NEWS CONSUMPTION IN THE MOBILE ERA
The role of mobile devices and traditional journalism’s content within the user’s information repertoire

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Mobile devices allow users to keep ubiquitously connected to the internet. Consequently, they change the reception of information by faster access, greater timeliness, and new media usage contexts. At the same time, many traditional media organizations already produce content for mobile websites and apps in line with cross-media strategies. Reflecting severe structural changes in the journalism market, they are hoping to manage the digital transition successfully by mobile publishing, (re)gaining especially the digital natives. Referring to the media repertoire approach, we examine the role of mobile devices on two different levels. First, from a technical point of view, we consider the platform repertoire of mobile internet users for information. Focusing on the use frequency of online (computer, mobile devices) and offline media (printed newspaper, television set, radio set), a quantitative study (N = 498, face-to-face interviews) reveals six different user types. Second, we examine the new medium’s use for information purposes by drawing on the unique specifics of mobile devices compared to other media. Results show that the new medium is frequently used for information due to its particular qualities. Third, we look at the users’ selected mobile news sources from an institutional perspective. Our results indicate that, although new online-only providers are of a certain relevance to mobile internet users, traditional journalism’s content dominates the mobile information repertoire.

KEYWORDS brand transfer; information repertoire; mobile devices; mobile journalism; news consumption; standardized survey; user typology

Introduction

Information has always been one of the basic functions of mass media and one of journalism’s core competences (Wright 1960). With the rapid adoption of internet-enabled mobile devices, a new medium for digital journalism has entered the field. Hence, when seeking information, today’s media user can turn on the television as well as the radio, read the printed newspaper, go online via PC or laptop, and access a mobile website or app via smartphone or tablet computer.
These (technically) different media platforms—television set, radio set, printed newspaper, computer (PC, laptop), and mobile devices (smartphone, tablet, e-reader, internet-enabled MP3 player)—allow recipients to access the content of a large number of providers. Not least because of traditional media organizations’ cross-media strategies and “repurposing of content” (Erdal 2009), especially in the field of information (e.g., current news, background and service information), it is possible to receive similar content through different media platforms (Taneja et al. 2012). Hence, inter- and intra-media competition is tough (Mende, Oehmichen, and Schröter 2012) and the variety of choices necessitates both a selection of media platforms and specific media brands that form the personal information repertoire (Hasebrink and Popp 2006; Reagan 1996; Yuan 2011).

In this paper, we draw first on the concept of media repertoires to analyze the modern recipient’s information behavior concerning the combination of technically different offline and online media platforms. We then specifically focus on two different levels of the repertoire: referring to a rather technical perspective on media, we draw on mobile devices as a new media platform to publish current information, describing its rapid diffusion in Germany and its technical qualities. Furthermore, we concentrate on an institutional perspective on media by looking at the digital transfer of established media brands, and examining the mobile brand repertoire for information purposes (Hasebrink and Schmidt 2012). Media companies have to react to economic challenges, decreasing audiences/circulations within the traditional media markets, and reduced barriers to enter this new market, hoping to successfully (re)gain users via mobile websites and apps. In this context, both perspectives on media are seen as different stadiums within the process of media institutionalization. Only the social adoption of a new technical media platform as a means of journalistic publishing leads to an institutionalized medium with established organizations and production as well as reception routines (Lievrouw 2002).

Hence, researching both levels is necessary because—similar to legacy media’s previous concerns about the fixed internet—although mobile content “has emerged as an opportunity for extending journalism and business activities to a new and potentially complementary medium, it also represents a threat as it may cause displacing effects” (Nel and Westlund 2012, 745). The concept of media repertoires leads to a better understanding of potential threats and competition between old and new platforms as well as content providers (Taneja et al. 2012; Yuan 2011).

Although there is a wide range of research about media and information repertoires, only a few empirical studies explicitly considered mobile devices as a new means of information for the user, none of them including the German market (Chan-Olmsted, Rim, and Zerba 2013; Dimmick, Feaster, and Hoplamazian 2011; Yuan 2011). To contribute to a better understanding of news consumption via mobile devices and traditional journalism’s role within the mobile information repertoire, we describe the results of a quantitative survey among German mobile internet users.

**Media Repertoires**

Studies concerned with the adoption of a new medium frequently focus on this single platform. This neglects the fact that the recipient may “take advantage of a
whole range of media options” (Yuan 2011, 999) which affords many selection processes between offline and online media platforms. In this paper, we therefore focus on “the question what the overall result of all this selectivity is, how media users combine different media contacts into a comprehensive pattern of exposure or, as we call it, a media repertoire” (Hasebrink and Popp 2006, 369). Seeking information, users select among media platforms and content providers many times a day, building stable media usage patterns which consist of regularly used media devices (Reagan 1996). The information repertoire may be defined as the combination of multiple media sources a person uses regularly for news (e.g., politics, economy, celebrities, regional and national current and background news) and service content (e.g., weather, advice and consumer information, transportation and traffic).

Depending on the research interest, the media repertoire approach can be applied to different levels, for example media platforms (i.e., television set, radio set, newspaper, computer, and mobile devices), media brands (i.e., TV channels, radio stations, newspaper titles, and websites or apps), genres, or content (Hasebrink and Popp 2006). To indicate the relevance of a new media platform and discuss its potential threats to established platforms it is therefore necessary to examine the user’s entire information repertoire. Hence, by taking into account television set, radio set, printed newspaper, and computer, it is possible to better understand the role of the new media platform mobile device in people’s everyday media usage behaviors.

RQ1: Which platforms form the information repertoire of mobile internet users and how are offline and online media platforms combined?

**Technical Perspective: Mobile as a Platform for News Consumption**

Considering mobile devices as a new media platform within the user’s information repertoire refers to a rather technical perspective on media. From this point of view, each new medium that can be used to publish journalistic content offers a specific portfolio of technical options. Therefore, mobile websites and apps create “new media formats that both add to and modify what went before” (Parry 2011, 23).

During the last few years, mobile phones have rapidly developed from interpersonal communication tools to multi-optional mobile devices (Horst 2013). First journalistic news content for mobile devices was provided in the early 1990s by SMS and MMS services (Westlund 2013; Wolf 2014). Until recently, mobile news consumption was a marginal phenomenon (Dimmick, Feaster, and Hoplamazian 2011). Since costs for internet access via mobile devices declined, network connectivity improved, and attractive news content became available, internet-enabled mobile devices (smartphones, tablets, e-readers, and similar devices) have been adopted rapidly in Germany as well as many other countries. With the diffusion of the iPhone in 2007 and the iPad in 2010, smartphones and tablets as well as the mobile internet have found their way into everyday life. In 2013, 26 million smartphones were sold in Germany, 56 percent of German-speaking online users older than 14 years owned smartphones, and 19 percent owned tablets (Bitkom 2013; van Eimeren 2013). Mobile internet penetration still is rapidly increasing worldwide (Bohlin, Burgelman, and Casal 2007; Institut für Demoskopie Allensbach 2012; Palser 2012; van Eimeren 2013; Wei 2013; Westlund 2013). In Germany,
approximately 30 percent of the population aged 14 and above accessed the internet via mobile devices in 2012, a rapid increase compared to the previous year (AGOF e.V. 2013; Institut für Demoskopie Allensbach 2012).

Based on the technology of the mobile internet, the portable devices provide news at all hours, mainly via apps or mobile websites (Wei 2013); and mobile internet users are interested in receiving information content on their devices: besides interpersonal communication, mass communication is of growing relevance. Considering the top three smartphone applications of German mobile internet users, instant messaging (37 percent) and social media apps (27 percent) are followed by news content (26 percent). Tablets are even more important for information purposes: news-apps show the highest demand (20 percent), followed by social network apps (13 percent) and games (11 percent) (van Eimeren 2013).

Looking at the mobile devices from a technical point of view, their position within the information repertoire can be observed by considering specific potentials. As a news media technology, the mobile internet offers unique qualities, most importantly portability, always-on connectivity, and context sensitivity (Humphreys and Liao 2011; Meckel 2006; De Souza e Silva 2013). Portability allows users to carry their mobile internet devices with them all the time. Together with the always-on connectivity, they can access up-to-date news sources almost anywhere and anytime (dependent on network coverage). Moreover, mobile devices are context-aware by considering the users’ location, usage patterns, and personal interests (Aguado and Martinez 2008; Ahonen 2008; Humphreys and Liao 2011; Nyre et al. 2012; De Souza e Silva 2013). The technology hence allows innovative forms of news journalism and could therefore be “the reach of the internet to mobile environments” (Sawhney 2009, 105).

Consequently, internet-enabled mobile devices create many new situations and activities where mass media content was not available in the past and can now be easily consumed on demand (Meckel 2006; Westlund 2013). Thus, looking at this platform compared to established media, mobile’s most outstanding new potential is to allow internet use “on-the-go” and “in-between” (Dimmick, Feaster, and Hoplamazian 2011). But mobile has probably already started to become more than that. Current research also indicates that the mobile internet is not restricted to interstices (Westlund et al. 2011). It is used on-the-go, at public places, and even at home, for example during evening primetime (Tomorrow Focus Media 2013). As these data do not differentiate between mass media information or entertainment (e.g., games, music) and interpersonal communication (e.g., social media networks), little is known about the context of mobile information usage.

The sheer availability of these features and potentials of mobile devices, however, does not guarantee that these possibilities (1) actually matter to the recipients and (2) are used. The process of the diffusion and adoption of media innovation has repeatedly shown that the technological potential only offers a range of possibilities. During the process of social adoption users develop different usage patterns, choosing what exactly they use the technology for (Katz and Aakhus 2006; Vesper 1998; Wirth, von Pape, and Karnowski 2008).

To sum up, the mobile internet’s role within the information repertoire may be defined by its specific technical potentials, foremost portability, always-on connectivity, and context sensitivity, and further their social appropriation. However, only if these potentials matter to the recipient and if the ubiquitous access to news is utilized do
they have consequences for journalism’s mobile news production. This leads to the following research questions:

RQ2: How important are mobile specifics in the context of information use?
RQ3: Does the recipient actually make use of these specifics?

Institutional Perspective: Journalism’s Role for Mobile News Consumption

Since it is at least possible that digital platforms might substitute older media in the future, traditional journalism’s organizations are interested in successfully transferring their content to digital platforms, including mobile devices (Wei 2013). As a result of digitalization, the number of content providers competing for advertisers’ attention and audiences’ loyalty has massively increased (Picard 2008). Thus, due to cross-media strategies, the importance of brands and reputation is a widely discussed phenomenon which has become “a key issue for the marketing of media companies” (Tarkiainen et al. 2008, 53). Media companies have to react to economic challenges, decreasing audiences/circulations within the traditional media markets, and reduced barriers to enter the market which enabled the advent of new online- and even mobile-only competitors like Yahoo and Google (Reuters Institute 2013), or content created by users themselves via blogs or social news sites (Yuan 2011). “[T]he main solution chosen by the old media companies has been to deliver content across media platforms” (Bechmann 2012, 889).

For nearly two decades almost all media organizations expanded their brands to the fixed internet and journalistic strategies have already changed from focusing on one platform to cross-media publishing. Research conducted for the German fixed internet market indicates a rather successful transfer of traditional journalism brands from offline to online (Hasebrink and Schmidt 2012; Neuberger 2012; Reuters Institute 2013). However, due to the still existing lack of successful digital business models for the fixed internet, many traditional media brands also extend their content to mobile platforms, hoping for future commercial profits (Nel and Westlund 2012). Consequently, they acknowledge the growing importance for institutionalized journalism: in 2007, already 96 percent of German legacy media stated “that mobile publishing will become an integral part of journalism” (Wolf and Hohlfeld 2012, 90). Although mobile news reception is a young phenomenon, many media organizations worldwide have already started to produce mobile information content. With the extensive diffusion of smartphones and tablets and the adoption of app stores, their regularly produced mobile content published as brand extensions—more or less differing from the traditional product—has massively increased (Nel and Westlund 2012; Westlund 2013). But they are not the only content producers: in addition, there is a wide range of new online news services, and lately even mobile-only providers (Porter 2012).

In summary, traditional media organizations can only be successful in mobile publishing if mobile internet users are loyal to their traditional media brands as an institution for news and information. Recent data on mobile news consumption for American mobile internet users show that loyalty to media organizations “is the most important factor determining where consumers go for news” (Pew Research Center’s
Project for Excellence in Journalism 2012, 15). Thus, from the institutional perspective, the integration of traditional media brands’ products in the mobile device intra-media repertoire indicates the degree of success of the aspired transition. We therefore examine:

**RQ4:** How relevant is the content of legacy media within the mobile information repertoire?

### Method and Data

To answer the research questions, a quantitative survey among mobile internet users was conducted. The sample consists of 498 German-speaking users of the mobile internet¹ aged between 16 and 69 based on representative quotas (gender, age, and education; Institut für Demoskopie Allensbach 2011). The standardized face-to-face interviews were mainly conducted in two regions of Germany, one rather rural and one rather metropolitan. Interviewers were communication research students trained through extensive practice. On average, an interview took 40 minutes; the field period was June 2012. The distribution of the sample followed the population parameters of mobile internet users quite well. Due to adoption processes, mobile internet users differ from the general population in terms of age, education, and gender (Table 1).

### Questionnaire

**Information repertoire on the platform level.** The frequency of use for each media platform—television set, radio set, newspaper, computer (PC, laptop), and mobile device (smartphone, tablet, internet-enabled MP3 player, e-reader)—was measured by the number of days in an average week the medium is used for information (current news and service content). Participants only answered further questions on media platforms they used at least once a week for information.

| TABLE 1 | Sample distribution and population parameters (%) |
|---------|---------------------------------------------------|
| Sample (N = 498) | Mobile internet users (2011, 9.81 million) | General population (Germany) |
| Gender (male) | 64 | 64 | 50 |
| Education | | | |
| Low | 19 | 19 | 36 |
| Medium | 37 | 39 | 37 |
| High | 44 | 42 | 27 |
| Age | | | |
| 16–29 | 46 | 44 | 25 |
| 30–54 | 47 | 49 | 50 |
| 55–69 | 6 | 7 | 25 |

Mobile internet users and general population parameters based on Institut für Demoskopie Allensbach (2011).
Important mobile-specific potentials. On a five-point Likert scale, respondents rated their perception of the importance of ubiquity (“usage at any place”, “usage at any time”), always-on connectivity (“24/7 updated news”) as well as context-awareness (“information fitting my environment”, “information fitting my interests”).

Actual utilization of versatility in space, time, and situation. Respondents indicated how many times a day they use their mobile devices for information. Furthermore, respondents rated whether they used the mobile device (more precisely the most frequently used information source on their mobile device) “always at the same time”, “always at the same place”, “always while doing the same thing”, and “always after doing the same thing”, based on a five-point Likert scale. To be able to compare the use of these qualities of mobile devices to other media platforms, the same items were also rated separately for television set, radio set, printed newspaper, and computer. Focusing on the variety of situations and activities accompanied by mobile device use, we also asked respondents “what” they are usually doing parallel to the reception of the most frequently used mobile news/service information source in an open-ended question (“What parallel activities do you normally do while using [xxx] for information?”).

Traditional journalism’s content. To examine the mobile information repertoire on a brand level, we focused on the three most important sources for information on mobile devices. Answers were recoded into groups of traditional media brands, online-only brands, and mobile-only brands. Furthermore, for each platform used at least once a week for information, we asked for the three predominately used sources in an open-ended question (newspaper titles, radio stations, TV programs and stations). To measure the users’ loyalty to traditional media organizations, we asked if these predominately used brands were part of their mobile information repertoire as well.

Socio-demographics. Age, gender, education, occupational status, and marital status were surveyed.

Results

The Information Repertoire of Mobile Internet Users

According to RQ1, we draw first on the size of the mobile internet user’s information repertoire based on different media platforms and their combination. On average, mobile internet users have a broad repertoire, using four platforms for news and service content at least once a week. Mobile devices (96 percent use it at least once a week) and computer (91 percent) play the leading role, followed by television set (86 percent), radio set (65 percent), and printed newspaper (62 percent). Moreover, mobile devices (mean = 5.3 days a week, SD = 2.2; basis: users) and computers (mean = 5.5, SD = 1.9) are used most frequently, followed by television set (mean = 5.2, SD = 1.9), radio set (mean = 5.0, SD = 2.1), and printed newspaper (mean = 4.1, SD = 2.3).

But how are these platforms combined into an information repertoire? Using SPSS 21, a hierarchical cluster analysis (Ward; similarity measure: squared Euclidean distance) was conducted to identify platform repertoires based on how many days per week each platform is used. Using the agglomeration schedule and “elbow” criterion, six clusters were identified. As the number of cases is rather high for a hierarchical cluster analysis, a non-hierarchical cluster analysis (K-means) using the cluster centroids from the hierarchical clustering as the starting seeds for the analysis was conducted.
Table 2 shows the usage profile of the clusters as well as their socio-demographic composition.

Cluster 1 (21 percent) mainly focuses on the three traditional media platforms for information, complemented by an average use frequency of the two internet platforms. Compared to the rest of the sample, the mean age is significantly higher and members of this cluster are rather more highly educated. The share of men and women corresponds to the sample distribution. Cluster 2 relies on both computer and mobile devices for information and seldom uses traditional media platforms. In terms of gender and education level, they are very similar to the traditional media users, but significantly younger than the sample average. The third cluster is specified by an average to high use of all platforms—mostly relying on mobile devices. However, they very infrequently consult a printed newspaper. Whereas they match the sample distribution concerning gender and age, they are lesser educated. Their counterpart is cluster 4, whose information repertoire is centered on the printed newspaper. The large majority (83 percent) is male, the education level is rather high, and the mean age is above the average. Cluster 5 mainly relies on the television set and their mobile device, complemented by an average use of the computer for information purposes. Radio set and printed newspaper are rarely used in this group. Compared to the total sample, this cluster consists of more women and members are significantly younger and slightly less educated. Finally, cluster 6 can be characterized as rather media abstinent. They hardly use their mobile device or a printed newspaper for information. If at all, they rely on their television and radio set. More women belong to this group. They are average in age and education.

Focusing on the role of mobile devices in the identified repertoires, it becomes obvious that all but one cluster integrated internet-equipped mobile devices in their repertoire. The only exceptions are those mobile internet users who, in general, make little use of media platforms for information. This indicates that if mobile internet users are interested in getting up-to-date information at all, they will rely on their mobile devices for this purpose as well. Possible reasons for this adoption are mobile-specific qualities and their use, which will be addressed in the next section.

The Relevance of Mobile-specific Qualities and Their Actual Utilization

According to the technical potential of mobile devices, the mobile internet offers up-to-date information at all hours and places. Respondents consider these qualities to be of high importance for information purposes such as news consumption: mobile internet users especially appreciate having access to news “at any place” (mean = 4.5, SD = 0.8), “at any time” (mean = 4.5, SD = 0.8), and receiving “24/7 updated news” (mean = 4.2, SD = 0.9) on their devices. This is reflected by the fact that the majority of the respondents are taking advantage of the high timeliness and permanent connectivity: 59 percent are using the internet via mobile devices several times a day to gain access to information. Context awareness (mean = 3.0, SD = 1.3) or personalization of mobile information content (mean = 2.9, SD = 1.2) seems to be less important at the moment. The ascribed importance of mobile specifics also explains their actual use: those users who stated that the potential of mobile devices to provide access to news “at all places” is highly relevant indeed use their devices no matter where they
### TABLE 2
Media user types—frequency of use (number of days in an average week) of media platforms

|                   | Cluster 1 (N = 103) | Cluster 2 (N = 92) | Cluster 3 (N = 90) | Cluster 4 (N = 59) | Cluster 5 (N = 80) | Cluster 6 (N = 74) | Total sample (N = 498) |
|-------------------|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|
| Frequency of use  |                      |                   |                   |                   |                   |                   |                       |
| Television        | 5.7^H (1.6)          | 1.0^L (1.2)       | 5.2^H (2.2)       | 4.9 (2.1)         | 6.1^H (1.1)       | 4.0 (2.4)         | 4.5 (2.5)             |
| Radio             | 6.3^H (1.0)          | 0.6^L (1.1)       | 6.1^H (1.0)       | 1.0^L (1.3)       | 0.7^H (1.0)       | 3.4 (2.9)         | 3.2 (2.9)             |
| Newspaper         | 6.2^H (1.0)          | 0.7^L (1.0)       | 1.0^L (1.2)       | 6.0^H (1.0)       | 0.8^L (1.1)       | 1.0^L (1.3)       | 2.6 (2.7)             |
| Computer          | 5.0 (2.3)            | 5.6^H (2.2)       | 5.3 (2.4)         | 5.1 (2.2)         | 5.2 (2.4)         | 3.9^L (2.7)       | 5.0 (2.4)             |
| Mobile devices    | 4.9 (2.3)            | 5.7^H (1.8)       | 6.5^H (1.1)       | 4.9 (2.4)         | 6.7^H (1.0)       | 1.5^L (1.1)       | 5.1 (2.4)             |
| Socio-demographics|                      |                   |                   |                   |                   |                   |                       |
| Age               | 45.4^H (10.9)        | 25.5^L (8.2)      | 29.7^L (10.9)     | 38.5^H (13.0)     | 26.8^L (9.6)      | 34.7 (14.8)       | 33.5 (13.4)           |
| Male (%)          | 65                   | 66                | 64                | 83                | 51                | 57                | 64                    |
| High education^a (%) | 52              | 51                | 33                | 51                | 38                | 42                | 44                    |
| % of total sample | 21                   | 19                | 18                | 12                | 16                | 15                |                       |

Values are means and standard deviations. N = 498. Hierarchical cluster analysis (Ward; similarity measure: squared Euclidean distance), followed by non-hierarchical cluster analysis (K-means).

^H Above the sample mean;

^L Below the sample mean, based on t-tests for one sample, p < 0.05.

^a High education: (Fach-)Abitur, comparable to high school; low education: Hauptschule/Mittlere Reife, comparable to middle school.
are \( r = -0.11; \ p < 0.05 \); the more important the quality, the less respondents agree that they always use the device at the same place) and those who find it important to receive “24/7 updated news” via their mobile device use it at varying time slots \( r = -0.13; \ p < 0.05 \); the more important the quality, the less respondents agree that they always use the device at the same time).

The ubiquity of mobile devices thus leads to a unique context profile of mobile internet usage for information purposes (Table 3): mobile news consumption takes place at different times and locations. The situation and activities before and during reception vary, whereas the data show that traditional platforms are used in quite stable circumstances. Computer use falls somewhat in-between but is still less flexible in use compared to mobile device use. Hereby, mobile device use differs significantly from all other platforms. These results clearly support the image of mobile devices being used flexibly and in the interstices (Dimmick, Feaster, and Hoplamazian 2011).

Taking into account the activities parallel to mobile news reception, respondents were further asked what they usually do while using their most important mobile news source. The respondents’ answers strengthen the results of the context items. The most frequently named parallel activity was “working/studying/at school” (51 percent). Second, mobile reception situations are popular: 43 percent mentioned using their favorite mobile website/app “while going by car/bus”. Although the devices are portable, mobile device use is not limited to situations on-the-go. The same number of respondents stated using the most important mobile news source “while resting” (43 percent), followed by “while eating” (40 percent), both rather stationary activities. Another finding indicates the parallel use with other mass media platforms: 31 percent watch television while using the mobile internet to keep updated about news.

### Importance of Traditional Journalism’s Content on Mobile Devices

In order to answer the last research question, we focus on the specific information sources, especially considering the role of established media companies. Therefore,
we first focus on the top three media brands for mobile information. Recipients can choose between websites and apps produced by established media organizations (mostly published under the same family brand) and online-only content providers. Considering all answers given, a broad range of different titles were named: 152 different websites or apps are used in total to gain access to information with mobile devices. Many of these media brands were only mentioned once. Hence, our data show a rather small set of relevant media sources that are used most. The top three (mobile) media brands are Spiegel Online (29 percent) and bild.de (21 percent), both originally print products, together with the mobile version of Tagesschau (21 percent), which is the most watched evening television news broadcast in Germany (Zubayr and Gerhard 2012). As can be seen in Table 4, over 60 percent of all media sources named for mobile information are produced by traditional media organizations, highly dominated by the cross-media content of print products (including newspapers and magazines). Hence, there are great differences between the cross-media transfer of printed titles and audio-visual media products.

In a second step, we took a closer look at the three predominantly used news sources seen as the mobile information repertoire. Mostly, respondents rely on a repertoire consisting of both traditional and online-only products (44 percent), followed closely by a news repertoire based on traditional media’s family brand content only (39 percent). Eighteen percent rely solely on online-only products. To sum up, although users have access to many new forms of information on digital channels, the findings indicate a strong relation to news products produced by media companies with which they are already familiar. Online- and mobile-only news providers, both professional and user generated, are only used supplementally.

Finally, when asking respondents for their top three media sources for the three traditional media platforms (newspaper, television, and radio), they also commented on whether they use that brand mobile as well. Considering all traditional media brands

| Information source                                      | %  |
|--------------------------------------------------------|----|
| Newspaper                                              | 21 |
| Magazine                                               | 21 |
| Public TV and radio service                            | 11 |
| Private TV station                                     | 6  |
| Foreign media                                          | 2  |
| Total traditional media                                 | 61 |
| Online provider, e.g. Google, Yahoo                    | 12 |
| Service sites, e.g. weather, traffic, stock news       | 11 |
| Social media platform, e.g. Facebook                   | 6  |
| Online-only site or magazine                           | 2  |
| Wiki                                                   | 1  |
| Total online                                           | 32 |
| Mobile only-service, e.g. weather app, news aggregator | 6  |
| Total mobile                                           | 6  |

N = 1080 (based on all mentions, maximum of three). Values differing from 100 percent are caused by rounding errors.

TABLE 4
Most used mobile information source based on all mentions
mentioned, every fifth source is also used on mobile devices. The data also support the successful cross-media transfer of print media organizations: while newspaper titles can quite successfully rely on the loyalty of their users (29 percent), top offline television news brands (20 percent) and radio stations (12 percent) are less frequently used mobile.

**Discussion**

The survey based on representative quotas for German mobile internet users provides important insights into the present state of mobile internet adoption in the field of information. Referring to the media repertoire approach, we analyzed the composition of the information repertoire, considering all media platforms used for information. On average, mobile internet users rely on a broad repertoire of four media platforms. Internet accessed via computer (91 percent) or mobile devices (96 percent) is most frequently used. With the exception of those who generally only infrequently use media to get information (cluster 6), all mobile internet users integrate their mobile device into their information repertoire. Specifically, younger recipients heavily rely on this new platform (clusters 2, 3, and 5). Nevertheless, traditional media still play an important role. This is especially shown by the cluster analysis, revealing traditional media users as one of the largest groups among mobile internet users (cluster 1). Television remains a stable part of the platform repertoire, especially for younger users. The printed newspaper, however, is the platform used by the smallest number of mobile internet users, 38 percent do not use a newspaper for up-to-date information and news at all. Due to the fact that mobile internet users are more highly educated and that males are overrepresented—which are both currently (German) printed newspapers’ core recipients (Mende, Oehmichen, and Schröter 2012)—platform replacement could indeed take place from a technical point of view. This is supported by the fact that those clusters with the lowest printed newspaper use (clusters 2, 3, and 5) are significantly younger compared to all mobile internet users. Both groups with high newspaper use (clusters 1 and 4) are older than the sample average. Therefore, the newspaper is potentially threatened by substitution, especially when looking at the younger generation of mobile internet users. Affected by these processes, especially print media organizations (but also broadcasting organizations) need to publish successfully on online platforms to reach their (old and new) audiences.

To provide insights into established media’s brand transfer to mobile platforms, we therefore examined mobile information sources. Established news organization’s cross-media strategies seem to be successful. In general, legacy media brands are frequently accessed and used via mobile devices. These results are commensurate with other studies comparing offline platforms and the internet in Germany (Hasebrink and Schmidt 2012; van Eimeren 2013; Neuberger 2012). However, there are differences. While newspapers transfer quite well to digital platforms, the online news content of television and especially radio stations is not mentioned very often as a main mobile source, except for the public television news broadcast Tagesschau. The reason might be seen in the products offered for mobile devices: print organizations already try to adapt their content to mobile usage situations and user’s needs for non-linear selective content such as short up-to-date news. Radio and television stations, however, mostly offer their core product (live streaming of audio or video) instead of on-demand news.
The leading position of *Tagesschau* underlines this, because this mobile television product offers more than video. It is a frequently updated multimedia news portal combining text, photo, and audio-visual content. These findings coincide with international comparative data showing that especially newspaper brands manage the digital transition quite well, while broadcasters have less relevance online (Reuters Institute 2013). Television stations in Germany have specific problems to adapt all of their content to mobile platforms, because restricted licenses often only allow the usage of content for the TV program. Furthermore, public broadcasters have been and still are cautious because of legal issues.

Evidently, offering content adapted to a new medium, however, requires greater effort than repurposing existing media products: the new platforms offer certain technical specifics, such as the timeliness or context sensitivity, necessitating profound changes in editorial offices affecting production routines, further education, and last but not least the development of what Alan Rusbridger, chief editor of *The Guardian*, calls “journalistic ideas that fit to mobile” (*The Hindu* 2010).

Considering the technical options and their utilization, mobile internet already has a specific profile for the recipients. Mobile internet users acknowledge the advantages of the new media platform by appreciating the ubiquitous access to information. This is also underlined by the fact that the majority uses it several times a day (59 percent). Therefore, mobile internet is indeed not only a platform of permanent availability, but also one that is always on. Context-awareness (situation or personal interest), however, is of minor importance. According to the lack of implementation of location-based news in journalism (Nyre et al. 2012), this could also be caused by a still insufficient experience with these new features.

Moreover, we compared the stability of place, time, and situation of news consumption. Traditional media platforms (as well as the computer to a lesser extent) are used in rather stable circumstances. Mobile devices show an outstanding profile; they differ significantly from all other platforms: their use tends to be highly flexible, used whenever there is a need for it. Therefore, it indeed opens up the possibility that “the right information will always reach the recipient at the right time and in the right place” (Wolf and Hohlfeld 2012, 86). These findings are underlined by the diversity of indoor and outdoor activities usually performed by respondents parallel to mobile news reception. This corresponds with other recent studies for general mobile internet use (Tomorrow Focus Media 2013).

Our results face some limitations. First of all, representativeness of the sample is restricted as the interviews do not cover the entire country; they were conducted in only two regions of Germany. But, as the two regions differ decisively in their structure, major biases are unlikely. Furthermore, our data are cross-sectional. Therefore, they cannot track changes within this rapidly changing field but merely hint on possible trends. The adoption process of mobile internet is still ongoing and therefore only longitudinal surveys can reveal changing priorities and replacements in the information repertoire. Thus, the results only provide insights into the information repertoire of a certain group of media users with a special affinity for digital media. Due to the adoption rate of 27 percent during the field period (Institut für Demoskopie Allensbach 2011), the sample consists mainly of early adopters and a small group of the early majority (Rogers 2003). Whether or not the usage patterns we found are valid for later media user types within the adoption process remains open.
To sum up, mobile devices are used multi-optionally and flexibly. They have the potential to replace other media platforms. Depending on the forthcoming development of mobile media news websites/apps and the ongoing adoption of the mobile devices, a replacement of offline news platforms might be possible for some topics and situations. However, our data suggest that established media organizations still maintain their position as institutions. However, the mere use of cross-media products via mobile devices will not solve the problem of digital business models. Future research should focus on factors such as the willingness to pay for mobile content.

The diversification of news sources also matters for the democratic functions of mass media information: as a consequence of the digitalization and content pluralization, audience fragmentation along with a potential polarization is discussed (Bächler and Bonfadelli 2012; Tewksbury and Rittenberg 2012). The fixed as well as the mobile internet offer an easy opportunity to shut out other (e.g., political) opinions. However, as mobile internet users still rely on established media brands, there is still a commonly shared information basis; and, although the number of news sources has increased, a core of media sources selected by the majority of users still remains.

The study contributes to an understanding of internet-equipped mobile devices as a platform for news and their role in information repertoires. The relevance of mobile devices can only be observed by taking into account all media sources regularly used by a person. Furthermore, the repertoire approach both on the platform and the content level leads to a better understanding of the success of established media organizations in cross-media and mobile publishing. Due to the rapidly growing number of users and its importance for traditional journalism in the future, this new mass medium should no longer be excluded in comparative media studies. Future research is needed to explore the role of the mobile internet in more detail and track changes during the subsequent adoption process.

NOTES

1. Screening criterion for the sample: usage of the mobile internet via browser/app within the last two weeks by one of the following mobile devices: cell phone, smartphone, tablet computer, MP3 player, or e-reader.
2. All respondents use the mobile internet (screening criterion). However, 4 percent do not access day-to-day information and news via their mobile device.
3. Spiegel Online originally is a weekly news magazine (Der Spiegel), bild.de is a daily tabloid newspaper (Bild).

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