CHAPTER 7

FLOWS OF WATER AND INFORMATION: RECONSTRUCTING ONLINE COMMUNICATION DURING THE 2013 EUROPEAN FLOODS IN AUSTRIA

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ABSTRACT

The 2013 Central European floods were not only one of the most severe natural disasters in Austria in the last decades, but also constituted a landmark in crisis communication. For the first time, social media and online newspapers were important news channels,

creating a need for new crisis communication strategies. Based on 20 semi-structured interviews and an analysis of online data, we reconstruct in this chapter the online communication of different stakeholders such as the authorities, rescue organisations and journalists during this emergency situation. The study shows that the use of social media was a weak point in official crisis communication. Through detailed analyses of information flows and the requirements of different stakeholders, the study reveals new challenges and possibilities for crisis communication in the digital age.

Keywords: Central European flood 2013; social media use; key communicators; multi-level analysis; crisis communication; natural disaster; social media

INTRODUCTION

The increased use of social media platforms and online communication in the last decade has significantly changed the general framework for crisis communication in emergencies such as floods over recent years (e.g. Newman, Fletcher, Kalogeropoulos, Levy, & Nielsen, 2017). Social media platforms have changed information flows and the dissemination of news and facts about an event as well as the ways people inform themselves. It is important to note in this regard that social media can be characterised as a set of tools largely built on web 2.0 principles (O'Reilly, 2007). Therefore, not only news consumption but also the active production of information by members of the public during a crisis have expanded communication possibilities. Alongside traditional media such as printed newspapers, TV or radio, social media and online newspapers are nowadays also important news channels during emergencies.

These developments have changed what 'the public'[1] expects from traditional crisis communicators such as journalists, rescue organisations or the authorities during emergencies. As Coombs (2014) has shown, people's increased internet use has shifted their perception of time, and they now require important facts in real-time. Moreover, the authorities and rescue organisations are to a degree 'on trial' during emergencies, since the

public not only gets its information via social media, but also has the opportunity to communicate and respond actively:

> *Social media messages created by crisis publics have the potential to either benefit or harm the organization in crisis because of their potential to shape evaluations of organizational reputations. (Coombs & Holladay, 2014, p. 45)*

Consequently, there is a need for new crisis communication strategies in the digital age. Against this background, we reconstruct – with a focus on social media – the online communication of different stakeholders during the 2013 Central European floods in Austria. As context plays an important role in crisis management and communication processes in general, we first describe the context for our study and outline the 2013 floods. We then introduce our theoretical framework, social media use in Austria at that time, the most relevant work in the field and our study design. Following on from this, we present results from empirical work. Based on a case study of social media relating to the floods, we provide insights into communication strategies and the social media use of different stakeholder groups with a focus on institutional actors (the authorities and rescue organisations) and journalists. Finally, we summarise the impact of social media and highlight some important questions that remain.

STUDY CONTEXT

The 2013 Floods in Austria

In 2002 Austria had already been hit by the European 'hundred-year' flood, which struck as an unforeseen and unanticipated event (Kuhlicke, 2013). Yet the spring of 2013 was one of the wettest in Germany and Austria since weather records began (Stein et al., 2013). In late May and early June, some regions of Central Europe experienced torrential rainfall. With the ground in Austria, Germany and neighbouring areas saturated, water could not drain away, leading to a major, extensive flood in Austria (Austrian Central Institute for Meteorology and Geodynamics, 2014).

Different laws regulate the procedures for managing environmental disasters such as floods in Austria. Civil protection laws and regulations, which are specific to the federal states, structure actions and responsibilities

to prevent and combat danger on different levels. The handling of a catastrophe or disaster relief with its associated crisis management, is essentially designed according to the principle of subsidiarity. Those authorities and rescue organisations with a legal mandate (e.g. the fire brigade) act as crucial players. Official communication responsibilities are well defined in civil protection law at federal state level (e.g. Ooe. KatSchG, n.d.). This law requires, inter alia, an official mission control centre. Thus, the authorities have to take charge of information and communication in exceptional situations (Meier, 2016).

Each stage of a particular crisis or disaster has different characteristics that provoke specific reactions. The *pre-crisis phase* of the floods in Austria started with rain: from 29 May to 4 June, heavy rainfall north of the Alps caused a continuous rise in the water levels of the tributary waters of the Danube, first taking effect in Bavaria and then reaching Austria. In this phase, weather information and warnings are vital for disaster prevention. In Austria, weather warnings are announced through the media by the Austrian Central Institute for Meteorology and Geodynamics (ZAMG). The nine federal states and the municipalities are responsible for warnings about floods. Measurements (such as current water levels and precipitation summaries) and flood forecasts are provided by the Hydrography Services that are connected to the National Warning Centres at federal state level (Landeswarnzentralen). If a flood is imminent, the Austrian National Warning Centres are informed, so that they can take operative measures and initiate a warning to the local population via the so-called warning and alarm system (Republik Österreich, n.d.).

The main rain incident happened between 30 May and 2 June (Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft, 2014) and the weather conditions culminated in a flood on 2 June – the beginning of the *main crisis phase* (Centre for Research on the Epidemiology of Disasters, n.d.). Altogether, regions in seven European countries were affected, and in many regions a state of emergency was declared. In the main crisis phase of a flood, disaster management and relief is essential. Involved actors such as the crisis management teams or fire brigades are supposed to act, fulfilling their organisational duty – failing to do will add to the crisis.

The *post-crisis phase* starts when the operation is officially over. In this phase, (retrospective) evaluation and reports of information flows, as well

as news coverage, are important. Training and development are crucial aspects in the post-crisis phase (Ooe. KatSchG, n.d.).

Social Media Use in Austria

A further important context of this study is the general social media and Internet use in Austria that has increased steadily in the last two decades. During the Central and Eastern European 'one-hundred-year' flood in 2002, about 37 per cent of all Austrian residents had an Internet connection, while during the Central European floods in 2013 over 80 per cent of Austrian residents had used online services (Statistik Austria, 2017). Furthermore, nearly 3,000,000 Facebook accounts and about 90,000 Twitter accounts were registered (Social Media Radar, 2017; Statista, 2017). In other words, 35 per cent of the Austrian population had a Facebook profile and about 1 per cent had a Twitter account at the time of the floods in 2013. Hence, not only traditional media were important news channels during the communication process of this emergency situation, but also social media and online newspapers, as we show in more detail in the results section.

Theoretical Background

To reflect on how members of the public as well as authorities and actors of rescue organisations interact in this new social media and online communication environment, we are guided by the 'situational crisis communication theory' proposed by Coombs (2014, p. 316). According to him:

> *Crisis communication must be strategic [to be effective]. Those engaged in crisis public relations management must determine what information particular stakeholders need and the best way to deliver that information.*

In this regard, the change in people's perception of time in particular is a new and unknown challenge for an effective crisis communication strategy; people expect organisations to respond in 'internet time', meaning very promptly and in real-time (Coombs, 2014, p. 325). For Coombs, the speed of the online communication flow should not just be seen as a

threat, but rather as an opportunity to guide the public's perception of a crisis. As Coombs (2014, p. 316) shows, social media 'has had a significant effect on altering the pre-crisis phase of crisis communication'; if the public cannot find any information about the event from officials on social media platforms, an information vacuum and a 'paracrisis' (Coombs & Holladay, 2012) may emerge. Therefore, the authorities and emergency organisations should actively communicate the most important information about a crisis through an appropriate online channel right from the beginning (Coombs, 2014).

Another important theoretical framework for our study is the stakeholder management approach that fits well with the key ideas of situational crisis communication theory. Originally developed as strategic tool for organisations for maintaining and managing relationships with key stakeholders and integrating their interests into an organisation's decision making (e.g. Clarkson, 1995; Freeman, 1984), the stakeholder management approach can nowadays also be found in the context of crisis communication (e.g. Kaibin & Wenqing, 2013; Stephens, Malone, & Bailey, 2005). According to Freeman (1984, p. 46), a stakeholder could be 'any group or individual who can affect or is affected by the achievement of the organisation's objectives'. In times of social media, the number of potential stakeholders increases and the identification, analysis and prioritisation of stakeholders' expectations get more complex (Kaul & Chaudhri, 2015). In an emergency or crisis situation, it is indispensable to integrate the different identified stakeholders' expectations, since successful crisis communication depends not only on how quickly, but also how accurately the most important facts are communicated (see also Chapter 10).

Related Work

Scholarly interest in studying the use of social media in crisis situations and natural disasters has increased significantly in recent years (Reuter et al., 2014). Earlier studies focused their research mainly on Twitter (e.g. Reuter, Marx, & Piper, 2012; Wilensky, 2014), but there are also some studies on Facebook and other social media platforms (e.g. Bird, Ling, & Haynes, 2012). Recently, the role of live streaming video applications such as Periscope has been investigated (Fichet, Robinson, Dailey, & Starbird, 2015). There are also studies into the 2013 Central European

floods. Kaufhold and Reuter (2016) analysed the use of social media by affected citizens and volunteers. For their sample, they collected tweets and Facebook data and conducted interviews. Their results, similarly to St. Denis, Anderson, and Palen (2014), show that Twitter was used for broadcasting situation updates via pictures, while Facebook was used for coordination and interaction. Furthermore, Backfried et al. (2016) investigated the information gathering of first responders, and developed a five-phase disaster model from the viewpoint of a first responder or crisis manager, including, e.g. five different stages of disasters (prevention and initialisation phase, pre-execution phase, execution phase, follow-up phase, postvention phase).

Up to now, the effect of social media use on 'traditional' crisis communication processes and possible solutions for rescue organisations has not been extensively researched. Li and Goodchild (2010) laid out potential benefits and challenges of using a social network in emergency management. The challenges therein are mostly connected to issues of data access and quality. Therefore, they developed a research agenda suggesting the use of social network theories or social network analysis in order to better understand the behaviour of people during emergencies in both offline and online social networks. Roth, Stark, and Herzog (2014) also named a number of potential barriers to integrating social media into official crisis communication, such as technical availability or dubious information quality. They furthermore discussed possible solutions such as mobile apps that enable both distribution and collection of critical information.

Reuter, Ludwig, Kaufhold, and Spielhofer (2016, p. 1) explored 'attitudes expressed by emergency service staff towards social media for private and organisational use'. They found that although there is limited use of these channels by emergency services, the majority of staff expected increased use of social media by their organisations, especially regarding guidelines for prevention of accidents or behaviour during emergencies. Munengast (2014) analysed the state of official crisis communication via social media in Austria and its potential benefits, by interviewing experts in the field. He concluded that hitherto there is almost no usage of these communication channels. This can be attributed to different factors such as the fear of using new media or nescience about the possible applications. He also highlighted the consequences of this problem, presenting

examples of private initiatives to fill the communication gap. In a recent study by the Austrian Press Agency (APA-OTS, 2016), results of a comprehensive survey showed that Austrian journalists see potential for improvement in the collaboration with official organisations in the field of crisis. More than half of the interviewees were rather dissatisfied and expected more active communication from organisations.

Most of the aforementioned studies either focus on certain stakeholders or particular platforms. What we identified as a research gap is a comprehensive view of crisis situations, taking into consideration the role of social media and news services as well as different involved stakeholders before, during and after the crisis. To fill this research gap, we adopt a more holistic approach in our study.

STUDY DESIGN

In our study, we focus on the floods in Austria in general and discuss the situation in the Austrian federal states in the Danube area in detail. In order to understand social media communication processes and information flows from the viewpoint of different involved stakeholders (journalists, institutional actors, remote experts, affected citizens and organisations) during the floods, we developed a mixed-method approach. We conducted an in-depth investigation of online data (social media and web communication, official websites, hydrographical reports and flood documentation by the federal ministry) as well as semi-structured stakeholder interviews and preliminary interviews. This triangulation, the combination and integration of different perspectives, help to develop a comprehensive picture of the matter (Flick, 2007).

To gain insights about communication strategies and the online and social media communication processes, we posed the following question: *Who uses which channel, and for what purpose?*

Analysis of Online Data

We studied and assessed various types of social media use during and after the event. In an initial stage, a preliminary dataset including 8,751 entries (collected during the incident with the commercial social media monitoring

tool Brandwatch) served as a starting point to identify important posts, key communicators and platforms. The exploratory analysis led us to other, new stakeholders in the data. Next, a stakeholder typology (see *Stakeholder interviews* in the following text) and a framework of media/data types were established as an analytical framework. The most important channels in this emergency were mass media (online news and live tickers), social media (Twitter, Facebook) and niche media (press agency reports). Important sources were also press releases and press conferences, and official websites or forums. Furthermore, meta-data of flood-related communication such as location, time, accessibility or hydrographic data played a crucial role.

To enrich and cross check first indications, more data was collected and analysed. Social media and online communication analysis (an enlarged dataset of 20,842 entries from 30 May to 7 June) was complemented with 1,070 press agency reports (APA) and two live tickers from the Austrian online newspapers *Der Standard* and *Oberösterreichische Nachrichten*, including more than 400 articles and log entries, and approximately 1,700 comments.

Furthermore, interviews with stakeholders (see *Stakeholder interviews* in the following text) revealed that the most relevant data sources in the framework of media/data types were press releases, official websites and Facebook. Twitter was found to be not particularly relevant. Therefore, we focused on these sources in the qualitative data analysis (Kaefer, Roper, & Sinha, 2015; Schreier, 2012), presented further in the following text, which included explorative analysis steps as recommended by digital methodologists (Rogers, 2013).

Stakeholder Interviews

To identify adequate interviewees and to obtain a general insight into official communication strategies, we conducted two preliminary interviews and a round table discussion with members of our project's advisory board. We also collected information from expert interviews with two representatives of involved organisations (fire brigade and news agency). In addition, we identified interviewees based on the exploratory analysis of our preliminary dataset of online data. The following important

stakeholder groups (with predefined or ad hoc roles) were identified and interviewed:

- institutional actors (including public authorities and rescue organisations) (seven interviews);
- journalists (seven interviews);
- remote experts (three interviews);
- affected citizens and organisations (three interviews);
- new actors and
- others.

All in all, we conducted 20 semi-structured in-depth interviews with different stakeholders who were either involved in communicating the event or affected by the floods. We asked about official communication strategies in general (e.g. channels used, actors involved and social media usage) and discussed the characteristics of crisis communication to gain a deeper understanding of social media usage and perception in this specific emergency.

To analyse our collected data, we conducted a computer-assisted qualitative content analysis with NVivo which included deductive and inductive steps (Kaefer et al., 2015; Schreier, 2012). To anonymise our interview partners, we numbered all interviews consecutively and refer to them as P1, P2 […] in the results section. For clarification we also added the affiliation to a stakeholder group, for example, 'P1; institutional actor: federal state government'.

RECONSTRUCTING THE ONLINE COMMUNICATION PROCESSES

Institutional Actors, Journalists and Remote Experts

Concerning information and communication, institutional actors (public authorities and rescue organisations), journalists and remote experts have specific, inter-related roles. Their communication behaviours and processes vary when it comes to social media use.

As to institutional actors, in emergencies the authorities have to communicate, and rescue organisations provide expert information. It is clear that social media was not strategically implemented in crisis management during the 2013 floods. Public authorities barely included social media but relied on existing communication structures and media channels in their communication activities. Apart from traditional formats such as press releases directed at journalists, they also had websites to provide official information. Information for the public was disseminated via traditional media. In addition to official press releases, rescue organisations such as the fire brigade also got direct requests from national and regional press agencies. The main information flow remained as *institutional actors → legacy media → public*, although social media was utilised by individual rescue organisations to address the public directly.

Journalists did use social media (see *Social media communication processes and information flows*) at different stages of their journalistic workflow. Journalists and media remained important distributors in the institutional actors' information flows, regardless of the channel they used. A typical example of the interplay between institutional actors during the disaster was via press information. The media organisations were asked to tell the populace to get information from a specific website. As the flood became imminent, the amount of online news (at times shared on social media), particularly relating to weather information or the situation in Germany and affected areas, also rose. During the crisis phase between 2 June and 7 June, news coverage dominated the dataset. The number of articles published by the Austrian Press Agency also reached a peak in this timeframe. The information flow *public authority (press release) → media organisations (different channels) → public* was therefore a characteristic instance.

Remote experts are important sources for the information flow in an environmental disaster. Data such as current water levels and flood forecasts are provided by the hydrographic service of each federal state, and the ZAMG provides weather information and warnings informing authorities (through internal communication) and the public (announced through the media) about extreme weather events. In the 2013 floods, weather information was not only published via the media, but also on the remote expert organisation website and social media page. ZAMG, acting as a remote expert, was an active social media user disseminating weather forecasts. Hydrography Services, also a remote expert, only responded to

requests from journalists (via email, fax and telephone) and did not use social media. They provided basic information on their website, but did not proactively communicate to a wider public. Reports were sent via email to the National Warning Centres at federal state level and to rescue organisations involved in flood protection operations. Two information flows were characteristic in this context: *Remote experts ← journalists; Remote experts (reports) → institutional actors.*

Affected Citizens and Organisations, New Actors and Others

While traditional actors mainly based their communication flow on their established procedures, affected citizens and organisations, new actors and others contributed to the information flow on social media platforms. Social media and online communication data revealed that many members of the public (i.e. others) were active, rapidly posting, sharing, liking or commenting. The interviewees emphasised the huge amount of flood-related conversations.

In the *pre-crisis phase*, rain was already an issue on the web and in social media. Such user-generated information could be a rich source of warning signs prior to a crisis. We found tweets about rain and bad weather and some serious discussions about the rain and its effect in an experts' forum (Skywarn Forum Austria). Rain and floods were not yet a public topic on Facebook. We found, despite this, that some individuals shared their thoughts and comments.

We were also able to witness the emergence of new actors and intermediaries who reached not only their own audiences, but rapidly gained the attention of a wider public at the beginning of the *crisis phase*. For example, when a local fire brigade Facebook page shared the controversial info page entitled 'High Tide 2013' [Hochwasser 2013], run by a local beverage company, at 10.17 on 2 June, this ad hoc-created page already had 130,448 likes.[2] On the page, those affected were invited to send a message with a picture if help was urgently needed.

In our dataset, the five tweets with the highest reach were created by citizens and included pictures of flood defences, water level, two comments on a political statement and a shared link to a website for volunteers. These actors (semi-journalistic or crisis communication laypeople) emerged in social media and dominated the discussions and information flow on social media channels.

Citizens and organisations affected by the flood were also found on Facebook and Twitter, communicating not only about the flood but their own interests. Transport services and voluntary initiatives, as well as companies and cities, utilised social media for their own crisis communication, stakeholder information or PR purposes. For instance, social media was used to provide important information for employees about the current situation, closed roads, etc.

SOCIAL MEDIA COMMUNICATION PROCESSES AND INFORMATION FLOWS

In this section, the results on institutional actors and journalists are discussed in detail, since these two stakeholder groups were the main traditional key communicators in this emergency. The other stakeholders, such as affected citizens and organisations, are only partly mentioned.

Institutional Actors

Authorities such as respective federal state governments and their departments scarcely used social media for crisis communication, neither for information gathering nor for dissemination activities. Interviewed representatives of public authorities told us that they sometimes monitored Facebook in order to react to hoaxes; however, in contrast to journalists, the authorities did not rectify incorrect information directly on social media platforms but via press releases or their own websites. One of the most important websites during the floods was the 'Civil Protection Server' [*Krisen- und Katastrophenschutzportal*] of the federal state of Upper Austria. Due to a limited time budget and a lack of resources, it was easier for the authorities to transmit the most important information via this website rather than via accounts on diverse social media channels (which were non-existent). The website was promoted by press conferences and newspaper articles; therefore, traditional media was seen as the most important channel. One of our interviewees described their communication processes in the following way:

> *The most important voices are still - because they are well attuned - the press officers of the fire brigade, of the Red Cross,*

> *of the Austrian Armed Forces and of the police. Those are the four most powerful media outlets that are also tapped by journalists. (P3; institutional actor: federal state government)*

The press officers of these organisations sometimes posted information through their social media channels on behalf of the federal state governments. Thus, public authorities stuck to traditional regulations and did not integrate social media in communications because official crisis communication strategies were not designed for social media at that time (and some of the public authorities were not even allowed to use social media at the time of the interviews).

In the preliminary interviews, it was pointed out that the fire brigades have the main operative responsibility in an environmental disaster, involving the fire brigade association and individual fire brigades, largely on a voluntary basis. In addition to a defined communication responsibility in the crisis management team, they also draw on media as a communication channel. The fire brigades interviewed used mainly walkie-talkies for internal communication during the floods because natural catastrophes could be accompanied by a collapse of the telephone network. As well as, or despite this, some of them coordinated many external communication tasks via Whatsapp.

The most important channel for external communication was Facebook, although not comprehensively utilised by all fire brigades. The national fire brigade only collected basic information about the floods on their webpage and integrated their Facebook page with their website to also ensure that others than just Facebook users would have access to all the facts and figures. One of our regional fire brigade interview partners described the typical communication process on their Facebook page as follows: the meteorological forecast system UBIMET informs the fire brigade via email or SMS about a heavy rainfall warning and the fire brigade observes the weather conditions locally. In an extreme case, they share the warning on Facebook to forewarn the public (Freiw. Feuerwehr Alkoven, 2013). This procedure was also mentioned in an expert interview and shown in our Brandwatch data. For example, on 2 June the Alkoven fire brigade posted a weather warning for the municipalities of Alkoven and Gstocket and announced the approximate time of the floods. They called on the local public to take precautions.

In contrast to most of the other stakeholders, the firefighters interviewed also communicated directly with the public via Facebook: 'On my smartphone, I get push messages from Facebook when someone posts a question, and I answer the questions or write at least "Thanks for the info"' (P6; institutional actor: fire brigade). Facebook was also seen as a good motivation tool for volunteers and some fire brigades called for motivational statements:

> *It was quite amazing how many people reacted to our call for motivational greetings. For every single firefighter or volunteer, it is a pleasure to see all those postings after a 13-hour service that say 'You are awesome' and so on. (P6; institutional actor: fire brigade)*

Criticism concerning Facebook addressed the issues of privacy settings that impact on the distribution of information and of hashtags (which were not functioning at that time): 'it is important to have a lot of friends and likes, so that the level of dissemination is higher' (P7; institutional actor). Moreover, the fire brigades addressed difficulties concerning audiences, feasibility and operability during the operation: 'the question is who do I inform if I inform via Facebook? The whole federal state? […] Not all people have access (elderly people in particular)' (P1; institutional actor: federal state government). Verifying messages is another challenge since the fire brigade has to react immediately. One problem during the floods was incorrect information, which took up a lot of time and resources: 'As a rescue organisation you keep running after the information' (P21; advisory board member: fire brigade). An example pointed out by our interview partners, and also found in the dataset, was the incorrect information about an evacuation of a hospital posted by the controversial, but highly visible info page 'High Tide 2013'.

In contrast to the fire brigades, the Red Cross already had institutionalised and connected social media channels. During the floods, they mainly used emails for internal communication with their full-time employees and the over 30,000 registered volunteers. They also shared the most important information about to the floods on a website. This was – in contrast to the website of the authorities – seen less as a channel for direct communication with the public than as an important tool for coordinating and

informing members of the Red Cross. A leading member of the Lower Austrian Red Cross who was interviewed stated:

> *The website is primarily read by members of the Red Cross.* [...] *For external communication, we not only use the internet but we also organise other fundraising activities such as calls for donations in newspapers or on the street. (P5; institutional actor: Red Cross)*

In the view of the Red Cross, Facebook is the most important social media platform for communicating with the public. There are many different Red Cross Facebook pages, mostly organised by local organisations. The analysis of our online and social media dataset showed that the postings of local Red Cross organisations often linked to the account of the Austrian Red Cross and to the official website. For example, Altheim Red Cross shared a posting of the Austrian Red Cross account on 2 June and already the posting teaser included a link to the official website (Rotes Kreuz Ortsstelle Altheim, 2013).

During the floods, Facebook was not only used for monitoring and dissemination, but also for the mobilisation and organisation of volunteers. Since emergency situations often are per se very uncoordinated, it is essential to coordinate voluntary engagement to prevent further chaos: 'When people are evacuated or access roads are blocked, uncoordinated volunteers are no help. In contrast, this is a further burden for the situation' (P5; institutional actor: Red Cross). In 2007, the Red Cross launched the so-called 'Team Austria' [Team Österreich] together with the radio station Ö3. This is a platform to channel emerging offers of help in emergency situations. Volunteers can register and be contacted in case of an emergency. In this way, the Red Cross is able to use the energy of volunteers' more speedily and efficiently. One of the most important channels of 'Team Austria' is their Facebook page of the same name. During the 2013 floods, the Red Cross tried to integrate various other private initiatives on Facebook into 'Team Austria'. While the Red Cross members interviewed considered these combined forces to be functioning well, 'Team Austria' was perceived as an additional coordinative challenge for the fire brigade and other institutional actors in charge of the official crisis management.

Journalists

Live tickers, a specific type of live blogging, were one of the most important channels in journalists' media coverage during the floods. While for live blogs longer intermissions are common, live tickers' updates are characterised by minute-long intervals. This characteristic was especially appreciated by the journalists we interviewed, as it allows readers to be 'up to date' and keep track of an important event in actual time. Thanks to its almost real-time character, a live ticker is therefore well suited for covering important events such as unpredictable emergency situations. Furthermore, readers have the option to react to a post and to discuss the content directly with the author/s as well as with other readers. Therefore, live tickers are a prime example of participatory journalism and include similar features to social media platforms such as Facebook, Twitter or YouTube (cf. also Primbs, 2015; Thurman & Newman, 2014).

In the context of the floods in Austria, live tickers provoked reactions and discussion by readers. The main target groups of live tickers were affected citizens and organisations, but also the Austrian population as a whole. Therefore, the content of the live tickers analysed was almost always directly linked to the floods, very often referring to the current status of the floods in a certain area, and included pictures or videos of affected regions.

Although live tickers provided features that were social media-like, journalists very rarely included other social media references in their live ticker articles. For instance, on 3 June, only 6 per cent of the Austrian newspaper *Der Standard's* postings (5 of 89) and on 2 June, only 5 per cent of the Upper Austrian newspaper *Oberösterreichische Nachrichten's* postings (9 of 189) contained links to external social media platforms or websites. Furthermore, not only journalists, but also readers, were very sceptical of information on social media platforms. For instance, a journalist from *Der Standard* asked users explicitly to 'follow the orders of the authorities or forces such as fire brigade or emergency medical services' (3 June, 11.35) instead of 'blindly' trusting other information sources such as newly emerging Facebook pages relating to the floods. Readers also criticised social media in their live ticker comments,

focusing on the lack of fact-checking and an absence of media competence among social media users.

In the live ticker of *Der Standard* a lot of articles were based on expert opinions and interviews with different official communicators such as first responders, actors at the hydrography services or the mayors of affected regions. For instance, on 3 June, 27 per cent of all entries included expert opinions. This could be interpreted as a strategy to personalise the live ticker and, as a consequence, to ensure the quality of postings related to the floods. Therefore, it could be an attempt to counteract the apparently critical attitude of *Der Standard* readers and journalists to social media content in general.

Apart from live tickers, journalists used Facebook for information sharing and monitoring 'the mood of the public' (P10; journalist). With this channel, they tried to reach especially the younger generation and wanted to gather information unavailable via other channels. One of our interviewees stated:

> *Facebook in particular includes special information that is not transmitted by other channels. We get the chance to take a closer look into smaller things in a special area.* [...] *In the case of an emergency all people are important informants. Every single person could be as important as a fire chief. (P10; journalist)*

During crisis situations, there are more hits on journalists' Facebook pages and an enhanced interaction with the public.[3]

> *I experience social media during emergency situations as a very positive factor.* [...] *The interaction rate is higher, pictures of affected regions are shared a thousand times. From my point of view, this is a positive and encouraging impulse. And we never had any problems with online firestorms or complaints on Facebook. (P11; journalist)*

Yet, as our analysis of live tickers has revealed, journalists have a rather critical view of social media sources. For instance, all the journalists interviewed mentioned incorrect or unverified information as the most pressing challenge in dealing with social media platforms such as Facebook.

Therefore, journalists spent a lot of time checking and verifying the information they have gathered before disseminating it; often they only took information 'from people we actually know. And we ignore sources that are not trustworthy' (P9; journalist). Furthermore, they described the difficulties in invalidating hoaxes such as roadblocks or the flooding of bridges in Vienna that did not really exist: 'It is really hard to invalidate hoaxes because most of the time a lot of people share them and believe they are true. Therefore, you have to spend a lot of time to rectify a hoax' (P10; journalist). Being active on Facebook is an important strategy, not only for disseminating verified information, but also for rectifying hoaxes and correcting false information.

Some of the journalists also used Twitter, not so much to communicate with the public, but for internal communication with other journalists they knew. Concerning other sources, the interviewees remained critical: 'I don't trust Twitter at all. [...] When strange news organisations or any unknown people tweet, I am suspicious' (P12; journalist). Our dataset showed that media organisations spread their news via Twitter accounts in all phases of the incident. Tweets mainly included links to the latest articles, and tweets formulated as individual journalists' comments (e.g. referring to the news on TV) were found. Tweets by media organisations or journalists were also retweeted or replied to.

CONCLUSION AND OUTLOOK

We conclude that social media was a weak point in official crisis management and communication in the 2013 floods; one might say that this was the second 'once-in-a-hundred-years' flood, but the first communicational crisis of the digital age in Austria. A flood has a long lead time and is therefore easy to predict compared to other crisis or disaster events such as terror attacks. Nevertheless, rescue organisations, the authorities and journalists were surprised by the enormous impact of the floods, not predominantly because of the flows of water, but more particularly in connection with the new flows of online information and the more active and prominent role of the public in crisis communication.

How do Social Media Impact on Institutional Actors?

For institutional actors, the floods could be seen as the first digital crisis in Austria. There was no strategic social media implementation and almost no preparation for strategic social media communication by actors involved in crisis management. However, rescue organisations had somewhat better practices. Above all, some voluntary fire brigades used social media successfully in their own affected areas. Apart from these decentralised actions, there was no regional or even national framework for strategic information flows including social media implemented by crisis management teams. Furthermore, members of the public started to connect and communicate about the incident in this new communication space, mainly on Facebook, and new communicators stepped in, challenging institutional actors. A mixture of content from official and unofficial sources as well as the rapid sharing of popular pages on social media led to challenges and scepticism about these platforms.

How do Social Media Impact on the Media?

Journalists adopted social media for information gathering and distribution, but struggled with aspects of verification and fast communication. They tried to communicate with the public on Facebook, but the vast number of postings and dialogical communication with Facebook users in particular proved demanding. Further social media challenges were the lack of trust in accounts, legal aspects and platform restrictions. Twitter was an important professional medium for journalists as it was utilised for internal communication within news organisations. Journalists or the media in general, introduced their own social media-like platforms (such as live tickers and their comment sections) to distribute and aggregate information.

How do Social Media Impact on Crisis Communication in General?

An increasing number of people get their news, at least sometimes, from social media (Newman et al., 2017). As our data analysis showed, new key communicators will emerge on social media platforms. In following this trend, hierarchical communication structures have to be rethought,

since for the public some of these new communicators are just as relevant and trustworthy as rescue organisations or newspapers. Established news outlets and untrustworthy information sources can, therefore, sometimes appear to be on the same level. Consequently, in the floods, social media had an enormous impact on information flow because it provided remote experts, affected people and organisations, new players and others with a possibility of generating additional (situational) information.

These new and complex information flows and channels left many questions unanswered in our research: What channels and strategies are suitable for informing the public in the digital age with all these new communication possibilities? Who are the key communicators in the public's perception – the authorities, rescue organisations, journalists or members of the public themselves? What are the needs of the different stakeholders involved in crisis communication? And what is the role of journalism/the media in this new communication sphere, when new actors are able to communicate independently? In Chapter 10 of this book, we attempt to formulate answers to some of these questions and give recommendations for future crisis communication during natural disasters.

NOTES

1. For a discussion of the terms 'the public' as against 'the publics' see Chapter 10.

2. First post 08.20 on 2 June, right after the page was set up.

3. A general rise in social media content, especially on Facebook is addressed in Goldgruber, Sackl-Sharif, Gutounig, and Ausserhofer (2017).

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