curated feeds were only introduced in 2016) and moderate visuality (i.e., the platform revolves around short texts and audio-visual content). It does, however, afford elevated levels of interactivity (i.e., audiences can interact with content via commenting, sharing, liking, or Twitter Polls) and hypertextuality (i.e., links in posts are enabled). This leads to a focus on chronologically sorted, textual and audio-visual information in audiences' feeds, with users easily reaching outlets' home domains via hyperlinks and, thus, further information. As such, Twitter is connected to a logic of "*continuous, breaking news*" – short, chronologically sorted information about current events (Hanusch 2017) to address elites and news lovers (Dvir-Gvirsman and Tsuriel 2022; Sehl, Cornia, and Nielsen 2018).

Manifestations of Platformization

The influence of these platform logics and, thus, a platformization of news may manifest as short- and long-term changes. Facebook's decision to algorithmically up videos, for instance, motivated outlets to publish more native videos shortly thereafter (Tandoc and Maitra 2018). Over time, more fundamental decisions included moving resources and personnel into video production and altering routines, including producing native video content for social media instead of clipping existing footage (García-Perdomo 2021; Meese and Hurcombe 2021). Platformization may thus become visible in the structure of editorial departments (e.g., employing social media editors) and the content of journalistic news (e.g., articles being changed for social media). The latter aspect includes how journalists select, adapt, and produce news for platforms (see similarly Lischka 2021; Walters 2021): *Selection processes* indicate that journalists systematically choose existing content, for instance by focusing on soft stories for Facebook (Lamot 2022). *Adaptation processes* entail that journalists change existing stories, for instance by using more engaging language on Facebook (Haim et al. 2021;

Welbers and Opgenhaffen 2019). Lastly, *native content production* describes the creation of content made exclusively for social media – especially videos (García-Perdomo 2021), often for Instagram and TikTok (Vázquez-Herrero, Negreira-Rey, and Sixto-García 2022). Importantly, platform logics may spill-over to traditional news production like broadcasting (García-Perdomo 2021) or print (Walters 2021).

In what follows, we focus on two content-related indicators for platformization: how journalists select and adapt existing stories for social media.

How Do News Outlets Select News for Social Media?

Outlets only distribute a fraction of their coverage via social media, with clear differences across platforms (Sixto-García et al. 2022). Pak (2019) finds that US news organizations share around half of their content via Twitter. This may cater to the platform's focus on continuous, event-focused information. In contrast, Lamot (2022) illustrates that Belgian outlets distribute a third of their articles via Facebook. To date, few news organizations have a TikTok account; those that do rarely publish content on the platform in what may signal carefully selecting news as a form of brand-building (Vázquez-Herrero, Negreira-Rey, and López-García 2022) similar to Instagram (Vázquez-Herrero, Direito-Rebollal, and López-García 2019). We ask:

> **RQ1:** *Which share of stories from their own websites do news organizations distribute via Facebook, Instagram, TikTok, and Twitter?*

But even if outlets only publish selected content via social media – do they systematically choose stories for platforms? In line with a focus on "engaging news," existing Facebook-centered research suggests this may be the case and for outlets to select *opinionated*, *celebrity-focused*, and *personalized stories*. Social media editors and journalists claim that they purposively select opinion pieces to spark debates and thus, engagement (Lischka 2021; Wehden 2022). Moreover, interviews indicate that journalists often pick stories on celebrities for social media since these constitute "'like' and 'share' magnets" (Tsuriel et al. 2021: 1993, see similarly Lischka 2021). However, content analyses deliver ambiguous evidence that outlets do, in fact, systematically prefer such content (Lamot 2022; Wehden 2022). Similarly, there is mixed evidence on whether outlets focus on personalized news for social media (Lamot 2022; Lischka 2021, but see Wehden 2022) as content that "puts destinies of individuals (and celebrities) in the foreground and/or connects topics and events on personal stories of individuals" (Leidecker-Sandmann 2021: 1). We ask:

> **RQ2**: *Are news outlets more likely to select (a) opinion pieces, (b) stories on celebrities, and (c) personalized stories for Facebook, Instagram, TikTok, and Twitter?*

How Do News Outlets Adapt News for Social Media?

Apart from systematically selecting stories, news outlets may adapt existing content for platforms. Drawing on previous research (especially Hågvar 2019; Haim et al. 2021; Lamot, Kreutz, and Opgenhaffen 2022; Sehl, Cornia, and Nielsen 2021; Welbers and Opgenhaffen 2019), we focus on four adaptation processes: (1) excluding links to

outlets' websites, (2) adding interactive features, (3) adding engaging language, and (4) adding personalization.

Excluding Links

The first adaptation process relates to what Cornia et al. (2018) call off-site vs. on-site strategies: If outlets include links to their own websites in social media posts, they pull readers to their domains. If they exclude links, audiences consume news directly on external platforms (see similarly Sehl, Cornia, and Nielsen 2021). Whether the exclusion of links "can be seen as the triumph of social logic over mass logic" (Tsuriel et al. 2021: 1990) depends, as we would argue, on the platform: While some platforms afford high levels of hypertextuality (e.g., Facebook, Twitter), the opposite is true for others (e.g., Instagram, TikTok). In line with this, evidence on the use of links differs: In their study of newspapers from the Netherlands and Flanders, Welbers and Opgenhaffen (2019) find that 93% of Facebook posts include links to outlets' home domains (see similarly Cornia et al. 2018; Haim et al. 2021; Sehl, Cornia, and Nielsen 2021). In contrast, outlets exclude links on Instagram and TikTok (Vázquez-Herrero, Direito-Rebollal, and López-García 2019; Vázquez-Herrero, Negreira-Rey, and López-García 2022) in line with platform logics. We ask:

> **RQ3**: *To what degree do news organizations adapt existing stories by excluding links to their own domains for Facebook, Instagram, TikTok, and Twitter?*

Adding Interactive Features

A second adaptation process concerns the use of interactive features. For journalists, "interacting with the audience on platforms was initially seen as an optional experiment, but grew into an expectation" (Walters 2021: 14). Compared to traditional distribution channels for news, platforms enable additional interaction spaces, for instance via the polls function on Twitter or Question stickers in Instagram stories. Still, and as indicated before, the degree to which platforms afford interactivity differs. Thus far, outlets rarely use interactive features on Twitter and Facebook (Badham and Mykkänen 2022) despite both platforms affording interactivity. More in line with logics on Instagram and TikTok, studies indicate even less reliance on interactive features here (Vázquez-Herrero, Direito-Rebollal, and López-García 2019; Vázquez-Herrero, Negreira-Rey, and López-García 2022). Given that existing research has not compared whether existing stories are adapted to be more or less interactive, we ask:

> **RQ4:** *To what degree do news organizations adapt existing stories by adding interactive features for Facebook, Instagram, TikTok, and Twitter?*

Adding Engaging Language

Moreover, journalists may employ more engaging language by adapting headlines or teasers of articles for social media. Two common rhetorical strategies, at least on Facebook and in line with the platform pushing engaging content, are to directly

address audiences and to pose questions (Badham and Mykkänen 2022). According to Hågvar (2019), both strategies increase engagement by fostering news commenting. Journalists employ them to gain points with social media algorithms (Dvir-Gvirsman and Tsuriel 2022). Welbers and Opgenhaffen (2019) find that compared to respective articles, Facebook posts by newspapers more often include second person pronouns such as "you", a strategy combined with posing questions like: "What do you think?" (see similarly Haim et al. 2021, but see Lamot, Kreutz, and Opgenhaffen 2022). Given the lack of studies beyond Facebook, we ask:

> **RQ5:** *To what degree do news organizations adapt existing stories by using more engaging language for Facebook, Instagram, TikTok, and Twitter?*

Adding Personalization

Lastly, news outlets may adapt content to become more personalized and, thus, engaging. Personalized coverage, for instance stories focusing on or visually depicting individuals, is considered emotion-stirring (Bas and Grabe 2015). Such coverage may increase engagement in line with logics pushed by Facebook. Consequently, and for the context of Facebook, Steiner (2020: 246) argues that "to adapt to the social media logic, journalist must emotionalise the news and present it in a more […] personalised way". However, in her study of political coverage by German news media, she finds little evidence for this adaptation process; a recent study even indicates a decrease in personalization for social media (Lamot, Kreutz, and Opgenhaffen 2022). We ask:

> **RQ6:** *To what degree do news organizations adapt existing stories by increasing personalization for Facebook, Instagram, TikTok, and Twitter?*

Method

Accessing Data across Platforms

In this study, we analyzed news stories published by four German legacy outlets (*Spiegel*, *Süddeutsche Zeitung, Tagesschau, ZDF Heute*) across their own websites and Facebook, Instagram, TikTok, and Twitter as external social media platforms. We focused on these legacy outlets since they are highly trusted and popular in Germany. For instance, *Tagesschau* is the public service broadcaster with the highest weekly online reach followed by *Spiegel* as a commercial outlet. All outlets belong to the most trusted news brands in Germany (Newman et al. 2021). As research indicates differences in how outlets with different legacy roots and commercial orientation use social media (Lamot 2022; Sehl, Cornia, and Nielsen 2021), we purposively included two public-service broadcasters (*Tagesschau, ZDF Heute*), the digital offshoot of a printed news magazine which pioneered online journalism in Germany (*Spiegel*), and the online version of a newspaper (*Süddeutsche Zeitung*). We also chose outlets with more innovative strategies: *Spiegel* and *Tagesschau* are among the few German outlets with a TikTok account. While including different outlets, we focus on selection and

adaptation across platforms (platform differences) instead of outlet-related factors influencing these (outlet differences).

We retrieved content from news outlets' websites from November 1st to 7th 2021. To track whether outlets shared articles on external platforms, we captured social media content until November 8th to allow for an additional 24 h window. We restricted our sample to a full week since we manually collected some data (e.g., Instagram stories) and manually coded some variables (e.g., the use of interactive features). During the observation period, the Covid-19 pandemic and the climate summit in Glasgow were prevalent issues in reporting. However, we did not observe any extraordinary events or breaking news to dominate the news agenda.[4]

News Outlets' Websites

To access articles from news outlets' websites, we crawled links from their domains and scraped content using R (R Core Team 2021). We adhered to websites' robots exclusion standards. We manually downloaded content disallowed from automated access as well as paywalled content. Apart from metadata, we retrieved articles' texts (headline, teaser, main text) and related audio-visuals (images/videos)[5] (see Supplementary Material, A1).

Facebook and Instagram

To access content published via outlets' main accounts on Facebook and Instagram, we relied on Crowdtangle. We manually retrieved related images/videos. Moreover, we manually tracked Facebook and Instagram stories by capturing videos and transcribing written texts/subtitles.

TikTok

For *Spiegel* and *Tagesschau* as the two outlets on TikTok, we manually retrieved content.

Twitter

To access tweets published via outlets' main accounts, we relied on Twitter's API and the Rtweet package (Kearney 2019). Images/videos were retrieved manually.

Matching Data across Platforms

Our initial sample included $N = 2{,}654$ articles and $N = 2{,}367$ social media posts. However, we are interested in how news outlets select and adapt *existing* website content for social media, i.e., selection and adaptation processes but not native content production. We thus matched social media content to website content, in turn excluding all non-matched social media posts: native content (i.e., content created exclusively for social media) and content not matched for formal reasons (e.g., non-journalistic content such as ads). Similar to previous research (Pak 2019), we first used URLs in social media posts for matching. For posts not automatically matched via URLs ($N = 1{,}079$), matching was done manually based on textual/visual overlap to website content in a second step (see Supplementary Material, Element A2). Two

Table 2. Study sample.

	Platform				
Outlet	Website Articles (Visuals)	Facebook Posts (Visuals)	Instagram Posts (Visuals)	TikTok Posts (Visuals)	Twitter Posts (Visuals)
Spiegel	737 (1,475)	131 (131)	41 (91)	0 (0)	397 (396)
Sueddeutsche Zeitung	1,230 (1,725)	23 (23)	28 (51)	0 (0)	390 (382)
Tagesschau	349 (798)	43 (49)	63 (116)	4 (4)	352 (348)
ZDF Heute	338 (927)	41 (41)	47 (99)	0 (0)	198 (194)
Overall	2,654 (4,925)	238 (244)	179 (357)	4 (4)	1,337 (1,320)

coders independently coded non-matched material. For intercoder reliability, both annotated 10% of the material ($N = 108$, Krippendorff's $\alpha = .84$). From the initial sample of social media posts, we removed 23.3% of posts for formal reasons and 2.4% of posts identified as native content. While native content only made up a small share of posts, there were clear differences in its prevalence on Facebook (2.4%), Instagram (11.6%), TikTok (33.3%), and Twitter (0.7%) (see Supplementary Material, Element A2, Table A2.1) as indicated by previous research (Vázquez-Herrero, Negreira-Rey, and Sixto-García 2022). Table 2 visualizes the final sample of $N = 4{,}412$ articles/social media posts and $N = 6{,}850$ images/videos.

Operationalization

In what follows, we shortly describe how we operationalized variables. For further information, including validation tests, see the Supplementary Material, Element A3.

Distribution Of Articles on Social Media Platforms (RQ1)

Related to RQ1 and all subsequent analyses, we used our matching of social media posts to website articles to create dummy variables indicating whether outlets shared an article on each platform: *Distribution via Twitter*, *Distribution via Facebook*, *Distribution via Instagram,* and *Distribution via TikTok* (0 = no, 1 = yes).

Opinion Piece (RQ2)

We relied on outlets' own classification of stories as opinion pieces on their websites, for instance visual "editorial comment" signs (for examples, see Fried 2021; Rubner 2021). Based on articles' source code, we extracted related tags (0 = not an opinion piece, 1 = opinion piece). We validated this rule-based approach via a manually coded gold standard ($N = 400$, $F_1 = .98$).

Topic (RQ2)

We also coded whether articles dealt with celebrities as their main topic. To do so, we relied on a pre-trained supervised machine learning classifier validated for a similar German-language news corpus (Jürgens and Stark 2022). The neural network-based classifier is based on a fine-tuned German BERT transformer trained on $N = 10{,}000$ manually coded articles. We assigned articles one of the following topics: celebrities,

crime/disaster, finance, health, hobbies/lifestyle, politics, science, social issues, sports, or weather. In the study by Jürgens and Stark (2022), the best model achieved an average F_1 of .84.

Personalization (RQ2, RQ6)

Moreover, we differentiated between personalization in texts and audio-visuals (see similarly Steiner 2020) for articles and social media posts. For personalization in texts, we relied on a pre-trained, validated pipeline for named-entity recognition. Using a wrapper to the Python spaCy NLP library and the "de_core_news_lg" model for German-language news ($F_1 = .85$), we identified words describing persons. *Personalization (Text)* describes the relative share of words in articles' titles/teasers or social media posts describing persons, with higher values indicating stronger personalization. Like previous studies (Haim et al. 2021; Steiner 2020; Welbers and Opgenhaffen 2019), we focused on articles' titles and teasers since these are often simply adapted to create social media posts (Hågvar 2019). This allows us to directly compare changes from news outlets' own platforms for external platforms.[6] To measure *Personalization (Images)* and *Personalization (Videos)*, we used a pre-trained automated image analysis pipeline by Jürgens, Meltzer and Scharkow (2022) employing a face detection model based on the RetinaFace project (Deng et al. 2019). We automatically identified which images in our sample visualized at least one person. Based on this information, we created *Personalization (Images)* as the share of images related to each article/post depicting at least one person. We split videos into one-second frames, enabling us to identify the exact second(s) where at least one person was shown. *Personalization (Videos)* describes the share of time videos connected to each article/post depicted at least one person. For units without images/videos, these variables were coded as missing.

Excluding Links (RQ3)

We also coded whether social media posts included/excluded links to outlets' websites. Access via Crowdtangle and Twitter's API allowed us to automatically retrieve links embedded in Facebook, Instagram, and Twitter posts. For Facebook stories, Instagram stories, and TikTok posts, we manually stored links during data collection. *Excluding Links* (0 = no, 1 = yes) was created automatically by checking to which domains, if any, posts linked: If a social media post by *Tagesschau*, for instance, did not link to www.tagesschau.de, we classified it as excluding a link. We validated this rule-based approach via a manually coded gold standard ($N = 400$, $F_1 = .97$).

Interactive Features (RQ4)

We manually coded whether articles or social media posts included interactive features allowing audiences to select options or type in questions, for instance through polls (Stroud, Scacco, and Curry 2016). Here, we only considered features going beyond comment sections or liking/sharing content. The second author manually coded interactive features (0 = no interactive features, 1 = interactive features). Intercoder reliability was checked by the first author coding 10% of the material ($N = 440$, $\alpha = .86$).

Engaging Language (RQ5)

Moreover, we automatically coded whether articles/posts used engaging language, i.e., directly addressed audiences or posed questions. We used a list of pronouns and identified all instances where a part-of-speech tagger from the same model for German-language news identified words as pronouns or determiners to reduce false positives. *Addressing Audiences* describes the share of words in each article (title/teasers) or post directly addressing audiences. *Posing Questions* indicates the share of sentences identified as questions in each article (title/teasers) or post based on a rule-based approach. We validated measurements for engaging language via a manually coded gold standard ($N = 400$, $F_1 = .77$).

Controls (RQ2)

Lastly, we created three control variables: Outlets may more often disseminate multimedia stories (Wehden 2022), especially on visually centered platforms like Instagram or TikTok. Thus, *Visual Content (Images)* and *Visual Content (Videos)* describe the number of images/videos published alongside each article. As paywalls indicate that journalists try to regain control over content (Walters 2021), we measured whether articles were hidden behind a *Paywall* based on articles' source code (0 = no paywall, 1 = paywall).

Data Analysis

For multivariate analysis, we z-standardized independent metric variables and ran binary logistic (RQ1–RQ3) or linear regression models (RQ4–RQ6) with outlet-fixed effects. To ease interpretation, we present average marginal effects of independent variables on the probability of outlets sharing articles via social media (RQ1–RQ2) or social media posts excluding links (RQ3). For RQ1 and RQ3, we rely on null models. Here, results indicate the distribution of articles shared on each platform (Table 3) or links embedded in social media posts (Table 4) and related confidence intervals. Readers should note two things here: First, only the *Tagesschau* posted any content on TikTok (six posts, two of which were excluded as native content). We thus excluded TikTok for RQ2 and following questions. Second, we only analyzed the effect of personalization via *Personalization (Text)* in RQ2. Including visual personalization would reduce the model to the small sample of articles including both images and videos ($N = 265$).

Table 3. Proportion of website articles shared across platforms.

	Platform			
Outlet	Facebook	Instagram	TikTok	Twitter
Spiegel	.16 [.13, .19]	.04 [.03, .06]	–	.45 [.42, .49]
Sueddeutsche Zeitung	.02 [.01, .03]	.02 [.01, .03]	–	.28 [.26, .31]
Tagesschau	.11 [.08, .15]	.17 [.13, .21]	.01 [0, .03]	.91 [.88, .94]
ZDF Heute	.11 [.08, .15]	.13 [.1, .17]	–	.49 [.44, .54]
Overall	.08 [.07, .09]	.06 [.05, .07]	.01 [0, .03]	.44 [.42, .46]

Note: Distribution of website articles ($N = 2{,}654$) shared on each platform [*95% CI*].

Results

Selecting News for Social Media (RQ1–RQ2)

Related to RQ1, we analyzed the share of website articles outlets distributed via Facebook, Instagram, TikTok, or Twitter. Table 3 illustrates differences across platforms: Overall, news outlets were most likely to share articles via Twitter (44%, between 28% and 91%). They were less likely to distribute content via Facebook (8%, between 2% and 16%) or Instagram (6%, between 2% and 17%), with almost no stories being disseminated via TikTok (1% for *Tagesschau*). Table 3 also indicates outlet differences: Public service outlets, *especially Tagesschau*, shared more content on platforms compared to commercially oriented outlets.

Related to RQ2, Figure 1 illustrates average marginal effects (AME) of article-related characteristics on the estimated probability of articles being published on social media. Few independent variables indicate consistent effects: While opinion pieces were more likely to be shared via Twitter ($AME = 0.27$, $p < .001$), this effect was not consistent for Facebook ($AME = .01$, $p = .643$) and Instagram ($AME = .04$, $p = .062$). Similarly, celebrity-focused articles were not more likely to be chosen for social media. For example, celebrity-related news stories – the baseline against which we compared other topics in Figure 1 – were not more likely to be disseminated via Facebook ($AME = -.01$, $p = .744$), Instagram ($AME = .01$, $p = .7$), and Twitter ($AME = .05$, $p = .376$) compared to articles focusing on politics. Similarly, while personalized articles were more likely to be chosen for Twitter ($AME = .03$, $p < .001$), this effect was not consistent for Facebook ($AME = .002$, $p = .723$) and Instagram ($AME = -.01$, $p = .279$).

Adapting News for Social Media (RQ3–RQ6)

Turning to RQ3 and adaptation strategies, Table 4 illustrates how frequently outlets excluded links to their websites in social media posts. Results again point towards platform-specific differences: Outlets were most likely to favor platform engagement over website traffic by excluding links on Instagram. Here, links can only be embedded via bios or Instagram stories. Still, outlets partly circumvented these restrictions via Instagram stories or non-clickable short links in images. On Instagram, 86% of posts (between 61% and 100%) excluded links, followed by Facebook (42%, between 17% and 71%). Both platforms were used different than Twitter where posts largely linked to outlets' websites

Table 4. Proportion of social media posts excluding website links.

	Platform		
Outlet	Facebook	Instagram	Twitter
Spiegel	.28 [.21, .37]	.68 [.53, .81]	.01 [0, .03]
Sueddeutsche Zeitung	.17 [.07, .38]	.61 [.42, .77]	.01 [0, .02]
Tagesschau	.7 [.55, .82]	.98 [.9, 1]	0 [0, .02]
ZDF Heute	.71 [.55, .83]	1 [0, 1]	.23 [.18, .3]
Overall	.42 [.36, .48]	.86 [.8., 91]	.04 [.03, .05]

Note: Distribution of social media posts ($N = 1{,}758$) excluding website links [*95% CI*].

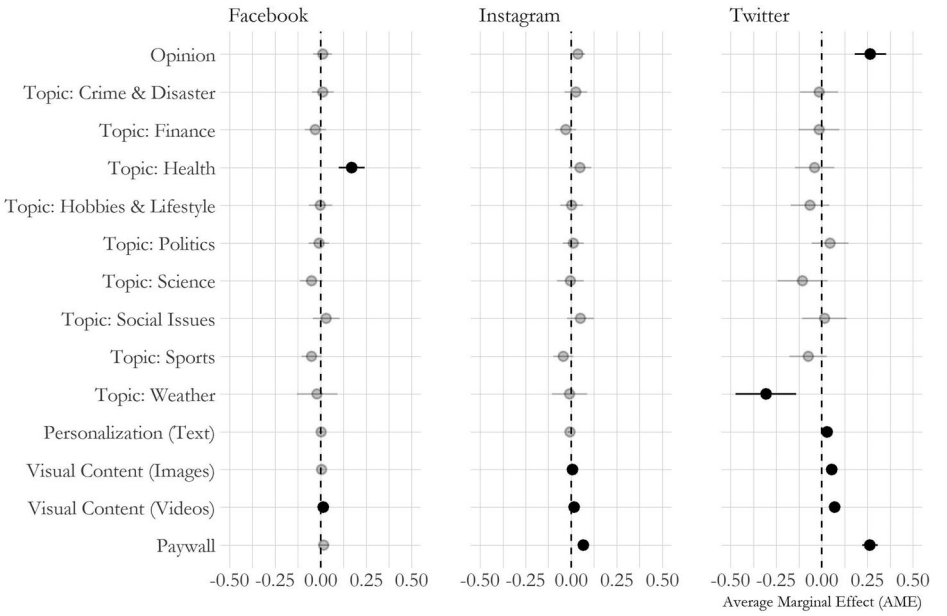

Figure 1. Effects of article-related characteristics on social media distribution.
Note: Binary logistic regression model with outlet-fixed effects (significant effects at $p < .05$ depicted in black). *Average Marginal Effects* (AME) indicate effects of independent variables on the probability of website articles ($N = 2{,}654$) being shared on each platform.

(4% excluded links, between 0% and 23%). However, outlets employed these strategies to different degrees: Public service outlets were far more likely to exclude links.

Related to RQ4, Figure 2 visualizes differences in interactive features embedded in articles and outlets' posts promoting these articles on social media. Consistent positive estimates indicate that outlets adapted website content by adding interactive features, for instance by using the poll function when promoting an article on social media when the article did not originally include interactive features on the website. Overall, outlets rarely adapted content this way: Across platforms, we either find no consistent differences or even a decrease in the use of interactive features. For instance, *Spiegel* used polls in articles on its website, but refrained from doing so on Facebook (–.1, 95% CI [–.14, −.06]) or Twitter (–.08, 95% CI [–.09, −.06]).

Related to RQ5, Figure 2 also illustrates whether outlets used more engaging language by adding direct addressing of audiences or questions to social media posts. Again, we did not find consistent differences or, partly, even a decrease in engaging language. The only exception is commercial outlets' more direct language on Instagram compared to their websites: Both *Spiegel* (.11, 95% CI [.05, .16]) and *Süddeutsche Zeitung* (.07, 95% CI [.01, .14]) more often directly addressed audiences on Instagram compared to respective website articles.

Related to RQ6, we were interested in a fourth adaptation strategy: Compared to articles on their websites, do news outlets more strongly personalize news for social media? Figure 3 visualizes that, if anything, outlets adapted content to include less personalization when sharing articles via platforms. On Twitter, social media posts for instance often consisted of shortened article titles and teasers – with outlets excluding

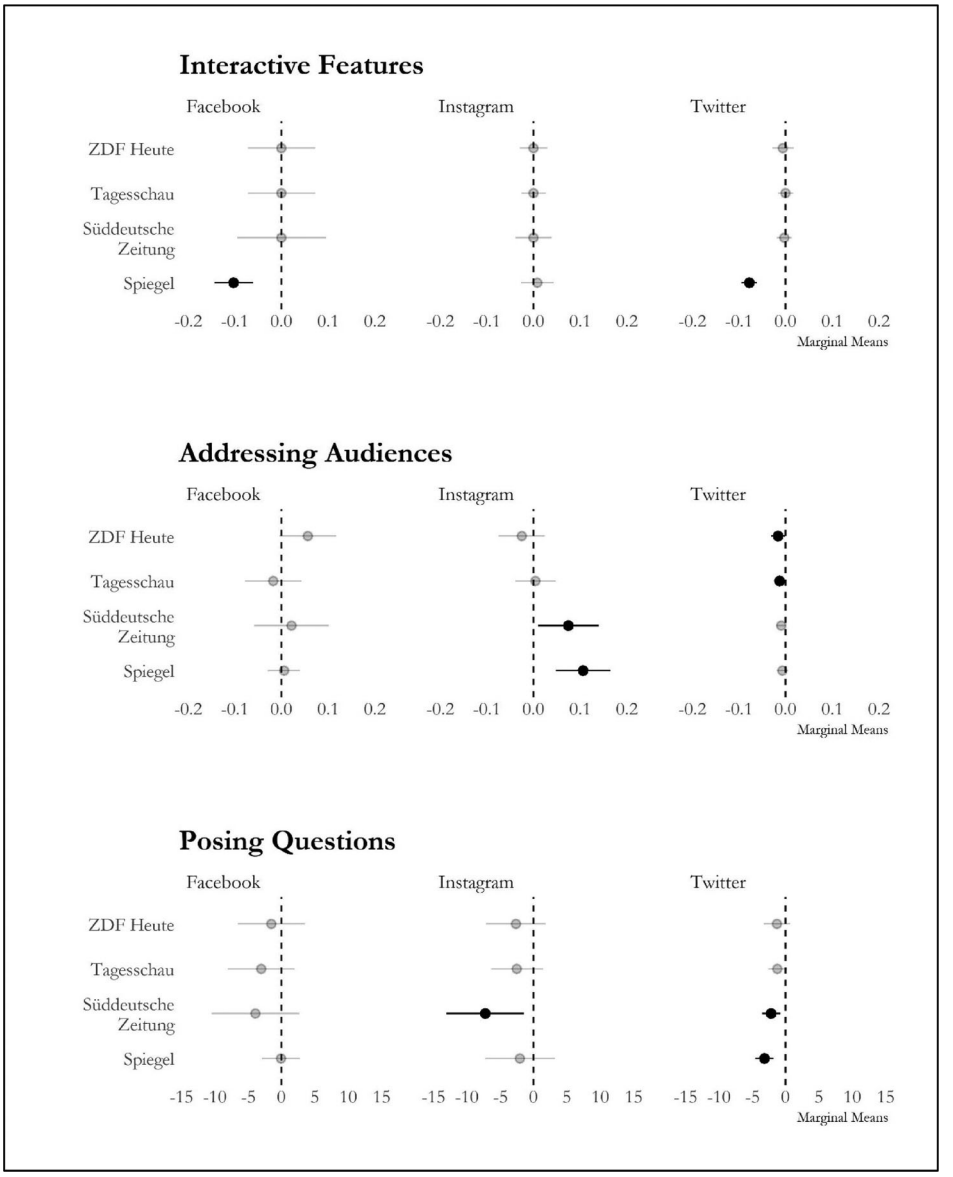

Figure 2. Differences in interactive features and engaging language between news websites and social media platforms.

Note: Linear regression with outlet-fixed effects (significant effects at $p < .05$ depicted in black). *Marginal Means* describes estimated differences when comparing website articles to social media posts.

names of specific persons, thereby decreasing personalization. This effect was consistent for *Spiegel* (–.09, 95% CI [–.16, −.01]), *Süddeutsche Zeitung* (–.16, 95% CI [–.23, −.08]), and *Tagesschau* (–.23, 95% CI [–.3, −.15]). For visual personalization, we did not find any coherent or consistent effects, further illustrating that outlets did not use more personalized visual storytelling for social media.

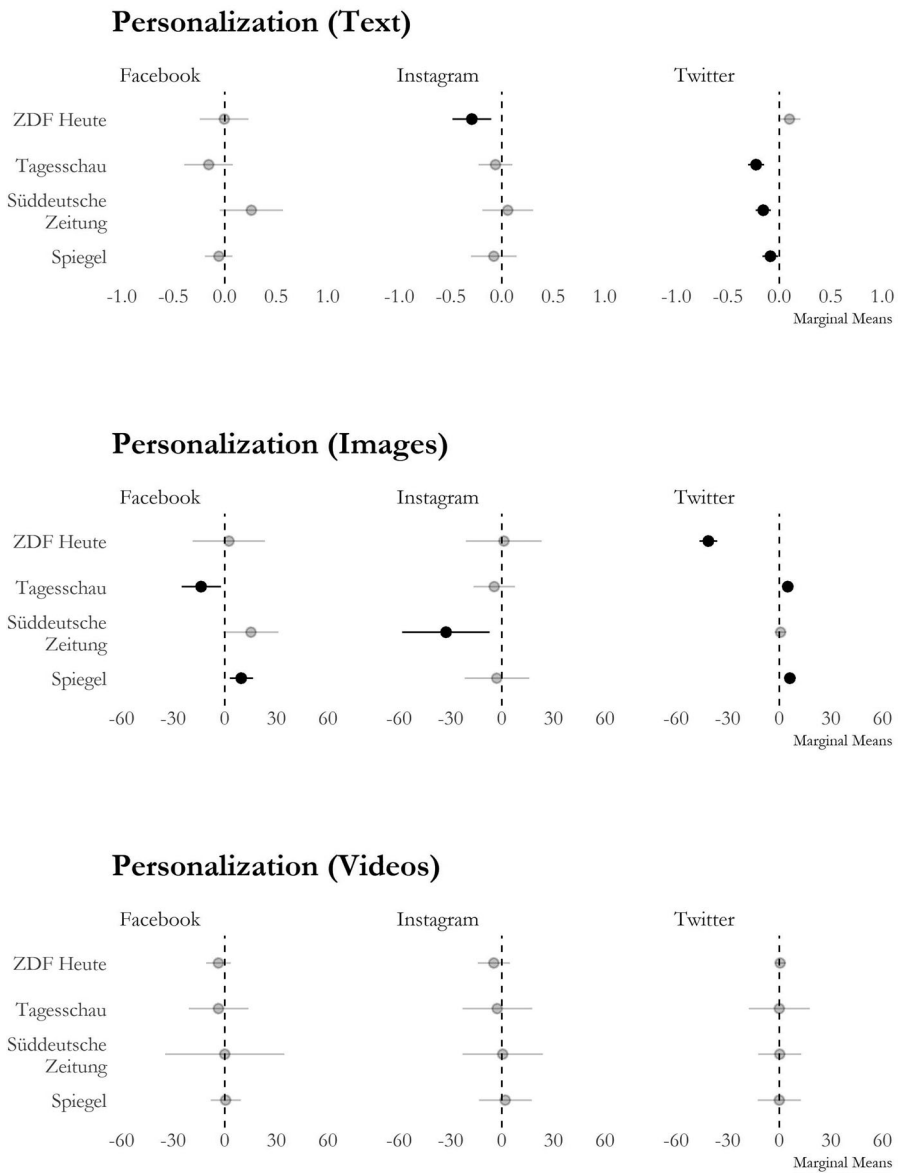

Figure 3. Differences in personalization between news websites and social media platforms.
Note: Linear regression with outlet-fixed effects (significant effects at $p < .05$ depicted in black). *Marginal Means* describes estimated differences when comparing website articles to social media posts.

Discussion and Conclusion

Do news outlets follow platform logics by systematically selecting and adapting news for social media? By analyzing how German news outlets chose and change website articles for distribution via Facebook, Instagram, TikTok, and Twitter, we find little evidence for news being adjusted in line with platform logics, at least on the level of journalistic content.

Related to selection processes, results illustrate that outlets only shared a fraction of their coverage via social media – between 44% and 1%, depending on the platform (RQ1). However, they did not systematically prefer opinion pieces, celebrity-related coverage, or personalized stories for social media (RQ2). Existing research, especially interviews with social media editors, indicated that outlets may have a sweet spot for soft news, at least for Facebook (Lischka 2021; Tsuriel et al. 2021). Based on our content analysis, however, we did not find that outlets systematically selected content for any platform. Evidence suggests similar conclusions for adaptation processes: If anything, outlets followed platform logics by including or excluding links to their websites in social media posts (RQ3). In contrast, they did not systematically change the use of interactive features (RQ4), engaging language (RQ5), or personalization (RQ6) in contrast to what prior research partly indicated (e.g., Hågvar 2019; Haim et al. 2021 but see Lamot, Kreutz, and Opgenhaffen 2022; Steiner 2020). A noteworthy exception is Twitter where, at least compared to other platforms, news was for instance more often adapted by decreasing engaging language or textual personalization. A reason for this may be that, compared to news websites, Twitter is connected less to algorithmic curation (feeds were sorted in a purely chronological fashion until 2016; even now, users can choose chronological feeds as the default option), making audience engagement less relevant and leading to an even stronger focus on "continuous, breaking news".

Overall, results do not indicate that outlets strategically select or adapt news for social media and, thus, comparably weak evidence for a platformization of news, at least on the level of news content. The lack of systematic differences between stories outlets publish on their websites and stories they share on social media illustrates not only the absence of or eclectic social media strategies in editorial departments (Sixto-García et al. 2022; Wehden 2022). It also indicates that, on a substantial level, the content of news is still shaped more by mass media than platform logics. Outlets do not clearly adhere to platform logics when deciding which news is shared where or how to present content, further indicating that journalists defend mass media logic on social media (Lischka 2021; Tsuriel et al. 2021; Walters 2021). We do, however, find some influence of platform logics on a more technical level, especially publication frequencies and linking. Outlets for instance continuously share news on Twitter in line with a logic of "continuous, breaking news." In contrast, they carefully curate content for Instagram and TikTok in line with "brand-building news." The same accounts for linking to their websites: Outlets include links on Twitter seeing that the platform affords hypertextuality but exclude links on Instagram where this is less prevalent. Overall, our results are thus in line with what Ekström and Westlund (2019: 264) call "platform-agnostic news": news that is not or only slightly – here in terms of publication frequencies and linking – tailored towards platforms.

Like any study, ours comes with limitations. First, our sample is limited to four German legacy outlets, two of which are public service broadcasters. On the meso-level, platform-external factors such as legacy roots and the non-commercial orientation of *Tagesschau* and *ZDF Heute* may have influenced results. A public service mission may motivate outlets to reach as many people as possible and explain more frequent news distribution on social media. Similarly, a higher exclusion of website links by public service outlets may be the result of their independence of traffic-

generated revenue (Sehl, Cornia, and Nielsen 2021). On the macro-level, it should be noted that Germany has comparably rigid laws governing the amount of text public service broadcasters can provide online if not directly connected to TV programs (Medienstaatsvertrag 2020). It may be a result of this governance that public service broadcaster in our sample more often relied on videos on their websites, which could also increase visual content on platforms. Second, our analysis was restricted to a single week. As such, we could not track long-term changes and our study is affected by its "moving target": Changes in Facebook's algorithm in 2017/2018 (Meese and Hurcombe 2021) may for instance partly explain differences in our findings compared to prior scholarship. Third, results may be due to indicators for platformization we tested here. We focused on selection and adaptation processes connected to journalists creating "engaging" news based on existing, Facebook-centered research, for instance personalization or using engaging language. Moreover, we refrained from analyzing native content production due to the small share of such content in our sample. Here, future studies could use stratified samples for different platforms to level out differences in outlets' activities across them and, by doing so, include native content production. Fourth, platform logics may spill over beyond platform boundaries (García-Perdomo 2021). We, however, focused on the distribution and adaptation of website content for social media. As such, our study is based on the premise that website content still represents mass media logic. Since mass media and platform logics are already intertwined (Klinger and Svensson 2015), this assumption may not hold. When writing headlines for websites articles, journalists may for instance already adjust these for social media (Lamot, Kreutz, and Opgenhaffen 2022). This assumption also restricts our view on platformization as a process that starts with outlets' websites and ends on social media platforms. Future research should decipher feedback loops and reverse effects to, as Hermida and Mellado (2020) propose, decenter journalism and mass media as the primary lens of analysis.

Notwithstanding these limitations, our study still advances research in three ways: Theoretically, it shows how different platform logics may be pushed forward by different social media platforms. Methodologically, it illustrates the value of combining computational and manual content analyses for collecting and analyzing data to advance cross-platform perspectives. Empirically, it broadens our knowledge on how journalistic routines and norms may be twisted rather than fundamentally changed on and for social media.

Notes

1. We use the term "platform(s)" interchangeably with "social media."
2. Due to word limitations, we focus on these selected affordances although others co-exist.
3. Although van Dijck and Poell (2013) argue that both have become entangled, with platform logics already replacing parts of mass media logic.
4. In pretests in 2021 where we analyzed coverage for a day, we observed similar topic distributions.
5. We thereby understood animated images, for instance in Instagram stories, as videos.
6. A robustness test relying on full articles did not indicate substantively different results.

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