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Transnational News Sharing on Social Media: Measuring and Analysing Twitter News Media Repertoires of Domestic and Foreign Audience Communities

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ABSTRACT

In digitized media environments, users can access news from all over the world. The internationalization of news consumption is intensified by social media like Twitter, as users share news from different countries. In our study, we combine the two strands of research about media repertoires as well as transnational news consumption. Switzerland is a compelling case with regard to transnational news consumption as media outlets in the three official languages, German, French, and Italian can reach audiences in the larger neighbouring countries of Germany, France, and Italy. To investigate transnational news consumption, we tracked URL shares of Swiss online news media websites for two months on Twitter. We then combined this data with the users' followee structures in the Twitter network ($n = 355,197$ tweets, $n = 64,170$ unique users) and inductively detected domestic and foreign audience communities with social network analysis. Thus, we were able to identify and compare the Twitter news media repertoires of domestic and foreign audience communities. Regarding transnational usage patterns, we show that especially quality media brands continuously reach audience communities in neighbouring countries.

KEYWORDS

Media markets; media repertoires; digital journalism; Twitter; social network analysis; online news; social media

Never before in history has journalistic content been so numerous and easy to access as today. Using the Internet, people can read an abundance of news from all over the world, almost in real-time and mostly for free (Schroeder 2018). Although people have consumed news through different sources for decades, for example through their local newspaper and television programs, a contemporary news consumer is very likely to use a much broader set of news sources. The media repertoires (Hasebrink and Domeyer 2012) of users are, thus expected to have grown and become more diversified in high-choice media environments (Van Aelst et al. 2017), an effect amplified by transnational news consumption (Nölleke-Przybylski et al. 2019; Thurman, Hensmann, and Fletcher 2020).

An important aspect of digitized high-choice media environments is that news consumption is not bound to geographical boundaries (Thurman, Hensmann, and Fletcher 2020) and thus becomes highly globalized. In the pre-digital area, the distribution of news (e.g., broadcasting or press) used to be much more strongly restricted to certain areas, especially national and regional territories. Nowadays, new websites potentially allow users from all over the world to read news from foreign media outlets. Social media have led to an even higher degree of internationalization, as news content is distributed and displayed through recommendation systems or algorithms on social media platforms (Myllylahti 2018). On platforms like Twitter, opinion leaders (Dubois and Gaffney 2014) can help to spread news stories as they can potentially reach many followers. The news companies exploit these new media consumption patterns. Digitization allows media outlets to reach new audiences beyond traditional geographical boundaries as the distribution comes at almost no additional cost for news organizations. Moreover, social media are used by media companies to market their content and gain new audiences.

In our study, we investigate domestic and foreign audience communities Swiss news media reach through Twitter. Methodologically, we propose the combination of social network analysis with digital trace data to measure Twitter news media repertoires. We show that while Twitter data has obvious limitations, it allows us to identify audience communities reached by a media outlet and compare the content of articles shared within these communities. As a major advantage, the tracking of URLs of Swiss online news media websites on Twitter can be used to identify foreign audience communities and analyse transnational news media usage patterns, for which usually limited publicly available measurements are available (Thurman 2014; Thurman, Hensmann, and Fletcher 2020). We illustrated the advantage of our method on article-level specifically with the case of a far-right audience community in Germany.

Conceptual Framework

Media Repertoires

The increasingly fragmented media consumption led to growing attention to the concepts of media repertoires or media diets by researchers. However, already by the 1990s, the concept was applied with a focus on television to analyse channel repertoires (Ferguson and Perse 1993; Reagan 1996), which were defined as “the number of available channels that viewers choose to watch” (Ferguson 1992, 83). Following the fragmentation of media usage over different channels, attention shifted towards measurements of cross-media patterns, thus, establishing the term media repertoires. In this context, Hasebrink and Popp (2006) analysed how “media users combine different media contacts into a comprehensive pattern of exposure [and developed] a repertoire-oriented approach which focuses on how people combine contacts with different media and different kinds of content” (369). However, most studies implicitly or explicitly analysed news media consumption and not general media usage (e.g., for entertainment). Many researchers, therefore, speak of news (media) repertoires (Edgerly 2015; Schneider and Eisenegger 2018; Lee and Yang 2014; Swart, Peters, and Broersma 2017). Recent studies used segmentation approaches, which were often data-driven,

for example, cluster analysis, to identify different repertoire types (e.g., Hasebrink and Hepp 2017). They usually resulted in ideal types of user groups based on different characteristics, like the interest in news, e.g., news avoiders versus news omnivores or news seekers (Edgerly 2015; Lee and Yang 2014), topical interest, for instance, nationally oriented versus locally oriented (Swart, Peters, and Broersma 2017) or political orientation, for example, liberal versus conservative (Edgerly 2015). Other studies use the media repertoire approach for specific content types. Metag et al. (2018), for example, distinguish, among others, between active seekers and passive consumers of science information. Newer studies consider online and offline media usage or new media when measuring repertoires (Andersen, de Vreese, and Albaek 2016; Haim, Graefe, and Brosius 2018; Lee and Yang 2014; Schmidt et al. 2019). For instance, Lee and Yang (2014) distinguish between emerging news seekers, who preferably consume news on social media, and traditional news seekers, who rely on legacy media like the press or television for information.

Measuring Media Repertoires in a Digitized Media Environment

Digitization and the rise of social media platforms have fundamentally changed the way people consume news (Nielsen and Ganter 2018). It has led to high choice media environments in which people are facing ample content and can or must select their news diet (Schröder 2015). Recent research on digital media consumption has been criticized for being too static (Etter, Ravasi, and Colleoni 2019), often relying on self-reported data (Prior 2009; Taneja et al. 2012) and usually limited to one (domestic) market (for an exception see Fletcher and Nielsen 2017). Scholars have therefore begun to pursue innovative small-scale qualitative research designs, for instance, with sorting techniques (Schröder 2019), media diaries (Hasebrink and Hepp 2017), think-aloud protocols, and day-in-the-life-interviews (Swart, Peters, and Broersma 2017), as well as in-depth interviews (Toff and Nielsen 2018) partially in combination with group discussions (Schmidt et al. 2019). To tackle the challenge of measuring digital media repertoires with quantitative approaches, often comScore data were used (Nelson and Webster 2017; Majó-Vázquez, Nielsen, and González-Bailón 2019). The company comScore tracks users' online behaviour and reports monthly statistics for websites (Nelson and Webster 2017; Thurman, Hensmann, and Fletcher 2020). However, although solving the problem of self-reporting, the comScore data are still on the outlet level, and no information about individual users is available. The challenges of the fragmented media environment led to more elaborate methods for representative surveys like Moehler and Allen (2016) media diet imbalance score (MDI) or the approach by Andersen, de Vreese, and Albaek (2016) with list frequency technique, which takes into account the specific source and the frequency of exposure. However, the reliance on large scale survey data still results in a static picture of media repertoires. Moreover, while tracking approaches capture dynamic processes, they still typically measure outlet level data (Jürgens, Stark, and Magin 2020; Scharkow et al. 2020) and are rather intrusive for participants.

To understand the dynamic processes at work during media usage in the digitized environment, researchers also turned to data from social media platforms to study media repertoires. Schmidt's (2016) study on Twitter friend repertoires is especially

notable because it explicitly links Twitter with media repertoires. Schmidt (2016, 1) analysed “the distinct patterns in the combination of sources people follow on Twitter” and was interested in the compositional aspect of information sources on Twitter. He argued that although the focus on a single platform might contradict the principle of the *entirety* of media repertoires, “Twitter is in itself a platform for countless different channels, i.e., Twitter accounts, from which a user actively selects” (Schmidt 2016, 1). A recent example is the innovative study by Eady et al. (2019), for which the authors combined survey data with Twitter data to analyse whether respondents live in political bubbles on social media.

Research Interest and Research Questions

With our study, we want to connect to the existing media repertoires research and develop it further. We utilize the sharing of URLs of news media articles on Twitter as a proxy for corresponding news media usage. Information about the users on Twitter, which is either self-disclosed by the user in the account information or retrieved from the latent network structures, is used to characterize the audience. The distinction between domestic and foreign audiences (done from the perspective of the Swiss media outlets) allows us to connect our findings to the existing transnational media usage research. The contribution of our empirical study is fourfold. First, we use the URLs of articles shared on Twitter together with followee networks to identify audience communities of Swiss news media inductively. Second, we aggregate the individual media consumption on the level of audience communities and show a distinct *Twitter news media repertoire* for every *audience community*. Third, we compare the Twitter news media repertoires of the foreign audience communities with regard to transnational usage patterns. Fourth, we also analyse the temporal dynamics of the Twitter news media repertoires for the foreign audience communities: This approach allows us to evaluate whether the transnational usage patterns are stable or just incidental. Furthermore, our approach allows us to analyse the specific repertoires for an audience community on article-level. We thus advance the typical approaches used in media repertoires research that measure the repertoires on outlet level.

Of course, our approach has some caveats. The most significant limitation is that we can only measure news media repertoires on Twitter. Furthermore, the Twitter population does not represent the general population, and we have to be careful with generalizations based on our data (Mellon and Prosser 2017). Still, the approach has four major advantages compared to more traditional methods. *First*, as the segmentation is based on manifest user data within the network, it is not sensitive to imperfect recall or deliberate incomplete disclosure of information by users, for example, when studies focus on sensitive issues (social desirability). *Second*, we are able to gather data on media usage easily for more than one point in time. As followee network structures are relatively stable over time (Bruns and Moe 2014), we can measure changes in Twitter news media repertoires at any given time for which data is available. This is a major advancement, as media repertoires measured with surveys are, at most, valid for the exact day when the survey took place. *Third*, digital trace data from social media platforms like Twitter allow us to measure media repertoires at large

scale on the level of single media articles and the outlet level. *Fourth*, in contrast to surveys which mostly measure domestic media usage and, at best, the consumption of foreign media by the same population, the proposed method discussed in this article is applicable to measuring transnational media usage for multiple countries (Thurman, Hensmann, and Fletcher 2020).

As we have described above, we propose an inductive approach in order to identify audience communities. We have certain expectations based on prior research that has analysed Twitter networks in the Swiss context (Arlt, Rauchfleisch, and Schäfer 2019; Metag and Rauchfleisch 2017). In 2018 only 6% of the Swiss population used Twitter, which is similar for Germany (5%) and moderately higher for France (9%) and Italy (10%) (Reuters Institute for the Study of Journalism 2018). News usage on Twitter, thus, can not be regarded as representative of the general population of a country. Instead, especially in Switzerland, Twitter is often referred to as an elite network (Rauchfleisch and Metag 2016) due to its above-average adoption rates among professional communicators like politicians, journalists, campaigners, or scientists and accordingly a focus on hard news topics like politics, economy, and science.

Homophily (McPherson, Smith-Lovin, and Cook 2001) has a strong influence on followee relations on Twitter, and we expect homogenous and coherent audience communities for the Swiss Twitter-sphere (e.g., language as defining element). However, more importantly, because of homophily in our Twitter followee networks, we expect to identify domestic audience communities and foreign audience communities located in neighbouring countries, and maybe even audience communities abroad in countries without a direct connection to Switzerland with regard to language and culture when using follower relations to identify them. Identifying these distinct domestic and foreign audience communities allows us to evaluate the potential reach of Swiss media outlets (Thurman, Hensmann, and Fletcher 2020).

On a conceptual level, our study combines media repertoire research with research on transnational news consumption. We want to identify audience communities of Swiss news media (RQ1) with their distinct Twitter news media repertoires (RQ2). We then investigate transnational news sharing of foreign audience communities (RQ3) and analyse whether this usage within the foreign audience communities is stable or just incidental (RQ4). Hence, we want to answer the following four interconnected research questions:

RQ1: What audience communities can be identified for Swiss news media on Twitter?

RQ2: What Twitter news media repertoires can be identified for the audience communities of Swiss news media?

RQ3: Which transnational news sharing can be identified when looking at the Twitter news media repertoires of foreign audience communities of Swiss news media?

RQ4: Which temporal dynamics can be identified when looking at the Twitter news media repertoires of the audience communities of Swiss news media?

The Case of Switzerland

We select Switzerland as a case because of its multilingualism as well as the special situation of larger media markets using the same language in their neighbouring

countries. One of the main factors that distinguishes Switzerland from other countries is its small media market (Künzler 2013). The market size is further reduced as it is segmented by three larger language regions. The German, French, and Italian speaking parts of Switzerland can be characterized as (sub)media markets of their own.¹ As a small state, Switzerland and its media system are also influenced by neighbouring countries with larger markets and larger media companies, so-called next-door giants (Künzler 2013). For Switzerland, this means that the language regions have strong ties to and are influenced by the German, French, and Italian media markets.

Producing news in a non-dominant multi-language country (von Rimscha et al. 2019) like Switzerland comes with advantages and disadvantages. On the one hand, Swiss media companies can cost-efficiently disseminate their news (e.g., translation is not required) into the neighbouring countries of Germany, France and Italy, all of which have substantially bigger markets. On the other hand, larger foreign media companies with more resources can vice versa enter the Swiss market without any major issues. Nölleke-Przybylski et al. (2019) show in their study, that in the case of non-dominant-language countries such as Switzerland, media companies focus on a limited number of markets and try to reach audiences in neighbouring countries with “an emphasis on core activities with cautious diversification of product portfolios” (142). As transnational usage of news has become much easier in a digitized media environment, some media companies are increasingly internationally orientated and started to increase their reach beyond the Swiss borders (Künzler 2013).

Switzerland is also a highly digitized media market. Websites have become the most important news source for the Swiss population: For 38% of the population, websites are the main source for news (Reuters Institute for the Study of Journalism 2018). Although only 12% rely on social media as their main source, for young people between 18 and 24 years old, this value is already 24% (Reuters Institute for the Study of Journalism 2018). Additionally, most people use social media for news on a regular basis, although it is not their main source. Among social media channels, Facebook is the most used source for news (33%), whereas the adoption rate of Twitter for news is rather low (6%). However, since a lot of opinion leaders such as journalists, politicians, and scientists are on Twitter, the platform has its relevance in the agenda-setting processes (Metag and Rauchfleisch 2017). Additionally, Twitter allows researchers access to data through their API with very few restrictions, which is not the case for Facebook. On Facebook, for example, it would not be possible to get the friend relations between users that have shared a URL of a Swiss media outlet. The choice of Twitter for this study is, thus, also due to practical research reasons.

Data and Methods

Our analysis consisted of three main steps; the selection of users based on URL-shares of Swiss news media, the allocation of these users to audience communities based on their follower relations, and the aggregation of the individual news consumption to Twitter news media repertoires for the identified audience communities (see Figure 1). To answer our research questions, we collected tweets that shared a link to a news article on a Swiss news site. We tracked URLs of 164 news sites (top news sites in

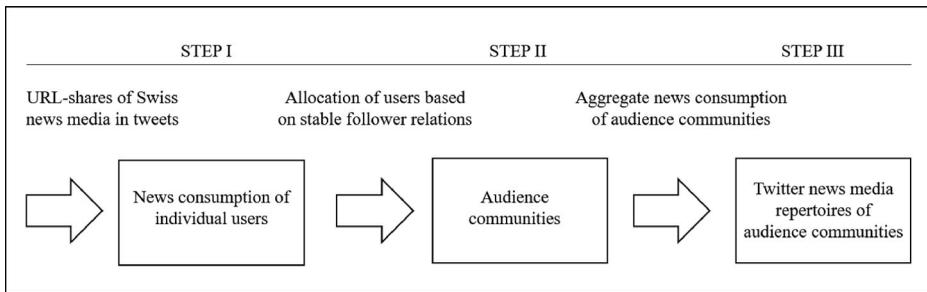


Figure 1. Workflow of the methodological approach.

Switzerland by reach; source: Net-Metrix 2018) via the Twitter stream and search API for two months in August and September 2017, resulting in a dataset of $n = 512,861$ tweets after cleaning the data.² Every reply, retweet, quoted tweet, and normal tweet with a URL of one of the Swiss news outlets in our sample was captured. We have chosen August and September 2017 as months for our data collection because the German federal election took place during that time. The election day was 24. September 2017. Because Switzerland has strong economical and political ties with Germany, we expected that Swiss media will cover the German elections regularly and, also due to their reporting in German language, might serve as an additional source of information for German recipients. We, thus, anticipated that it would be possible to capture transnational news sharing during these two months. As a first step, we had to unshorten a large number of URLs with an R-script we wrote for this purpose. As we tracked the mobile page, homepage, as well as the e-paper URLs for all the media outlets, we merged them before we continued with our analysis. We then decided to analyse the 25 most shared news outlets during the two months. Our final data set consists of 355,197 tweets from 64,170 unique users.

Immediately after we finished our tweet data collection, we started to download the followee relations (whom they are following) for all users in our data set over the Twitter API.³ Our user sample consisted of individual as well as organizational accounts, for instance, of news media organizations or political parties. This allowed us to create a followee network to identify user communities, which we refer to as audience communities of the analysed Swiss news media. For the identification of the audience communities, we solely rely on follower relations. We do not consider whether there is an interaction between the users concerning the shared news media content. This provides us with the advantage to analyse stable audience communities and, conceptually as well as empirically, separate them from temporally limited interactions of users with media content. Even though the latter would be an interesting case as well, our approach allows us to analyse how media consumption of audience communities evolves over time.

We analysed all existing followee relations between the 64,170 users. In order to identify the audience communities, we used the infomap algorithm (Rosvall, Axelsson, and Bergstrom 2009) implemented in the R-package *igraph* (Csardi and Nepusz 2006). The infomap algorithm is a flow-based method for directed networks that groups nodes together by using a random walker (Rosvall, Axelsson, and Bergstrom 2009).

Nodes that are grouped together are closer to each other based on their followee relations as they follow each other. For a visualization of the followee network, we first used a k-core reduction that only keeps nodes that are followed by a large number of other users and then visualized the network in Gephi by using a different colour for each identified audience community (see [Figure 4](#)). The visualization helped us to understand the overall structure of our network.

We then calculated for each audience community the share of users in that community that shared an URL of an outlet in our sample. This combination of two data sets allowed us to segment the users based on their followee relations and then calculate the Twitter news media repertoire for each of the identified audience communities. While we mainly focus on the outlet level in the first part of our analysis, we also have access to article URLs and use that information to find labels for each community. We additionally downloaded the content of some articles for our third research question as we wanted to further distinguish the media repertoires on the article level for some of our communities.

As we are interested in transnational usage patterns, we additionally have to identify the location of users that share URLs of Swiss media outlets. The communities of the different language regions in Switzerland are likely to have strong ties to the communities in their respective neighbouring country. As the period of investigation included the German federal election (Bundestagswahlen), the ties between the German communities and the German-speaking Swiss communities were of special interest. We thus investigated whether a user in these communities is most likely Germany- or Switzerland-based by using a regex pattern, which consisted of a list of Swiss, German, French, Austrian, and Catalan cities as well the name of the country and nationality.⁴ The regex pattern was applied to the self-described location field as well as the description of the account. We additionally checked the URL added by users to their profiles if available and identified whether it contained a .ch (Switzerland), .de (Germany), .it (Italy), .fr (France), .at (Austria) or .es (Spain) domain name. This procedure allowed us to identify the location of a user.

To account for the temporal dimension of our data, we constructed different indicators. We calculated 1) the percentage of users in an audience community actively sharing URLs in both months and 2) the diversity of news outlets a user shared on average in both months. As the last step, we accessed some of the most shared articles by two of the audience communities and automatically downloaded the content of these articles to conduct simple text mining.

Results

We will first look at the number of shared URLs per media outlet independently of audience communities. Then we will present and discuss the identified domestic and foreign audience communities and their Twitter news media repertoires followed by an analysis of the transnational consumption patterns of foreign audience communities, and if these patterns are stable over time or incidental. In a final step, we illustrate how our data can be analysed on the article-level by comparing the content of the 100 most shared articles of the most shared outlet *Neue Zürcher Zeitung (NZZ)* in

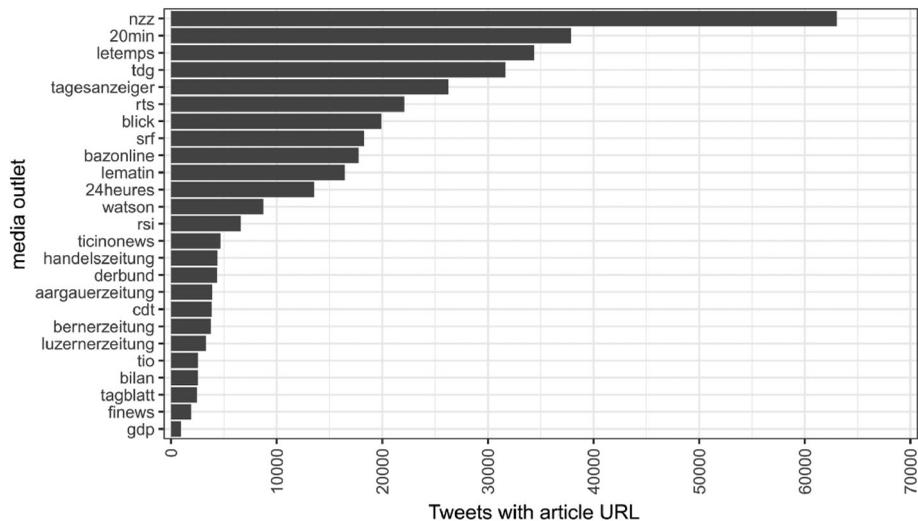


Figure 2. Ranking of the 25 most shared news outlets.

the far-right community in Germany and the German-speaking Swiss mainstream community.

Most Popular Swiss Media Outlets

Considering the typical background of users on Twitter, the ranking of the most widely shared Swiss media on Twitter was hardly surprising (see Figure 2). The social network is often used in a professional context, especially by journalists, politicians, and scientists (Rauchfleisch and Metag 2016). The articles from *Neue Zürcher Zeitung* (NZZ), an internationally renowned Zurich-based quality media outlet, were the most shared in our sample. It was followed by the free newspaper *20 Minuten*, which publishes articles in French and German under the same domain name (20min.ch). In the third place was the French-language quality media outlet *Le Temps* (see Figure 1). The articles of the more regionally focused outlets *Tribune de Genève* (tdg.ch), *24 Heures* (24heures.ch), and *Tages-Anzeiger* (tagesanzeiger.ch), the news sites of the public service broadcaster in French (rts.ch) and German (srf.ch) and the tabloid media *Le Matin* and *Blick* were also often shared on Twitter. Among the regional media, the *Basler Zeitung* occupied a special position. Their articles were shared much more often than articles of comparable regional news sites such as *Aargauer Zeitung*, *Berner Zeitung*, or *Luzerner Zeitung*. We will further investigate the reasons for this difference later.

Domestic Audience Communities

As the next step, we analysed the followee network. We identified 1614 distinct audience communities in the followee network with the infomap algorithm (Rosvall, Axelsson, and Bergstrom 2009). We decided to focus on the 15 largest and most relevant audience communities for our analysis (41,703 users, 65% of the total sample). To

label the communities, we systematically reviewed the most popular accounts in each community, at least ten of the most shared articles, as well as the network visualization (see [Table 1](#) for an overview). The position of the communities in the network and the connections between the communities were helpful for interpreting the results of the network analysis. For all 15 communities, we determined whether they were domestic (i.e., predominantly consisted of Swiss users) or foreign (i.e., primarily consisted of non-Swiss users).

For the 15 largest and most relevant communities, we investigated which media were the most popular (see [Figure 3](#)). The largest audience community in our sample was the *German-speaking CH* community (90.3% users Switzerland-based, 3.4% Germany-based), which was mainly interested in domestic politics and mostly shared articles from *NZZ* and *Tages-Anzeiger* (see [Table 1](#)). Articles about the national pension fund (AHV) and environmental issues such as the glacier shrinkage were the most shared. In the Swiss case, the communities can be mainly distinguished by the language region. We identified a specific community for the Italian-speaking part of Switzerland (*Ticino*, 82.7% Switzerland-based users, 10.5% Italy based) with the public broadcaster *RSI* and the news site *ticinonews.ch* as the most popular media outlets. For the French-speaking part of Switzerland (*Romandy*, 88.3% Switzerland-based users, 5.8% France-based), we found a community with the *Tribune de Geneve* (*tdg.ch*) and *Le Temps* as the most popular media outlets. The Italian and French-speaking audience community also focussed on domestic politics. A report on Pierre Maudet's Federal Council campaign, an article on publication pressure in science and an article about fake news were the most widely shared in the *Romandy* community. In the *Ticino* community, the election of Ignazio Cassis into the Federal Council and a landslide in the village of Bondo were the most popular articles. In addition to the three large Swiss communities, two thematically focussed Swiss communities on sports and finance could be identified. The three Swiss mainstream communities are strongly tied together in the network, indicating a rather homogenous Swiss Twitter-sphere despite linguistic separation (see [Figure 4](#), communities in the upper right corner).

Foreign Audience Communities

We could identify large mainstream audience communities for the neighbouring countries of Germany, Austria, France, and Italy, which shared the contents of the Swiss media outlets tracked on Twitter (see [Figures 3 and 4](#); [Table 1](#)). These foreign mainstream communities typically contained accounts from news media organizations and journalists, or politicians from centre parties. In the network, they were strongly connected through follower relations to the domestic Swiss communities with the same language. In the visualization, we saw, for instance, that the TV channel *TV5Monde*, which is part of the French mainstream community, had close ties to the account of the French-speaking Swiss public service broadcaster *RTSInfo*. For language reasons, these communities shared the media of the respective language region of Switzerland. The communities predominantly shared articles from the *NZZ* (*Mainstream GER*, *Austria*), *Le Temps* (*France*), and *tio.ch* (*Italy*). The *Mainstream GER* (74.9% Germany-based and 3.9% Switzerland-based) and *Mainstream France* (77.3% France-based users

Table 1. Overview of the audience communities. For the diversity score the mean and standard deviation (in brackets) are reported.

Name of audience community	Most shared media outlets by unique users	Most shared article	Popular user	Language	User	Unique urls	Shared urls total	Diversity score	Users active in both months
German-speaking CH	40% nzz.ch/ tagesanzeiger.ch 37%	Why the young generation needs the AHV/ "The young generation also benefit from the current reform"/ How the Swiss glaciers melt away in 160 years Have the Germans forgotten how to quarrel?/ Bertelsmann whitewashes the integration of Muslims in Germany/ Third World Country Germany	Neue Zürcher Zeitung	de	8697	40630	91160	2.28 (2.07)	43%
Mainstream GER	63% nzz.ch/ tagesanzeiger.ch 17%	The longest night of Stanislav Petrov/ Director of "The City of Fear," Alain Berberian passed away/ Anti-Trump song "Wicked Man" by Joan Baez becomes viral	Grueene Bundestag	de	7054	10124	23517	1.45 (1.08)	24%
Mainstream France	61% letemps.ch/ tdg.ch 22%	"Publish or perish," when science puts researchers under pressure/The bold charge of Pierre Maudet/ Teach the fake news to the children, new challenge of the school	TV5MONDE	fr	3597	4297	8568	1.26 (0.72)	15%
Romandy	45% letemps.ch/ 43% rts.ch	The refugee costs are a German taboo topic/ Bertelsmann whitewashes the integration of Muslims in Germany/She sowed wind and harvested storm London wants the end of free circulation in 2019/ WikiLeaks exposes the	RTSinfo	fr	3803	34646	59568	1.91 (1.58)	39%
Far-Right GER	76% nzz.ch/66% bazonline.ch		AFD	de	3904	5992	37461	2.51 (1.83)	53%
Far-Right France	43% tdg.ch/ 37.4% letemps.ch		Florian Philippot	fr	2620	5417	10262	1.66 (1.15)	27%

(continued)

Table 1. Continued.

Name of audience community	Most shared media outlets by unique users	Most shared article	Popular user	Language	User	Unique urls	Shared urls total	Diversity score	Users active in both months
Catalunya	61% rts.ch/ 24% tdg.ch	Macron campaign/Children of migration become a minority among young people Swiss parliamentarians send a letter on Catalonia to Madrid/The Catalans decide on their independence/ Alfred de Zayas: "It is necessary to let the Catalans speak"	Carles Puigdemont	ca	2521	413	3722	1.28 (0.72)	4%
Sport CH	25% srf.ch/ 16% blick.ch	Johan Djourou, story(i.e.s) of a transfer/A goal scorer born in the year 2000: This is the HC Bienne 2.0/ Hischier: With Federer's congratulations in the luggage	Lara Gut	de	973	7694	9898	1.65 (1.38)	28%
Austria	71% nzz.ch/17% tagesanzeiger.ch	Have the Germans forgotten how to quarrel?/ Orban's fight against the investor Soros is becoming increasingly absurd/Boy (4) killed – how dangerous are children bicycles?	Armin Wolf	de	864	1251	2242	1.37 (0.92)	24%
Swiss Finance	45% nzz.ch/ 34% fnews.ch	The cheapest Robo-Advisors in Switzerland/Robots are now taking over the stock market transactions/These are the biggest Robo-Advisor in the world	Fintech Switzerland	de	831	2567	4272	1.76 (1.41)	30%
France Football	62% letemps.ch/ 17% tdg.ch	The longest night of Stanislav Petrov/Gabriel Paulista at Arsenal, error 404/Lucien Favre resigns	Didier Roustan	fr	729	471	1122	1.12 (0.44)	9%

(continued)

Table 1. Continued.

Name of audience community	Most shared media outlets by unique users	Most shared article	Popular user	Language	User	Unique urls	Shared urls total	Diversity score	Users active in both months
Ticino	54% rsi.ch/ 35% tio.ch	Cassis in the Federal Council/The devastation over Bondo/The Swiss trust the media	Filippo Lombardi	it	650	11417	14449	2.05 (1.8)	40%
EU	58% nzz.ch/ 11% letemps.ch	The success of AfD – explained with graphics/How should Europe deal with Russia? German hypocrisy	Andrew Stroehlein	en	391	512	741	1.21 (0.69)	13%
Alt-Right	64% 20min.ch/ 13% nzz.ch	Hate preacher collects 600,000 Fr./20 years in prison for brutal honour killings/Raped – woman screamed in vain for help Germany is sending migrants back to Italy/Swiss beekeepers in alarm: “Too much intoxication”/If you don’t want the rabbit anymore you can feed it to the beasts of the zoo	–	en	821	322	1211	1.11 (0.48)	10%
Italy	41% tio.ch/ 27% cdt.ch		–	it	692	1495	1986	1.35 (1)	15%

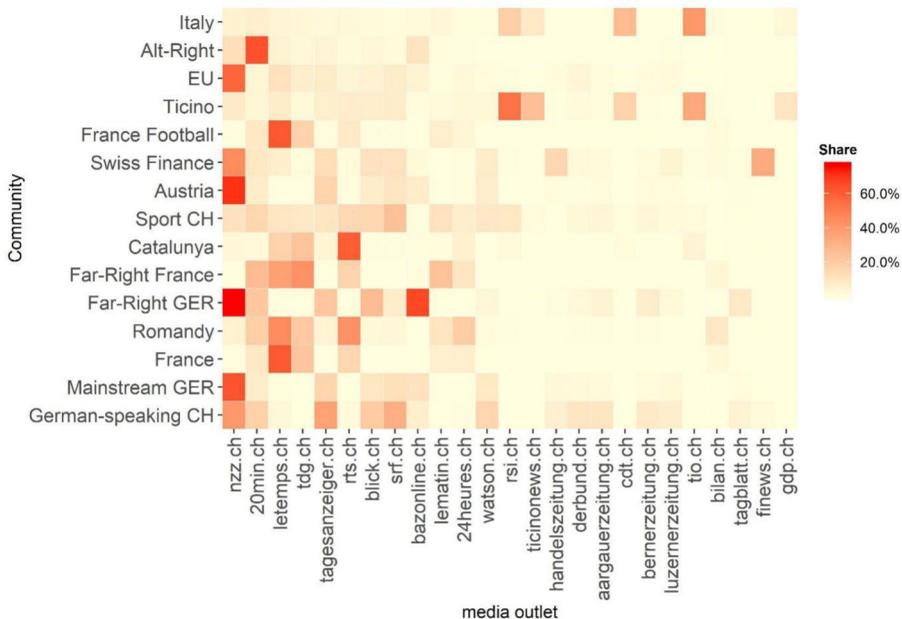


Figure 3. Twitter news media repertoires per audience community. The figure shows the share of unique users in a community that shared a media URL at least once. 100% means every user in a community has shared a media outlet at least once.

and 1.9% Switzerland-based) community were particularly interested in the perspectives of Swiss media concerning their domestic political issues (Bundestag election in Germany and the Macron government in France). The relatively smaller *Austria* community (87.1% Austria-based users, 2.5% Switzerland-based) mainly shared articles on German politics or Islam-critical articles, probably also due to a lack of articles on Austrian topics in Swiss outlets. We could not identify a clear political focus in the *Italy* community (73.8% Italy based users, 4.3% Switzerland-based), although the most popular news article was a report in the outlet *Corriere del Ticino* on the impact of German refugee policy on Italy. As an additional foreign community, we found a non-language segmented *EU* (18.9% Germany-based, 5.4% Switzerland-based, 1.7% Italy based, 4.5% France-based, 4.5% Austria-based users) community. Users in this community shared articles about the relationship between Europe and Russia or the international commodity trade.

In the German case, the *Mainstream GER* audience community could be distinguished from the *Far-Right GER* (identified 55.1% Germany-based, 5.8% Austria-based and 4.8% Switzerland-based) community.⁵ While both communities were German, they were clearly different with regard to their political orientation as the position in the network showed (see [Figure 4](#)) as well as the most popular users indicated (see [Table 1](#); the far-right party AfD – Alternative for Germany for the *Far-Right GER* and the left-wing Green Party for the *Mainstream GER*). A similar pattern could be observed with the two largest French communities (*France*, 78.2% France-based users, 1.9% Switzerland-based; *Far-Right France*, 69.7% France-based, 3.5% Switzerland-based). In

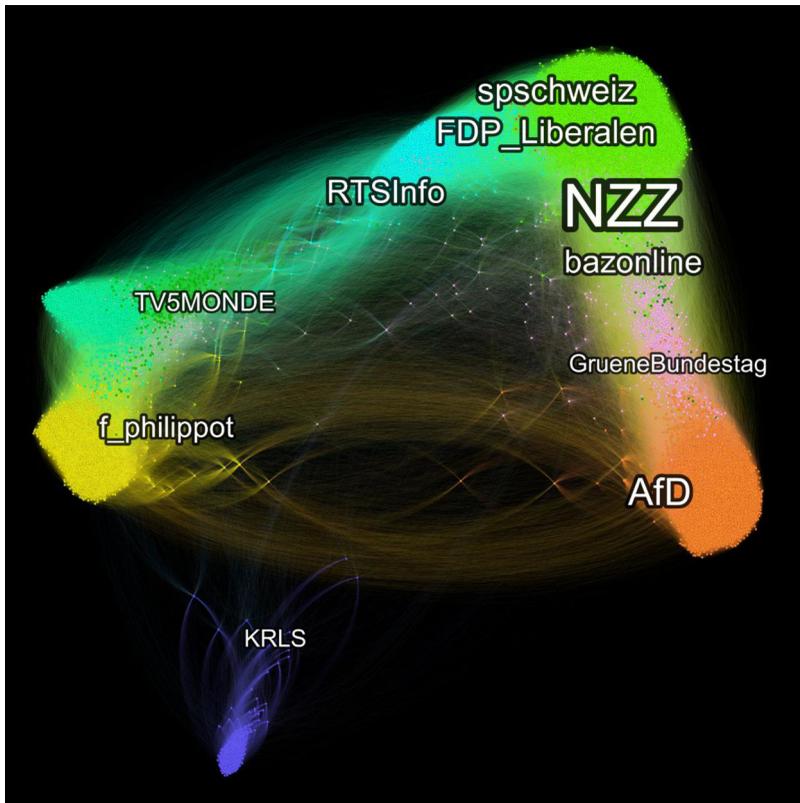


Figure 4. K-core reduced followee relations network of the 64,170 users that at least once shared a URL of a Swiss media outlet. Left: Audience communities in France (yellow = far-right, main-stream = green); top: Swiss audience communities from all three language regions; right: audience communities in Germany (orange = far-right, pink = mainstream); bottom: Catalunya audience community. For the layout we used ForceAtlas2 in Gephi. Labels for some of the most popular users in the audience communities are shown.

both cases (Germany and France), the far-right communities were more remote to the Swiss communities in the network (see Figure 4). In addition, more connections between the two far-right communities in the network existed than between the French and German mainstream community. Supplementary to the large communities in France, we identified the *France Football* (73.0% France-based users, 4.6% Switzerland-based) community in which users mainly shared articles from *Le Temps* and the *Tribune de Genève* about financial fair play or video referee systems.

What stood out in our analysis were three foreign politically oriented foreign audience communities. First, the federal elections in Germany were frequently the subject of Swiss media coverage during the investigation. User communities in Germany, therefore, shared many articles from Swiss media on Twitter. The *Far-Right GER* community with many AfD politicians was particularly active. Articles scrutinizing Angela Merkel (e.g., *Basler Zeitung*: “Resignation of Angela Merkel is overdue”), criticizing Islam (e.g., *NZZ*: “Bertelsmann whitewashes the integration of Muslims in Germany”) or expounding the problems of the refugee crisis were particularly popular (e.g., *Basler*

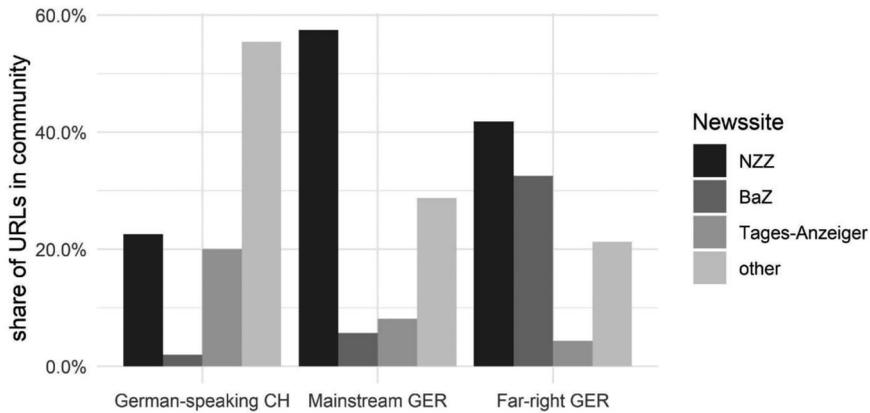


Figure 5. The share of Swiss news sites in the German-speaking CH, Mainstream GER and Far-right GER communities. The category “other” contains the other 22 news sites besides the NZZ, the *Basler Zeitung*, and the *Tages-Anzeiger*.

Zeitung: “Sexhooligans from Hindukush”). The ten most-shared contributions in this community are all from the *Basler Zeitung* or the NZZ. Therefore, we checked the share of tweets in the two German audience communities as well as the *German-speaking CH* community for the NZZ and the *Basler Zeitung* (see Figure 5). NZZ and *Basler Zeitung* were the most shared media in the two German-speaking communities. While the NZZ was an important news outlet in all three communities, the relative share of the *Basler Zeitung* was comparatively high in the *Far-Right GER* community but almost neglectable in the *German-speaking CH* community. In other words, the NZZ got shared by every community, whereas the *Basler Zeitung* owed its high tweet volume mainly to transnational reach to the *Far-Right GER* community. As a benchmark, we analysed the mid-market outlet *Tages-Anzeiger*, which like the *Basler Zeitung*, is a regional news outlet. As the outlets focus on larger urban regions of Zurich (*Tages-Anzeiger*) and Basel (*Basler Zeitung*) in their coverage and even share some of their content due to editorial cooperation, one would expect similar results with regards to foreign audience communities. However, our analysis yielded an interesting difference which can be explained with the editorial profile of the two outlets. When it comes to political news, the *Basler Zeitung* usually takes a right-wing stance, whereas the *Tages-Anzeiger* is oriented to the centre-left. As a result, the *Tages-Anzeiger* was slightly more important than the *Basler Zeitung* in the *Mainstream GER* community but got less shared in the *Far-Right GER* community. The articles of the *Basler Zeitung* thus seem to be of special relevance to the German far-right community.

Second, another interesting case was the *Catalunya* community (86.1% Catalunya/Spain-based users and 1.6% Switzerland-based). Users of this community started to share French-language articles from Swiss media outlets at the end of September. The most successful was an article by *RTS* reporting on the open letter from Swiss parliamentarians to the Spanish government. The community shared rather few contributions, an indication that the Swiss media was just one of many sources on Twitter. One of the main reasons why the tweets with stories from Swiss media outlets went viral was then-President of Catalunya Carles Puigdemont (@KRLS), who shared Swiss

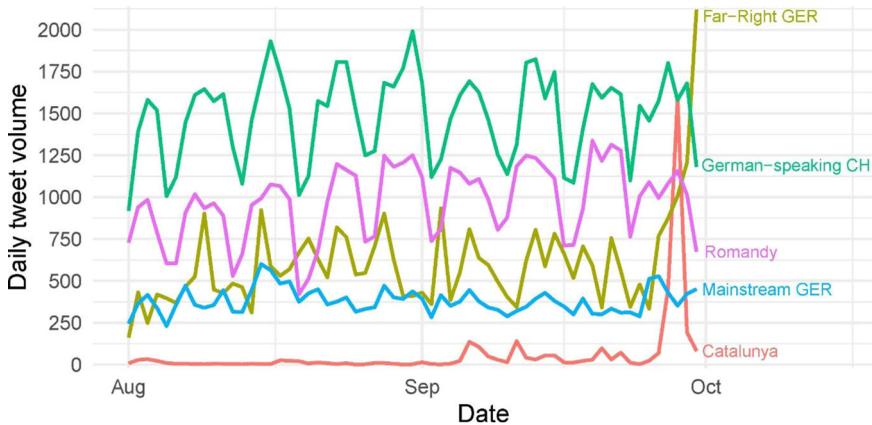


Figure 6. The figure shows the daily amount of tweets in which articles from Swiss news media were shared for selected audience communities.

media URLs in his tweets. Otherwise, the *Catalunya* community had very weak ties to the other communities in the network (see Figure 4).

Third, even language barriers were no obstacle to the dissemination of content. Swiss media were also shared by a predominantly English-language foreign audience community, the *alt-right* community (mostly US-based users and some UK-based users). The most popular Swiss articles in this rather small community all originated from *20 Minuten*. At first glance, this result was surprising, since most users in this community had English as account language and showed no connection to the German language. However, the short articles, mostly on violent crimes with foreign perpetrators (e.g., with the headline “raped – woman screamed in vain for help”), were translated and shared directly with Google Translate. Accounts creating and spreading these tweets were against Islam, refugees, and the EU. Apparently, the Swiss outlet *20 Minuten* was tracked by one of these accounts in this community. It is noticeable in this community that some accounts showed signs of highly automated behaviour.

The Temporal Dimension

The importance of the Swiss media for the analysed audience communities was not always constant over time. While the domestic Swiss communities regularly and consistently shared articles, the volumes for the foreign communities were subject to greater fluctuations (see Figure 6). Due to the larger target audience abroad, a massively higher reach could occasionally be achieved if a single article went viral. As a result, the number of shares in foreign communities on specific days was higher than in the large Swiss communities. Towards the end of the investigation period, higher daily volumes were measured for the *Far-Right GER* and the *Catalunya* community than for the corresponding Swiss communities in the language regions of the shared media outlets (see Figure 5). This was due to an editorial by *Basler Zeitung* editor-in-chief Markus Somm (30.9.2017), who criticized Angela Merkel (Quote: “Actually, Angela

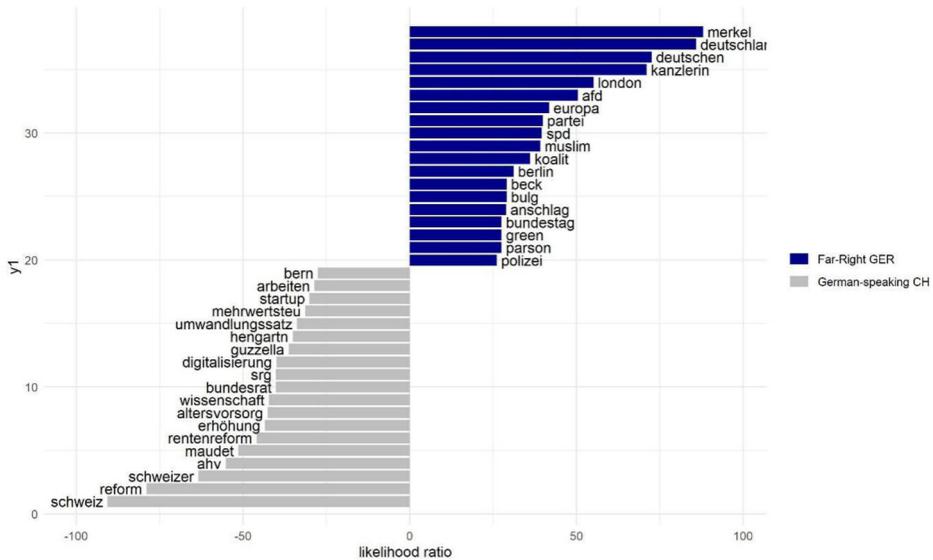


Figure 7. The most over-represented words (keyness – x-axis with likelihood ratio) for the 100 most popular NZZ articles in the *German-speaking CH* (left – negative likelihood ratio) and the *Far-Right GER* (right – positive likelihood ratio) community. All words $p < .05$.

Merkel has been voted out. All feel that. Only Angela Merkel does not”) and the already mentioned article about the Catalan independence of *RTS* (27.9.2017)

The different metrics that were calculated illustrate the consistency of the Swiss audience communities compared to foreign audience communities. The Swiss communities had the highest number of users that were active in both months (see [Table 1](#)). An exception was the *Far-Right GER* community, in which 53% of the users were active in both months. However, the other international communities all showed an extremely low overlap between the two months (e.g., Catalunya 6% or France Football 9%). They also had a lower Twitter news media repertoire diversity score. Only the topic-specific Swiss communities also had an equally low diversity score (e.g., *Swiss Finance* 1.76 and *Sport CH* 1.65). In conclusion, the foreign audience communities only occasionally shared single articles when they cover a specific topic. In contrast, the domestic Swiss audience communities used a more diverse Twitter news media repertoire (see [Table 1](#) – diversity score).

The Content Dimension – The Case of the German Far-Right Community

While traditional approaches measure media repertoires on the outlet level, our data allow us to analyse the repertoires on article level. Therefore we additionally compared the *Far-Right GER* community and the *German-speaking CH* community as they both have the NZZ as the most popular news outlet. We thus specifically compared the most shared NZZ articles for both communities. We wrote a script in R that accessed the top 100 NZZ articles for both communities through the tracked URL, extracted all the paragraphs of the articles, deleted stopwords, reduced the words to their stem, and then compared the two text corpora with regard to the overrepresentation of

words (see [Figure 7](#)). We calculated the likelihood ratio for all the words in both corpora. The *NZZ* articles shared by the *Far-Right GER* users mainly focus on Germany (Deutschland), Chancellor Angela Merkel, Muslims, and refugees (Flüchtlinge – also significant likelihood ratio). By contrast, the most popular articles in the *German-speaking CH* community covered a broad range of topics such as domestic politics, for example, digitization (Digitalisierung), the national pension fund (AHV), or science (Wissenschaft; Guzzella – president of the ETH). This showed that audience communities might have the same outlet in their repertoire, in this case, the *NZZ*, but consumed a different information repertoire from this outlet.

Discussion

The study at hand analysed Twitter news media repertoires for audience communities of Swiss news media with a focus on transnational consumption patterns and temporal dynamics. It transferred the concept of media repertoires (Hasebrink and Popp 2006) to news sharing on social media, in our case Twitter, and at the same time also addressed shortcomings in the current survey-based research on media repertoires. We therefore build on studies which try to address the complexity of the new digital media landscape with innovative methods under a repertoire perspective (Edgerly 2015; Majó-Vázquez, Nielsen, and González-Bailón 2019; Schmidt 2016). First, the method applied in this article measures media consumption on the level of single news articles instead of the outlet-level. Therefore, we can take into account the usage of different content of the same outlet by users, which is difficult to achieve with surveys and is thus rarely done. The presented approach therefore allows us to account for media consumption which is increasingly detached from the outlet in high-choice media environments (Andersen, de Vreese, and Albaek 2016). Second, the method provides the possibility to extend the measurement to individuals, who are typically not reached with surveys. We were able to include transnational media consumption for our research, as our user sample was not limited to a single country, which is often the case in surveys. In addition, we can also include users with less commonly accepted news article consumption patterns (e.g., users in the German Far-right community), who typically are not willing to participate in surveys, and often deliver biased answers. Due to its comprehensiveness, the method also can be used for explorative research on media consumption of unknown audience communities with unknown consumption patterns. For instance, our analysis empirically strengthened anecdotal evidence brought forward by journalists that two Swiss media outlets reach large audiences within the German far-right with their articles (Eigenmann and Looser 2017). Third, the usage of Twitter trace data allows us to continuously measure media consumption with almost unlimited granularity, which is very costly to realize with survey-based methods (Etter, Ravasi, and Colleoni 2019). Of course, the strength of the combination of digital trace data and network structures also determines its major limitation, which is the focus on digital news consumption on Twitter.

Our first research question asked which audience communities we would find of Swiss news media. In our analysis, we identified different audience communities with

their own unique Twitter news media repertoires. The inductive approach used to map the entity of audience communities shows that location is a determining factor for audience communities. We found domestic communities within Switzerland as well as foreign audience communities in neighbouring countries and even in countries without a direct connection to Switzerland that shared specific news stories as we also show for our third research question. Our analysis shows that the communities were structured by geographical proximity as well as the common language. Political positioning was a second factor defining the communities, as we identified several far-right communities within a geographical or language area (e.g., German and French far-right). Additionally, topical interest (e.g., in sports or finance) shapes audience communities of Swiss news media. While prior studies focussing on transnational news consumption relied on comScore data (Thurman, Hensmann, and Fletcher 2020) that only indicated aggregated country-level data, our approach allows us to identify more specific audience communities as we can directly access single users. We could then use the audience communities to identify specific media repertoires.

For our second research question, we measured different Twitter news media repertoires for the detected audience communities. Our results show that quality media brands seem to be able to attract more users through Twitter than low-quality media brands. This is of relevance because with regards to website consumption in the domestic markets, the websites of tabloid or free newspapers are more used than the quality brands in Switzerland (Forschungsinstitut Öffentlichkeit und Gesellschaft/Universität Zürich 2018). We showed that this is mainly because quality media brands can reach additional users in the non-domestic markets, which addresses our third research question about transnational news sharing. In some communities, like the *Catalan* and the *Far-right GER* community, opinion leaders (president Carles Puigdemont and prominent AfD-politicians, respectively) served as multipliers for the reach of Swiss news media. Future research could, therefore, focus more on the role of opinion leaders with regard to media usage vis-a-vis the role of algorithms. As expected some Swiss media outlets were popular among German users. As their media repertoires looked similar to Swiss users' media repertoires, we additionally analysed the specific content shared on the article level in our third research question to further distinguish the communities.

With regard to our third research question, we showed that Swiss news media can reach foreign audience communities with their articles if they cover stories that are relevant to the users of these audiences. What stood out is the popularity of the *NZZ* and the *Basler Zeitung (BaZ)* in the *Far-Right GER* community. Swiss news media seemingly serve as a source of information on German politics for audience communities in Germany, which is especially notable as we tracked the period before the German federal election. This case was also of special relevance from a Swiss perspective, as anecdotal evidence led to discussions about a (political) positioning of the two outlets in the German media market (Eigenmann and Looser 2017). This anecdotal evidence was mainly triggered by the actions of the *NZZ*, which established a new editorial office in Berlin and started a newsletter exclusively curated for the German audience by its editor-in-chief. In addition, the *NZZ* but also the *BaZ* released an accumulation of

controversially received editorial articles dealing with topics of specific relevance for German readers, which often included a right-leaning political perspective on the events. Officially, the *NZZ* and the *BaZ* never explicitly declined or commented on these assumptions. Even beyond Twitter, the far-right political party AfD itself had started to promote some of the Swiss media outlets and called them the new “Westfernsehen” (West TV) with reference to the German Democratic Republic (GDR).⁶ Vowe (2017) speaks of a so-called communication gap, which he refers to as a missing voice in Germany’s political spectrum, which is occupied by conservative parties and media in neighbouring countries. The *NZZ* and the *BaZ* are assumed to actively target this vacant space to open up new markets abroad. Officially, the *NZZ* and the *BaZ* never explicitly declined or commented on these assumptions. This example shows that similar media repertoires on outlet level can be different on article level. In a last step we additionally tried to distinguish the temporal dynamics of news sharing to evaluate for which communities Swiss media are an important part of their overall media repertoires.

For our fourth research question, we analysed temporal dynamics in Twitter news media repertoires of foreign audience communities and investigated whether the transnational usage patterns are stable or incidental. We showed that some of the foreign audience communities, such as the *Catalunya* community, only shared a few specific articles for a short time. We argue that this case represented a rather incidental reach of an audience by the French-language Swiss media outlets *Tribune de Genève* and *RTS* as there is no direct language connection between the media outlets and *Catalunya*. Also, the alt-right community’s attention to articles of *20 Minuten* was clearly incidental as the articles were translated with Google translate into English by a news aggregator that is not linked to the outlet. The Catalan and the alt-right case show that Swiss news media can reach supposedly unexpected foreign audience communities beyond their typical readership in the domestic market or neighbouring countries. Other foreign communities, such as the German, French, and Italian mainstream communities, and the *Far-Right GER* community, continuously shared articles from Swiss media outlets.

Our approach also has strong limitations as it is, besides its focus on Twitter and Swiss media, restricted to news available on websites, whereas traditional consumption via printed newspapers and radio or television is not included. A limitation of our study with regard to news sharing on social media is the low adoption rate of Twitter. Future studies could, therefore, analyse social media with higher usage, for instance, Facebook, if such data will be available for researchers. Moreover, our measurement of news sharing also may be to some extent distorted, as we did not separate individual and organizational accounts. An analysis of news sharing by organizational accounts, which one would not consider as a proxy for news consumption in a traditional sense, would be a further interesting research topic.

Our measurement of domestic and foreign audience communities also has its constraints. While we have detailed information about the users in the audience communities and for many cases know the self-disclosed location of the account, we cannot identify the nationality of a user. In addition, given the strong ties between Switzerland and its neighbouring countries, many account information regarding

location has to be considered fluid, for instance, often changing or not up to date location.

Furthermore, we cannot claim that our findings overall are representative for the whole population of Switzerland or its neighbour countries Germany, France, and Italy, as only a minority uses Twitter for news consumption (Reuters Institute for the Study of Journalism 2018). However, digital media consumption is becoming the rule rather than an exception for most of the population. Therefore, approaches with social media data like the one suggested in this study are expected to gain validity. Additionally, we did not cover foreign media outlets that might be part of the Twitter news media repertoires of Swiss users. Thus, we also lack a good baseline for the German, French, and Italian communities with their own domestic media outlets. While our method is less intrusive than tracking analyses and allows measurement on article-level, it definitely has its limitations in the process of data collection. What might seem like a simple and low-cost complementary method still requires much preprocessing before the data can be analysed. Still, we think future endeavours with traditional methods should consider our approach as a complementary method. The results show that a major advantage of our approach lies in the possibility of transnational research. This makes our approach valuable for scholars in various fields of communication and for journalism practitioners seeking to reach new audiences across borders and track who they are reaching with their articles.

Notes

1. The fourth official language in Switzerland, Romansh, is spoken by very few people and only a few news outlets exist.
2. We used semi-automatic text mining methods in R to identify false-positives (e.g., a URL with “watson” and “ch” but not “watson.ch”) and only kept tweets that include a URL of a media outlet.
3. For 814 the followee relations could not be downloaded as they set their account to protected.
4. We used a list of the Swiss Federal Statistical Office (180 municipalities), the Federal Statistical Office of Germany (largest 701 municipalities – all with a population over 20,000), The Italian National Institute of Statistics (largest 751 municipalities – all with a population over 15,000), Institut national de la statistique et des études économiques (largest 350 municipalities – all with a population over 15,000), Statistik Austria (largest 1283 municipalities – all with a population over 1000) and the Institut d’Estadística de Catalunya (all municipalities in Catalunya). We first selected all users that have not kept the location field empty in their account (72.4%) and then calculated the specific percentage of country locations based on this sample.
5. Far-right communities in Germany, Austria and Switzerland are strongly connected to each other on different social media platforms (Rauchfleisch and Kaiser 2020).
6. Back in the days of the GDR, citizens in East Germany used similar wording for “uncensored” TV channels from West Germany that could be received in most parts of the GDR (Schroeter 1994).

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References

- Andersen, K. H., C. de Vreese, and E. Albaek. 2016. "Measuring Media Diet in a High-Choice Environment-Testing the List-Frequency Technique." *Communication Methods and Measures* 10 (2-3): 81–98.
- Arlt, D., A. Rauchfleisch, and M. S. Schäfer. 2019. "Between Fragmentation and Dialogue. Twitter Communities and Political Debate about the Swiss "Nuclear Withdrawal Initiative." *Environmental Communication* 13 (4): 440–456.
- Bruns, A., and H. Moe. 2014. "Structural Layers of Communication on Twitter." In *Twitter and Society [Digital Formations, Volume 89]*, edited by A. Bruns, M. Mahrt, K. Weller, J. Burgess, and C. Puschmann, 15–28. New York: Peter Lang Publishing.
- Csardi, G., and T. Nepusz. 2006. "The Igraph Software Package for Complex Network Research." *InterJournal, Complex Systems* 1695 (5): 1–9.
- Dubois, E., and D. Gaffney. 2014. "The Multiple Facets of Influence." *American Behavioral Scientist* 58 (10): 1260–1277.
- Eady, G., J. Nagler, A. Guess, J. Zilinsky, and J. A. Tucker. 2019. "How Many People Live in Political Bubbles on Social Media? Evidence from Linked Survey and Twitter Data." *SAGE Open* 9 (1): 215824401983270.
- Edgerly, S. 2015. "Red Media, Blue Media, and Purple Media: News Repertoires in the Colorful Media Landscape." *Journal of Broadcasting & Electronic Media* 59 (1): 1–21.
- Eigenmann, P., and P. Looser. 2017. Nach Deutschland, nach rechts! [To Germany, to the right!]. *Tages-Anzeiger*. <https://www.tagesanzeiger.ch/schweiz/standard/nach-deutschland-nach-rechts/story/28549983>
- Etter, M., D. Ravasi, and E. Colleoni. 2019. "Social Media and the Formation of Organizational Reputation." *Academy of Management Review* 44 (1): 28–52.
- Ferguson, D. A. 1992. "Profile: Channel Repertoire in the Presence of Remote Control Devices, VCRs and Cable Television." *Journal of Broadcasting & Electronic Media* 36 (1): 83–91.
- Ferguson, D. A., and E. M. Perse. 1993. "Media and Audience Influences on Channel Repertoire." *Journal of Broadcasting & Electronic Media* 37 (1): 31–47.
- Fletcher, R., and R. K. Nielsen. 2017. "Are News Audiences Increasingly Fragmented? A Cross-National Comparative Analysis of Cross-Platform News Audience Fragmentation and Duplication." *Journal of Communication* 67 (4): 476–498.
- Forschungsinstitut Öffentlichkeit und Gesellschaft/Universität Zürich. 2018. *Jahrbuch Qualität der Medien Schweiz - Suisse - Svizzera*. Basel: Schwabe.
- Haim, M., A. Graefe, and H. Brosius. 2018. "Burst of the Filter Bubble?" *Digital Journalism* 6 (3): 330–343.
- Hasebrink, U., and H. Domeyer. 2012. "Media Repertoires as Patterns of Behaviour and as Meaningful Practices: A Multimethod Approach to Media Use in Converging Media Environments." *Participations* 9 (2): 757–779.
- Hasebrink, U., and A. Hepp. 2017. "How to Research Cross-Media Practices? Investigating Media Repertoires and Media Ensembles." *Convergence: The International Journal of Research into New Media Technologies* 23 (4): 362–377.
- Hasebrink, U., and J. Popp. 2006. "Media Repertoires as a Result of Selective Media Use. A Conceptual Approach to the Analysis of Patterns of Exposure." *Communications* 31 (3): 369–387.
- Jürgens, P., B. Stark, and M. Magin. 2020. "Two Half-Truths Make a Whole? On Bias in Self-Reports and Tracking Data." *Social Science Computer Review* 38 (5): 600–615.

- Künzler, M. 2013. *Mediensystem Schweiz*. Konstanz: UVK.
- Lee, H., and J. Yang. 2014. "Political Knowledge Gaps among News Consumers with Different News Media Repertoires across Multiple Platforms." *International Journal of Communication* 8 (21): 597–617.
- Majó-Vázquez, S., R. K. Nielsen, and S. González-Bailón. 2019. "The Backbone Structure of Audience Networks: A New Approach to Comparing Online News Consumption across Countries." *Political Communication* 36 (2): 227–240.
- McPherson, M., L. Smith-Lovin, and J. M. Cook. 2001. "Birds of a Feather: Homophily in Social Networks." *Annual Review of Sociology* 27 (1): 415–444.
- Mellon, J., and C. Prosser. 2017. "Twitter and Facebook Are Not Representative of the General Population: Political Attitudes and Demographics of British Social Media Users." *Research & Politics* 4 (3): 205316801772000.
- Metag, J., M. Maier, T. Fuchslin, L. Bromme, and M. S. Schäfer. 2018. "Between Active Seekers and Non-Users: Segments of Science-Related Media Usage in Switzerland and Germany." *Environmental Communication* 12 (8): 1077–1094.
- Metag, J., and A. Rauchfleisch. 2017. "Journalists' Use of Political Tweets: Functions for Journalistic Work and the Role of Perceived Influences." *Digital Journalism* 5 (9): 1155–1172.
- Moehler, D., and D. M. Allen. 2016. "The Media Diet Imbalance Score: A Measure of Aggregate Media Diet." *Communication Methods and Measures* 10 (1): 4–12.
- Myllylahti, M. 2018. "An Attention Economy Trap? An Empirical Investigation into Four News Companies' Facebook Traffic and Social Media Revenue." *Journal of Media Business Studies* 15 (4): 237–253.
- Nelson, J. L., and J. G. Webster. 2017. "The Myth of Partisan Selective Exposure: A Portrait of the Online Political News Audience." *Social Media + Society* 3 (3): 205630511772931.
- Net-Matrix. 2018. NET-Matrix-Profile: Online-Reichweite 2018-1. <https://netreport.net-matrix.ch/profile/>
- Nielsen, K. R., and S. A. Ganter. 2018. "Dealing with Digital Intermediaries: A Case Study of the Relations between Publishers and Platforms." *New Media & Society* 20 (4): 1600–1617.
- Nölleke-Przybylski, P., M. B. von Rimscha, J. E. Möller, D. Voci, K.-D. Altmeyden, and M. Karmasin. 2019. "Patterns of Structural and Sequential Ambidexterity in Cross-Border Media Management." *Journal of Media Business Studies* 16 (2): 126–152.
- Prior, M. 2009. "The Immensely Inflated News Audience: Assessing Bias in Self-Reported News Exposure." *Public Opinion Quarterly* 73 (1): 130–143.
- Rauchfleisch, A., and J. Kaiser. 2020. "The German Far-Right on YouTube: An Analysis of User Overlap and User Comments." *Journal of Broadcasting & Electronic Media* 64 (3): 373–396.
- Rauchfleisch, A., and J. Metag. 2016. "The Special Case of Switzerland: Swiss Politicians on Twitter." *New Media & Society* 18 (10): 2413–2431.
- Reagan, J. 1996. "The "Repertoire" of Information Sources." *Journal of Broadcasting & Electronic Media* 40 (1): 112–121.
- Reuters Institute for the Study of Journalism. 2018. *Digital News Report Interactive*. Oxford: Reuters Institute for the Study of Journalism. <http://media.digitalnewsreport.org/wp-content/uploads/2018/06/digital-news-report-2018.pdf>
- Rosvall, M., D. Axelsson, and C. T. Bergstrom. 2009. "The Map Equation." *The European Physical Journal Special Topics* 178 (1): 13–23.
- Scharkow, M., F. Mangold, S. Stier, and J. Breuer. 2020. "How Social Network Sites and Other Online Intermediaries Increase Exposure to News." *Proceedings of the National Academy of Sciences of the United States of America* 117 (6): 2761–2763.
- Schmidt, J. H. 2016. "Twitter Friend Repertoires: Introducing a Methodology to Assess Patterns of Information Management on Twitter." *First Monday* 21 (4). doi:10.5210/fm.v21i4.6207
- Schmidt, J. H., L. Merten, U. Hasebrink, I. Petrich, and A. Rolfs. 2019. "How Do Intermediaries Shape News-Related Media Repertoires and Practices? Findings from a Qualitative Study." *International Journal of Communication* 13: 853–873.

- Schneider, J., and M. Eisenegger. 2018. "Newsrepertoires junger Erwachsener [News Repertoires of Young Adults]." In *Der öffentliche (Mehr-)Wert von Medien [The Additional Public Value of the Media]*, edited by N. Gonser, 93–107. Wiesbaden: Springer VS.
- Schröder, K. C. 2015. "News Media Old and New." *Journalism Studies* 16 (1): 60–78.
- Schröder, K. C. 2019. *What Do News Readers Really Want to Read about? How Relevance Works for News Audiences*. Oxford: Reuters Institute for the Study of Journalism.
- Schroeder, R. 2018. *Social Theory after the Internet: Media, Technology, and Globalization*. 1st ed. London: UCL Press.
- Schroeter, S. 1994. *Die Sprache der DDR im Spiegel ihrer Literatur: Studien zum DDR-typischen Wortschatz*. Berlin: W. de Gruyter.
- Swart, J., C. Peters, and M. Broersma. 2017. "Navigating Cross-Media News Use." *Journalism Studies* 18 (11): 1343–1362.
- Taneja, H., J. G. Webster, E. C. Malthouse, and T. B. Ksiazek. 2012. "Media Consumption across Platforms: Identifying User-Defined Repertoires." *New Media & Society* 14 (6): 951–968.
- Thurman, N. 2014. "Newspaper Consumption in the Digital Age: Measuring Multi-Channel Audience Attention and Brand Popularity." *Digital Journalism* 2 (2): 156–178.
- Thurman, N., T. Hensmann, and R. Fletcher. 2020. "Large, Loyal, Lingering? An Analysis of Online Overseas Audiences for UK News Brands." *Journalism*. doi:10.1177/1464884919892411.
- Toff, B., and R. K. Nielsen. 2018. "I Just Google It': Folk Theories of Distributed Discovery." *Journal of Communication* 68 (3): 636–657.
- Van Aelst, P., J. Strömbäck, T. Aalberg, F. Esser, C. de Vreese, J. Matthes, D. Hopmann, et al. 2017. "Political Communication in a High-Choice Media Environment. A Challenge for Democracy?" *Annals of the International Communication Association* 41 (1): 3–27.
- von Rimscha, M. B., J. Möller, D. Voci, P. Nölleke-Przybylski, K.-D. Altmepfen, and M. Karmasin. 2019. "Can Digitisation Help Overcome Linguistic and Strategic Disadvantages in International Media Markets? Exploring Cross-Border Business Opportunities for German-Language Media Companies." *Media, Culture & Society* 41 (4): 520–538.
- Vowe, G. 2017. "Wie lassen sich die Wahlerfolge der AfD erklären? Eine doppelte Erklärung aus der Perspektive der politischen Kommunikationsforschung [How Can the Election Successes of the AfD Be Explained? A Double Explanation from the Perspective of Political Communication Research]." In *Wahlanalyse 2017. Strategie - Kampagne - Bedeutung [Election Analysis 2017. Strategy - Campaign - Significance]*, edited by M. Voigt, R. Gündenzopf, and J. Böttger, 36–40. Berlin: Quadriga.