Frame Building the "Social Digitization" in the German Press

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Abstract
In recent years, digital technologies have developed rapidly and have consequently been adopted for wider social purposes. It follows that digitization has economic and political consequences to the extent that it generates new forms of production, distribution and regulation. This study shows how print media present the interface between digital technologies and society. Arguing with a theoretical framework consisting of political parallelism at the media system level, editorial lines at the media outlet level and diverging values and sociological structures at the journalistic level, systematic differences in the frame building of digitization between outlets are assumed. The findings of a content analysis of print media from 2003 and 2008 indicate that social digitization framing was partially ideologically motivated. A content analysis of German print media shows that left-leaning press reports social digitization critically by highlighting the negative consequences of political actions. Conversely, right-leaning press portrays social digitization more often and in a more positive light by slightly emphasizing its economic characteristics.

Keywords: digitization, frame building, agenda building, political parallelism, print media, content analysis
**Introduction**

Social digitization refers to the diffusion and use of digital technologies in terms of their social, economic, and political outcomes. Nowadays, individuals take digital devices such as computers and smartphones for granted and they make extensive use of small software applications such as digital daily life assistants. Indeed, digital production has become a key industry and the activities of major players such as Google, Facebook and Microsoft have consequences beyond the economic level. The Internet entails the fundamental issue of the individual use and economic application of digital technology, which also has social and political implications. Among other examples in the last years, the *Stop Online Piracy Act* was a bill introduced in the United States in an attempt to protect copyrights. However, it provoked widespread, well-organized online protests that it would severely restrict freedom of speech on the Internet (Downes, 2012). Such political activities are based on idealistic models of digital environments where the free expression of opinions is protected by the anonymity of users or equality of access is guaranteed (Hart, 2011). However, critical commentators have shown that the technological benefits of digital media can be diverted from their intended use (e.g., through censorship, see Morozov, 2010) or challenged by economic considerations. The latter consideration points to a democratically undesirable bias of what is publicly available online (Pariser, 2011). Against this background, there is a justified fear that Google’s personalized algorithms that provide with search results that are dependent of previous search queries may limit the reception of content from other-minded people.

The media, as constant observers of reality, have widely covered the issue of social digitization. Therefore, the media play the role of an informed public sphere that compares, reflects and condenses considered public opinions (Habermas, 2006) on social digitization. Unlike other issues such as tax policy or “big” issues such as wars and conflicts, social digitization struggles for journalistic attention. Thus, when the issue of social digitization does enter the media sphere, it is probably rather the outcome of an intention than a routine. This idea presents the starting point of this article, which asks how the media present the issue of social digitization. This study assumes that there are different intentions of framing social digitization. The assumptions were derived from a theoretical framework that starts with differences in media systems in terms of political parallelism, consecutive editorial lines at the media outlet level and related value and sociological structures at the journalistic level.
steering the way in which social digitization is covered. The framework is applied to the German media, Germany being a proxy for a country with a large media system that is particularly susceptible to political parallelism in media.

**Media Coverage on Social Digitization**

The introduction of new technologies always provokes the question of whether the public will adopt them. As such, the media play a crucial role in the diffusion of innovations (Rogers, 1962). Moreover, the media can engender a better understanding of science in general (Nisbet et al., 2002). Communication research has studied the media coverage of emerging technologies in which the framing approach was the dominant, but not the only theoretical framework used for the analysis of media coverage. Framing, understood as a way in which the media present aspects of issues (Entman, 1993), forms the public opinion about issues. Frames highlight the definitions of problems, causal interpretations, moral evaluations and treatment recommendations in different ways (Entman 1993, p. 52; for the state of research see D’Angelo & Kuypers, 2009; Matthes & Kohring, 2008). In the next section follows a discussion of studies showing how the media frame digital technologies in a societal context. Beck and Vowe (1995) were the first to explore social digitization. They analyzed a sample of German media outlets regarding the presentation of the issue of “multimedia”. This issue encompassed the early diffusion of the World Wide Web, especially its impact on traditional media such as television. Beck and Vowe (1995) found four dominant frames in the way the media represented the early “multimedia” phenomenon. First, a technological frame, in which the innovative characteristics of multimedia were discussed. Second, a media frame, in which multimedia was presented in terms of its possibilities and limitations for enhancing communication. Third, an economic frame, in which multimedia was treated as an economic commodity traded in different markets. Fourth, a regulatory frame in which political actions caused technological developments, which consequently induced political regulations.

Cogan (2005) and Kelly (2009) studied the media coverage of computers between the 1970s and 1990s and found that the coverage of social digitization mainly consisted of highlighting the personal utility of digital devices. During this period, the media were prone to ignore the negative technological or societal consequences such as hacking and potential risks to children. The literature review conducted by Arceneaux and Schmitz Weiss (2010) also
considered the emergence of older media such as telegraph, radio and the telephone from a historical perspective and discerned three different types of frame diffusion patterns. First, a “continually positive” framing, which is consistent with the main results of the above standing analyses (Arceneaux & Schmitz Weiss, 2010, p. 1264). Second, a “positive to negative” framing in which strong praise for emerging media lost ground to a more skeptical view (Arceneaux & Schmitz Weiss, 2010, p. 1265). Finally, “negative to positive” framing, in which primary critical media assessments diminished during the diffusion of the technology (Arceneaux & Schmitz Weiss, 2010, p. 1265). The current development of digital media has been accompanied by media frame analyses of blogs and the microblogging site Twitter. Jones and Himelboim (2010) conducted a quantitative content analysis of the newspaper coverage of blogs in the United States between 1999 and 2005. They found that the press framed blogs as primarily beneficial for individuals. Given the relative novelty of Twitter, Arceneaux and Schmitz Weiss’s (2010) qualitative study found that print coverage from 2006 to 2009 emphasized explanations of the online application rather than adopting a positive or negative stance. More specifically, brevity and speed were the two aspects highlighted in the press coverage.

To determine how the broader phenomenon of social digitization was presented, Zeller, Wolling and Porten-Cheé (2010) performed a content analysis of significant German print media in the years 2003 and 2008. The data used in that study is comparable to the data in the present study. However, the focus of the analysis is different. The previous study aimed at determining which kind of latent frames were applied when presenting social digitization. The results showed that digital technologies were mainly framed as a positive development for society. Nevertheless, a significant part of the coverage highlighted the negative aspects, such as the fact that copyright infringements affect the music industry. Another group of related studies specifically focused on media coverage of the Internet. Rössler (2001) conducted a discourse analysis of the German news magazines’ coverage of the Internet in its first few years (between 1995 and 1998). Rössler’s findings showed that German magazines predominantly framed the Internet in a positive way, with half of the analyzed articles being either “euphoric” or “economically optimistic” (2001, p. 59). Oggolder’s (2012) rather heuristic analysis partially supports the previous findings based on German and Austrian high-reach news magazines, but it also showed some differences. First, German print media focused more strongly on the Internet than did Austrian print media. Second, the Austrian
media coverage assessing the Internet was more positive than that of their German counterparts, which covered the Internet more positively during the early years of the World Wide Web before 2000, but were then rather critical until the year 2011. Finally, Löblich and Karppinen (2014) conducted a qualitative content analysis of media framing of Internet policy in four western countries. Overall, Internet policy in the press was presented applying structures of similar liberal-democratic values like freedom, privacy or security. However, two different and contrasting patterns of discourse emerged. On the one hand, newspapers in the U.S. and Finland presented Internet policy in a quite economical way, dissenting with a political regulation of the Internet. On the other hand, the German media discourse strongly focused on privacy and the potential harms of privacy infringements by state actors. The German discourse was quite political and individual privacy was seen as a goal that was best protected by the political regulation of the Internet. The Swedish discourse was also rather political, presenting the state as the responsible system for guaranteeing individual security online. However, it made a particular stance in seeing the role of the Internet in granting individuals access to information and connected it with democratic values.

This literature review of methodologically differing content analyses suggests that emerging technologies were continuously presented in a rather positive way with an emphasis on their applicability and benefits for individuals. Current studies specially focused on the Internet as a particular sphere of social digitization that needs separate reflection. While this is certainly true, social digitization is a broader social and political issue that touches the innovation of all digital technologies and their social adoption. So far, only two studies (Beck & Vowe, 1995; Zeller, et al., 2010) moved away from a specific perspective (the Internet, computers, blogs, Twitter) to a broader and more abstract understanding of (social) digitization.

**Frame Building Social Digitization**

**Frame Building and Agenda Building**

The state of the art on how the media present digital technologies excludes findings pointing to reasons why specific perspectives on social digitization are applied. Against this background, I present a theoretical framework that provides arguments for why there might be different media depictions in the public discourse. This question is closely connected with the concepts of agenda building and frame building. Agenda building refers to the relations between news sources and the news media agenda (Berkowitz & Adams, 1990). Frame
building can be understood as “processes that influence the creation or changes of frames applied by journalists” (Scheufele, 1999, p. 115). In both concepts, media organizations, journalists and external actors shape the weight and perspectives of different issues. External actors are typically actors of the political system. In this context, there is evidence that political actors are able to set the news media agenda according to their structures of relevance (Weaver & Elliott, 1985). The same counts for the applied frames. Hänggli (2012) showed that the greater the power of political organizations, the stronger is their ability to get their special-interest frame in the media discourse. Power or influence also counts for the elite press that sets the agenda and provides frames of particular viewpoints. From this perspective, the different elite media and the corresponding journalists can be seen as influential political actors who are able to set issues and highlight certain aspects of them.

**Political Parallelism, Editorial Lines and Consequences for Frame Building**

The theoretical basis for assuming differences in framing social digitization refers to two levels. At a macro-level of media systems, political parallelism should contribute to a diverse coverage. Political parallelism is “the extent to which the different media reflect distinct political orientations in their news and current affairs reporting [...]” (Hallin & Mancini, 2004, p. 28). Political parallelism is a modification of the previous British notion of party-press parallelism (Seymour-Ure, 1974) that refers to a close relationship between media and politics that did not apply as strongly to other media systems (Hallin & Mancini, 2004). However, in some media systems such as the Northern European media system (e.g., Germany) and the Mediterranean media system (e.g., France), a more or less close ideological tie exists between political ideologies and media outlets (Hallin & Mancini, 2004). The coverage of events such as legislative debates, electoral campaigns or demonstrations in these media systems are prone to be framed in ways that reflect the political alignment of the media outlets. The media’s inherent political alignments might therefore also influence the coverage of social digitization. In the particular case of social digitization, where no political differences between media outlets appear likely at first sight, it is crucial to find out whether assumptions about political parallelism are justified. The German media, which are analyzed in this study, are a stereotypical case with a supposed moderate to high degree of political parallelism between the media system and the political system. Broken down at the meso-level of single media outlets, political parallelism is referred to as editorial line. Concerning the German case, Schönbach indicated that the
selection of editorials and news in the German media appeared to be value-oriented and that
the news coverage followed underlying editorial lines (1977, pp. 176 – 177). Donsbach,
Wolling, and von Blomberg (1996) asked German journalists to assess the political
orientation of the main political parties, leading news media and their own employers. The
assessment of mass media and political parties on a left-right scale indicated that the news
magazine *Der Spiegel* and the newspaper *Süddeutsche Zeitung* were positioned at the left end
of the spectrum, making them ideologically closer to the left-wing parties *Bündnis 90/ Die
Grünen* (the Greens) and *SPD* (Social Democrats). Conversely, the newspapers *Frankfurter
Allgemeine Zeitung* and *Die Welt* were considered somewhat right-wing print media outlets,
making them ideologically closer to the center-liberal *FDP* (Liberals) and the center-
conservative *CDU* (Christian Democrats). In addition, Eilders (2004) conducted an extensive
analysis of five quality German newspaper editorials from the 1990s. Eilders (2004) showed
that the solutions for different policy issues were framed differently, either following right- or
left-wing perspectives.

Further content analyses showed that right-leaning German newspapers covered more news
on new technologies, biotechnology, and the Internet than left-leaning ones, whereas the
editorial did not affect the coverage of news magazines (Kohring & Matthes, 2002; Rössler,
2001). However, *agenda building of social digitization* (H1a/b) might be different. Although
the empirical basis is narrow and requires further replication, the existing evidence leads to
the following hypotheses:

H1a: Social digitization is a more salient issue in right- than in left-leaning newspapers.
H1b: Right- and left-leaning news magazines differ in their emphasis on social digitization.

Editorial lines, between left and right, liberal and conservative or other ideological
dichotomies should also affect how media outlets emphasize certain values or, following the
notion of homophily (Katz & Lazarsfeld, 1955), attract journalists with similar value
structures. One starting point is the continuum between materialistic and post-materialistic
values as introduced by Inglehart (1977). He studied how social values after the Second
World War shifted from the materialistic appreciation of financial security and law and order
to the post-materialistic strive for an emancipated civil society protecting individual rights.

Inglehart also found that those who held post-materialistic values were more likely to support
left-wing parties (Inglehart, 1977, pp. 230 – 231). It can be expected that journalists working
for left-leaning print media rather apply post-materialistic values in their reports, for example
when political regulation of digital life poses a risk to individual rights (due to data privacy
violations or digital censorship). Hence, the following frame building hypothesis is formulated:

H2: Left-leaning print media emphasize negative outcomes of political actions regarding the social digitization more than right-leaning print media.

However, this hypothesis does not rule out the possibility of positive depictions of digitization from the left side, as far as they involve non-political domains of society. The working assumption rather is that left-leaning German journalists will be more eager to highlight political grievances, activating their generally more critical attitude toward political and economic elites (Kepplinger, 1979). Lipset and Rokkan’s (1967) macro-sociological cleavage theory discusses several historically observable social conflicts between church and state, center and periphery, land and industry, and owners and workers. Recent systematizations (Korte, 2009) have modified the latter cleavage and instead have described a latent social conflict between those who stand for social equality and those who trust the free market in Germany. Journalists also seem to be implicitly led by this latter cleavage when deciding how to frame issues. Using a quasi-experimental survey among journalists in five countries, including Germany, Patterson and Donsbach (1996) found that right-leaning journalists prefer economic aspects over ecological ones. A recent discourse analysis of left and right British quality press (Carvalho, 2007) supported this finding. From 1985 to 2001, the conservative British newspaper The Times had a stronger tendency towards presenting the economic aspects of climate change than the left-leaning The Guardian or The Independent.

Hence, the following assumption regarding frame building is formulated:

H3: Right-leaning print media emphasize the economic aspects regarding social digitization more than left-leaning print media.

All frames in the media discourse on social digitization might differ along editorial lines in terms of different frame patterns. A long-term comparison of different frames will shed light on overall emphases. Hence, the following research question is asked:

RQ1: Do editorial lines affect long-term frame building patterns of social digitization?

Method

A quantitative content analysis was conducted to answer the research question and to test the hypotheses.¹ Five German quality print media (three newspapers and two news magazines)

¹ The original codebook in German is available upon request.
with high circulation were selected. Based on previous findings (Donsbach et al., 1996; Pfetsch, Eilders & Neidhardt, 2004; Schönbach, 1977), three media outlets were categorized as left-leaning (the newspapers die tageszeitung and Süddeutsche Zeitung and the news magazine Der Spiegel) and two as right-leaning (the newspaper Frankfurter Allgemeine Zeitung and the news magazine Focus). A random sample of 55% of newspaper articles and all issues of news magazines from the first half of 2003 and 2008 were selected by using online (Lexis-Nexis) and offline (CD-ROM) databases. The word stem digital* was applied as a search query for relevant articles. The samples included 191 articles of the year 2003 and 192 of 2008. Media frames were operationalized following Entman’s (1993) frame dimensions and the modifications by Matthes and Kohring (2004, 2008) (Tab. 1) to enable an inductive media frame analysis. The frames consisted of multiple combinations of dichotomous frame variables along several dimensions. The dimension problem definition was operationalized by coding the dominant sub-issue. The four sub-issues included “culture, entertainment and leisure”, “economy”, “legislative and security policy” and “others” (which serves as a common category for topics such as transport, energy, medicine, and science). Further categories of this dimension were the positive or negative evaluation of the sub-issue, whether the article highlighted a benefit or a damage connected with the sub-issue and the representation of an economic or societal actor as having benefited or being harmed by the sub-issue. Causal interpretation was operationalized as the responsibility of a political, economic or medial and societal actor for the benefit or the harm connected with a sub-issue. The mention of a treatment recommendation, was for example coded, if the article suggested how to solve a problem related to the sub-issue. The dimension moral evaluation was left out as the coders could hardly agree on one coding, thus showing an inconsistent understanding. To achieve a better fit for the rather less morally loaded topic of social digitization, the dimension prognosis was added and was coded when articles mentioned how the journalists evaluated the future of the sub-issue. In total, 17 frame element variables were coded.

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2 It was decided to apply this strategy owing to newspapers’ higher publication frequency. This decision allowed a manageable number of articles to be worked with.

3 The codebook also included other sub-issues and actors that are not presented here. Owing to the small representation in the overall sample, they were either grouped together or excluded from the analysis.
Table 1: Operationalization of frame elements (Zeller et al., 2010)

| Frame elements (Entman, 1993) | Operationalization (following Matthes & Kohring, 2004) |
|-------------------------------|--------------------------------------------------------|
| Problem definition            | Type of main sub-issues (e.g., politics)                |
|                               | Evaluation of issue (positive or negative)              |
|                               | Sub-issue focus: benefit or harm                        |
|                               | Benefited actor, harmed actor                           |
| Causal interpretation         | Actor causing benefit, actor causing harm               |
| Treatment recommendation      | Treatment recommendation                                |
| —                             | Prognosis                                               |
| Moral evaluation              | —                                                      |

After several pre-tests of the codebook, 11 graduate students were carefully trained to code the articles. Each coder shared a pre-defined number of articles with another coder. In the first step, two coders sharing the same articles coded each article individually so that every article was coded twice. In the second step, the two coders sharing the same article discussed and agreed on a common coding. Hence, the de facto intercoder reliability was 1. Following Matthes and Kohring’s (2004, 2008) approach, an explorative cluster analysis was run for the complete sample (n = 383) in order to determine clusters of similar frame elements. Frame element clustering has several advantages compared with other forms of frame analysis. Whereas deductive frame analyses look for the appearance of frames found in previous studies, this inductive approach is open to the discovery of frames. This advantage should become even more important when the analysis focuses on technology, where the dynamic between innovations and diffusion might cause changing frames. Frame element clustering also allows a higher inter-subjective traceability and a strategy for the combination of frame elements to frames can be replicated more transparently in future studies. As Matthes and Kohring (2008) noted, the main advantage of the suggested method is that frames were found empirically, rather than being assigned according to the subjective preferences of the researchers. A cluster analysis of the frame elements was run using the Ward method. The Ward method is generally supposed to derive groups that differ from other groups quite well and can therefore be adequately interpreted (Breckenridge, 2000). Articles showing low differences in frame element values (sub-issue, actors etc.) were clustered together (Härdle &
Simar, 2007). By applying the Ward method, insights were gained into how coherent clusters of articles were and when further clustering would generate too incoherent groups of articles (elbow criterion). The cluster analysis for the total sample of the articles in 2003 and 2008 derived five meaningful clusters that could be compared longitudinally.

Findings

Agenda Building

The state of the art implied that different editorial lines could affect the extent to which the issue of social digitization is represented in print media’s agenda. It was hypothesized that social digitization would be particularly prominent in right-leaning newspapers. To test this hypothesis, it was calculated how much the number of newspaper and news magazine articles on social digitization differed from the expected average number of articles (Fig. 1). The case of the *Süddeutsche Zeitung* (*SZ*) helps to exemplify the calculation. This newspaper published 41 articles about digitization in 2003 and 34 articles in 2008. All three newspapers published 133 articles in 2003 and 142 articles in 2008, respectively. The expected number of articles in newspapers for 2003 was calculated by dividing 133 (articles in 2003) by 3 (newspapers), resulting in 44.3 expected articles per newspaper. By subtracting the expected number from the actual number of articles, the result was a measure of the absolute deviation from the expected number of articles (41 - 44.3 = -3.3 for *SZ*) – calculated for 2003 and 2008 individually. Agenda building appeared to be an appropriate characterization of the coverage of the right-leaning newspaper *Frankfurter Allgemeine Zeitung* (*FAZ*). This newspaper consistently showed a highly positive deviation from the expected number of articles for both years. As hypothesized, *FAZ* published proportionately more articles than the left-leaning *die tageszeitung* (*taz*) and *SZ*. Hence, H1a was supported.
Furthermore, H1b expected differences in the representation of the social digitization issue in news magazines. The data show that right- and left-leaning news magazines, *Focus* and *Spiegel*, respectively, differed in 2003. *Focus* featured more coverage of social digitization. Nevertheless, there was no evidence of agenda building as the difference between the two news magazines disappeared in 2008. Hence, H1b was not supported.

**Frames**

The main part of the analysis presents the effect of the print media’s different editorial lines on frame building the social digitization issue. Therefore, five media frames were derived via cluster analysis (Fig. 2; see also, Zeller et al., 2010). The frames can be described as follows:

Cluster 1: “The bright side” of digitization frame (38.6 % of total sample): Articles in this cluster mainly highlighted the positive aspects of digitization in culture, entertainment and leisure. Society was often presented as the main beneficiary of the diffusion of digital technology.

Cluster 2: “The dark side” of digitization frame (27.2 % of total sample): The description of the negative facets of digitization was a predominant pattern in this frame. Articles focused...
on digitization’s detrimental effects on society. The “dark” outcomes were not regarded as induced by politics, but as self-induced by society.

Cluster 3: *Economic competition* frame (17.8 % of total sample): This frame was applied in articles that focused on the economic aspects of digitization. The market and its actors were described in a balanced way by covering benefits and harms related to digitization.

Cluster 4: *Social progress* frame (8.9 % of total sample): This frame cluster included articles that pointed out the beneficial social role of digitization in several respects, such as transport, health or science.

Cluster 5: *Negative consequences of political actions* frame (7.6 % of total sample): This frame strongly highlighted the political aspects of digitization. Political actors (legislative and security policy) were the point of interest, as far as they were held responsible for harming society.

| Frame elements cluster                              | Size (total: n = 383) | Exemplary article                                      |
|------------------------------------------------------|------------------------|-------------------------------------------------------|
| “The bright side” of digitization                    | n = 148                | Philharmonic concerts online                           |
| “The dark side” of digitization                      | n = 104                | Effects of filesharing on music industry               |
| Economic competition                                 | n = 68                 | Description of online music market                    |
| Social progress                                      | n = 34                 | Health benefits for elderly                           |
| Negative consequences of political actions           | n = 29                 | Internet censorship in China                           |

Figure 2: Description of frame elements cluster (see also, Zeller et al., 2010)

**Frame Building**

Next, left- and right-leaning print media were compared in terms of the appearance of frames on social digitization (Fig. 3). Left-leaning print media focused more on the negative facets of social digitization, especially related with society itself (dark side frame). Right-leaning print media framed social digitization more positively than did the left-leaning media. In contrast to the differing frames, social progress was nearly equally represented in both print media. A Chi-Square test of independence ($\chi^2 = 10.47, p = .03, df = 4$) showed that the frame differences between right- and left-leaning media were statistically significant.
H2 stated that left-leaning print media would highlight the negative outcomes of political actions more than right-leaning media. This expectation was derived from value research and the insight that left-leaning journalists might have more of an affinity with the protection of freedom of speech and the influence of individuals on politics. Thus, the negative consequences of political actions frame, where political actors were presented as being primarily responsible for causing social harm by using or regulating digital technology, was supposed to be more visible in left-leaning print media. The data (Fig. 4) slightly supported this assumption. Although the negative consequences frame had a larger proportion of coverage in left- than in right-leaning print media for both years, this difference as well as the differences regarding other frames were non-significant (2003: $\chi^2 = 5.71$, $p = .22$, df = 4; 2008: $\chi^2 = 5.97$, $p = .20$, df = 4). H3 posited that right-leaning print media would focus more intensely on the economic outcomes of digitization (owing to macro-sociological cleavage orientations). The data for 2003 did not support this assumption as they showed an almost equal salience of the economic competition frame in both print media. The difference in 2008 applies to the hypothesis, as right-leaning print media placed more emphasis on the economic outcomes of digitization than did left-leaning print media. However, as the data did not present significant differences between both types of media, H3 was not supported.
Following Scheufele (1999), frame building can be understood as an intentional and strategic decision of journalists. Hence, frame-building patterns should become visible when frame patterns are constant over time. Therefore, RQ1 asked whether editorial lines affect long-term frame-building patterns of social digitization. Therefore, the analytical perspective switches from between-media to within-media comparing both years of sampling. Left-leaning print media focused on negative outcomes of political actions, social progress and economic competition in both years at a comparable level. Despite the change from a positive (bright side frame) to a somewhat more negative (dark side frame) coverage in left-leaning print media, the overall patterns of frame dimensions remained stable ($\chi^2 = 4.16, p = .39, df = 4$). Right-leaning print media highlighted the positive aspects of digitization and, as already discussed, rather the economic ones ($\chi^2 = 1.91, p = .75, df = 4$). However, in 2008 the positive coverage in right-leaning media leveled slightly. Overall, the differences within the two different print media between the years 2003 and 2008 were not significant and thus, there is evidence to assume longer-term frame-building patterns of social digitization in right- and left-leaning print media.
Conclusion

Social digitization is an issue that compounds a variety of matters owing to the multiplicity of technological outcomes associated with this issue. This study examined the question of whether media-intrinsic political affinities understood as political parallelism had an impact on the way social digitization was framed. The data showed that social digitization was presented using different journalistic patterns. The analysis of German print media as a stereotypical case of the Northern European media system revealed that the right-leaning press pushed social digitization on the agenda more than did the left-leaning media. In short, there was evidence of intentional agenda-building. This finding supported Rössler’s (2001) observations about the coverage of “the Internet” and the framing of biotechnology (Kohring & Matthes, 2002). Right-leaning media also focused more on the “bright” and economic aspects of social digitization and thereby deemphasized the negative aspects of digital technology. In contrast, left-leaning print media highlighted the negative outcomes of political actions for individuals, probably because of strong post-materialistic values among left-leaning journalists. However, the hypothesis that right-leaning print media would direct their coverage on social digitization more towards economic aspects was not supported. Overall, it can be concluded that as the frame patterns remained quite stable in the two periods that were studied (2003/2008), print media undertook frame building on social digitization in different ways, led by editorial lines at a meso-level and political parallelism at a macro-level.

Altogether, the results largely support the media frame analyses concerning the emergence of technologies in the past, which for the most part repeatedly observed positive representations of digital technologies. However, the present findings go beyond the existing studies in three aspects. First, the present study grasped the media coverage on digital technology in all its complexity and over time. By following this approach, it was possible to derive a feasible aggregate picture of the social role of digital technologies. This conceptualization is an improvement over previous studies, which were limited to one or only a small number of digital technologies. Second, the connection of politically oriented editorial lines as an explanation for media frame patterns offered deeper insights into how different political affiliations, implicit values and social cleavage orientations of print media journalists affect not only how social digitization is represented in the media agenda, but also which different attributes and actors were comprised in the coverage of a common issue. Third, the frame
Element clustering applied presents a more reliable way of analyzing frames in the media than in other inductive analyses, in which the subjective view of the researchers may conflict with inter-subjective traceability (Matthes & Kohring, 2008). However, the findings face some limitations. First, the diffusion of digital technologies continues and this analysis of print media obviously misses the most recent journalistic discourses on digital technologies concerning the opportunities and challenges of social media for individuals, companies, governments, and so on. As journalistic values and attitudes can also undergo some adaptive changes in the meantime, critics could be tempted to regard the media analyses presented here as empirical snapshots. However, journalistic orientations are not only individually formed, but also influenced by ideological norms of media organizations that should be rather inert and less susceptible to change compared with those of individual journalists.

This relates to the second limitation: Hypotheses were theoretically deducted without explicitly knowing, for example, what kind of attitudes journalists of left- and right-leaning media had toward materialistic/post-materialistic values and where they could be categorized within the spectrum of macro-sociological cleavages. These questions remain desiderata for further research and could not be answered within the scope of this paper.

The transferability of the hypotheses offers grounds for further discussion. It is known that German journalists may fulfill their professional role in a more ideological and missionary manner than journalists in other countries (Donsbach & Klett, 1993; Köcher, 1986). This singularity limits the transferability of ideologically based frame-building hypotheses to other media systems, such as the North-Atlantic media system (e.g., the U.S.), where the political ideology is not as central to the journalists’ sense of identity as it is in Germany. In contrast, in the Northern European and Mediterranean media systems, political parallelism traditionally offers rather predestined contexts for ideology-oriented frame building (Hallin & Mancini, 2004).

Increasing the periods of analysis could validate the partially supported frame-building assumptions. The next step of analysis, following Scheufele’s (1999, p. 115) understanding of framing, would be to test if the audience adopt the frames built by the media. As the political attitudes of the print media audience correlate with the audience’s perception of the editorial lines of print media outlets (Donsbach, 1990), it can be assumed that the media’s framing of
social digitization can be understood by their audiences in the ways intended by the different print media. The findings regarding the frames of economic competence and negative consequences might be translated into hypotheses for explicit audience frames. If the media frames described in this study are able to determine audience frames, further diffusion of digital technologies could be critically perceived by left-leaning print media audiences. These audiences could coalesce into a rather “dark” image by connecting social digitization to the politics that harm society, whereas their more right-leaning counterparts would be more inclined to view social digitization in positive and economic-loaded terms. At least in the media system under scrutiny, such a potential public appeal should prompt technology actors to disseminate information around digital innovations primarily to the more benevolent right-leaning media spectrum.
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